

Definitions

Note: *The following definitions apply to terms used in this manual and are intended to supplement City Code Chapters 17.32 and 17.38.*

Applicant: Any person, company, or agency that applies for a permit through the City of Portland. Includes all parties represented by the applicant.

Approved Receiving System (Discharge Point): Any system or route of conveyance approved by BES to receive stormwater runoff or other discharges. Receiving systems include, but are not limited to, groundwater; onsite, offsite, or public stormwater, sanitary, or combined sewers; and waters of the state.

BDS: Bureau of Development Services, City of Portland.

BES: Bureau of Environmental Services, City of Portland.

Best Management Practices (BMPs): Operational, maintenance and other practices that prevent or reduce environmental, health or safety impacts. BMPs include structural controls, modification of facility processes, and operating and housekeeping pollution control practices.

Capacity: The flow volume or rate that a specific facility (e.g., basin, pipe, pond, vault, swale, ditch, or drywell.) is designed to safely contain, receive, convey, reduce pollutants from, or infiltrate to meet a specific performance standard.

Catch Basin: A structural facility located just below the ground surface, designed to collect and convey stormwater runoff to an onsite stormwater system or offsite discharge point. A catch basin has a grated lid, a sumped bottom, and outlet pipe (with a downturned 90 degree elbow or snout) to trap coarse sediment and oil. See [Section 2.3.5](#) for typical design.

Channel: The portion of a drainageway that demonstrates evidence of the conveyance of water. It is the depression between the banks worn by the regular and usual flow of water. The channel need not contain water year-round.

Check Dam: A low structure or weir placed across an open channel to control water depth or velocity, or to control channel erosion.

Combined Sewers: A sewer designed to convey both sanitary sewage and stormwater.

Connection: The connection of drainage disposal lines from all development on a property to the public sewer and drainage system.

Culvert: A hydraulically short conduit, open on both ends, generally used to convey stormwater runoff through a roadway or an embankment and typically constructed without manholes, inlets or catch basins.

Combined Sewer Overflow (CSO): A discharge of a mixture of sanitary sewage and stormwater at a point in the combination sewer system designed to relieve surcharging flows.

Department of Environmental Quality (DEQ): Oregon Department of Environmental Quality.

Design Storm: Design storms are a combination of the design storm return period (which refers to the frequency) and the storm duration (which defines the rainfall depth or intensity). A prescribed hyetograph and total precipitation amount (for a specific duration recurrence frequency) are used to estimate runoff for a hypothetical storm 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 Water Surface Elevation (Overflow Elevation): The elevation at the upper limit of the maximum depth and the lower limit of the freeboard, which corresponds to the overflow elevation. It can be considered the initial outlet elevation or overtopping elevation of the facility where an outlet is not included. Each cell of the facility may have a different design water surface elevation. The design water surface elevation can be relative to the final discharge point, a known actual elevation onsite, or can be set to zero.

Detention Facility: A facility designed to receive and hold stormwater and release it at a slower rate, usually over a number of hours. The facility may provide minimal or no volume reduction.

Detention Tank, Vault, or Oversized Pipe: A structural subsurface facility used to provide flow control for a particular drainage basin.

Development: Any human-induced change to improved or unimproved real estate, whether public or private, including but not limited to construction, installation, or expansion of a building or other structure; land division; street construction; drilling; and site alteration such as dredging, grading, paving, parking or storage facilities,

excavation, filling, or clearing. Development encompasses both new development and redevelopment.

Development Footprint: The new or redeveloped area covered by buildings or other roof structures and other impervious surface areas that 1) does not allow stormwater to percolate into the ground, such as roads, parking lots, and sidewalks, or 2) is covered by pervious paving materials and systems.

Discharge Point (Disposal): The connection point or destination for a discharge leaving a site.

Discharge Rate: The rate of flow expressed in cubic feet per second (cfs).

Disturbance. An action that causes an alteration to soil or vegetation. The action may create temporary or permanent disturbance. Examples include development, exterior alterations, exterior improvements, demolition and removal of structures and paved areas, cutting, clearing, damaging, or removing native vegetation.

Disturbance Area. The area where all temporary and permanent disturbance occurs. For new development the disturbance area must be contiguous. Native vegetation planted for resource enhancement, mitigation, remediation, and agricultural and pasture lands is not included. The disturbance area may contain two subareas, the permanent disturbance area and the temporary disturbance area:

- **Permanent Disturbance Area.** The permanent disturbance area includes all areas occupied by existing or proposed structures or exterior improvements. The permanent disturbance area also includes areas where vegetation must be managed to accommodate overhead utilities, existing or proposed non-native planting areas, and roadside areas subject to regular vegetation management to maintain safe visual or vehicle clearance.
- **Temporary Disturbance Area.** The temporary disturbance area is the portion of the site to be disturbed for the proposed development but that will not be permanently occupied by structures or exterior improvements. It includes staging and storage areas used during construction and all areas graded to facilitate proposed development on the site, but that will not be covered by permanent development. It also includes areas disturbed during construction to place underground utilities, where the land above the utility will not otherwise be occupied by structures or exterior improvements.

Drainage Basin: A defined area that contributes to sanitary, stormwater or combined sewage flows to an approved connection point.

Drainage: Waters generated at or conveyed through a particular site. Drainage is predominantly surface runoff generated from rainfall. Groundwater naturally occurring at the surface (such as seeps or springs) or pumped to the surface shall be considered drainage.

Drainage Reserve: The regulated area adjacent to and including a drainageway that is preserved in a natural state to protect the hydrology and water quality of the drainageway.

Drainageway: A constructed or natural channel or depression which at any time collects and conveys water. A drainageway and its reserve area function together to manage flow rate, volume and water quality.

Driveway: The area that provides vehicular access to a site. A driveway begins at the property line and extends into the site. In parking areas, the driveway does not include vehicular parking, maneuvering, or circulation areas.

Drywell: A subsurface structure (e.g. cylinder or vault) with perforated sides and/or bottom, used to infiltrate stormwater into the ground. A drywell is a UIC by DEQ definition.

Ecoroof: A lightweight low-maintenance vegetated roof system consisting of waterproofing material, growing medium, and vegetation; used in place of or over the top of a conventional roof. Ecoroofs provide stormwater management by capturing, filtering, and evaporating rainfall.

Flow: The rate or volume of water moving within a natural or man-made system. Flow is often measured as a ratio, such as cubic feet per second (cfs).

Flow Control: The practice of limiting the release of peak flow rates and volumes from a site. Flow control is intended to protect downstream properties, infrastructure, and natural resources from the increased stormwater runoff peak flow rates and volumes resulting from development.

Flow Control Structure: A device used to delay or divert a calculated amount of stormwater to or from a stormwater management facility.

Freeboard: The vertical distance between the design water surface elevation (overflow elevation) and the elevation at which overtopping of the structure or facility that contains the water would occur.

Geotextile: A woven or non-woven water-permeable material, generally made of synthetic products such as polypropylene, used in stormwater management and erosion and sediment control applications to trap sediment or to prevent fine soil particles from clogging the aggregates.

Green Street: A vegetated stormwater management facility located within the planting strip or other portion of public rights-of-way.

Groundwater: Subsurface water that occurs in soils and geological formations that are fully saturated. Groundwater fluctuates seasonally and includes perched groundwater.

Growing Medium: Growing medium supports plants and microorganisms that improve the function of vegetated stormwater facilities. Growing medium may include stormwater facility blended soil, blended topsoil, or native soils. See the individual facility design criteria and details for requirements in private and public stormwater facilities.

Impervious Surface: Any surface that has a runoff coefficient greater than 0.8 (as defined in the City's [Sewer and Drainage Facilities Design Manual](#)). Types of impervious surface include rooftops, traditional asphalt and concrete parking lots, driveways, roads, sidewalks, and pedestrian plazas. Slatted decks and gravel surfaces are considered pervious unless they cover impervious surfaces or gravels are compacted to a degree that causes their runoff coefficient to exceed 0.8.

Infiltration: The percolation of water into the ground. Infiltration is often expressed as a rate (inches per hour), which is determined through an infiltration test.

Inlet: An inlet means: 1) A structure located just below the ground surface designed to collect stormwater runoff from paved surfaces such as streets and parking lots that have no sumped sediment storage or inverted pipes to capture pollutants. See [Section 2.3.5](#) for typical details. AND 2) The entry point, such as downspouts, piping, or curb cuts, into an onsite stormwater management system or discharge point.

Manufactured Stormwater Treatment Technology: A proprietary stormwater management facility structural facility or device. See [Chapter 2](#) for design approach information or [Section 2.4.8](#) for submittal requirements for manufacturers seeking to be on the approved list.

Maximum Depth (Storage Depth): The greatest vertical distance between the design water surface elevation (overflow elevation) and the top of the growing

medium of a surface facility or the base of a subsurface facility, which creates a reservoir capable of providing safe storage capacity of stormwater.

Municipal Separate Storm Sewer System (MS4): A conveyance or systems of conveyances such as municipal streets, catch basins, curbs, gutter, ditches, manmade channels or storm drains owned by the City of Portland designed or used for collection or conveyance of stormwater

Open Channel: A fluid passageway that allows part of the fluid to be exposed to the atmosphere.

Operations and Maintenance (O&M): The continuing activities required to keep stormwater management facilities and their components functioning in accordance with design objectives.

Outfall: A location where collected water is discharged. Outfalls can include discharge from stormwater management facilities, drainage pipe systems, and constructed open channels.

Overflow: Excess volume of stormwater or wastewater that exceeds the storage or conveyance capacity of a facility or system component and causes a release of flow to another facility, system component or the environment.

Partial Infiltration: When the total infiltration design storm (or another specified design storm as required) is unable to be completely percolated into the ground.

Parking Area: The area of a site devoted to the temporary or permanent storage, maneuvering, or circulation of motor vehicles. Parking areas do not include driveways or areas devoted exclusively to non-passenger loading.

PBOT: Portland Bureau of Transportation

Permit: An official document issued by the Director authorizing performance of a specified activity.

Pervious: Any surface determined to have a runoff coefficient less than 0.8; a surface modified in a way to encourage infiltration of water (as defined in the City's [Sewer and Drainage Facilities Design Manual](#)).

Pervious Pavement (aka Porous Pavement or Permeable Pavement): Alternative pavement systems that allow water to percolate into subsurface drainage systems or the ground. Examples include permeable pavers, pervious asphalt, and pervious concrete systems.

Planter: A structural facility filled with topsoil and gravel and planted with vegetation. The stormwater planter receives runoff from impervious surfaces, which is filtered and retained for a period of time. Planters may be further classified by their ability to infiltrate. An infiltration planter has an open bottom, allowing water to infiltrate into the ground. A flow-through planter has an overflow that must be directed to an acceptable discharge point. Flow-through planters may have an impervious or sealed bottom, either through a waterproof liner or a poured concrete base. Site conditions will determine appropriate facility selection.

Pollutant: An elemental or physical material that can be mobilized or dissolved by water or air and could create a negative impact to human health or the environment.

Pollution Reduction (Water Quality): The Pollution Reduction storm event is representative of 90% of the average annual rainfall and is used to size facilities for the pollution reduction stormwater management requirement. Also known as the water quality storm.

Pollutants of Concern: Constituents identified by DEQ or BES as having the potential to have a negative impact on the receiving system, including surface waters, groundwater, the wastewater collection system, or the wastewater treatment plant. Pollutants of concern can include suspended solids, metals, nutrients, bacteria and viruses, organics, volatiles, semi-volatiles, floatable debris, and increased temperatures.

Practicable: Available and capable of being done, as determined by the BES Director, after taking into consideration cost, resources, existing technology, and logistics in light of overall project purpose.

Presumptive Approach Calculator (PAC): Calculation tool used to size vegetated stormwater facilities.

Public Facility: A street, right-of-way, sewer, drainage, stormwater management, or other facility that is either currently owned by the City or will be conveyed to the City for maintenance responsibility after construction. A new stormwater management facility that receives direct stormwater runoff from a public right-of-way becomes a public (City-maintained) facility unless the right-of-way is not part of the City's road maintenance system.

Public Improvement: An improvement of, on, over, or under property owned or controlled by the City, or property to be controlled by the City upon plat and easement recording for approved land divisions, by construction, reconstruction,

remodeling, repair or replacement, when no property is intended to be assessed any portion of the improvement cost.

Public Works Project: Any project performed or conducted by local, state, or federal governments that result in the construction of a Local Improvement or a Public Improvement.

Rainwater Harvesting: The collection and use of rainwater or stormwater runoff for water use purposes such as irrigation and toilet flushing. A facility that harvests rainwater is considered a stormwater facility only if the facility has water quality or flow control benefit, as determined by BES.

Rational Method: The method used to estimate the peak rate of runoff from a drainage basin, using the formula: $Q=CiA$. Q is the peak discharge, cubic feet per second; C is the runoff coefficient; i is the rainfall intensity, inches per hour; and A is the drainage area, acres (as defined in the City's [Sewer and Drainage Facilities Design Manual](#)).

Redevelopment: Any development that requires demolition or complete removal of existing structures or impervious surfaces at a site and replacement with new impervious surfaces.

Repair: Work performed to patch, replace components, replace or rehabilitate entire facilities that serve the City's sewer and drainage system.

Reservoir: The temporarily stored volume of runoff prior to overflow. For vegetated surface facilities it is defined as the volume between the top of the growing medium, the design water surface elevation (overflow elevation), and the edges of the facility (whether sloped or vertical). In a sedimentation chamber, it is defined as the volume of runoff stored prior to discharge to the receiving system.

Retention Facility: A facility designed to receive and hold stormwater runoff so that some volume of stormwater that enters the facility is not released offsite. Retention facilities permanently retain a portion of the water onsite, where it infiltrates, evaporates, or is absorbed by surrounding vegetation.

Retrofit: Installation of a new facility or system components to manage stormwater or wastewater flows.

Roadway: Any paved surface used to carry vehicular traffic (cars/trucks, forklifts, farm machinery, or any other large machinery).

Runoff Coefficient: A unitless number between zero and one that relates the average rate of rainfall over a homogenous area to the maximum rate of runoff, as defined in the City's [Sewer and Drainage Facilities Design Manual](#).

Safety Factor: A sizing multiplier that evaluates the risks and values of specific conditions, including the failure mode of the construction material, unexpected construction deficiencies, and potential cost of system failure. The safety factor is applied to the maximum performance limit to calculate a risk-based design value used for sizing facilities. A safety factor must be used to provide reasonable assurance of acceptable long-term system performance.

Sand Filter: A structural pollution reduction or flow control facility using a layer of sand and optional vegetation to manage stormwater runoff.

Santa Barbara Urban Hydrograph (SBUH): A hydrologic method used to calculate runoff hydrographs.

Seasonally High Groundwater Level: The highest level that the permanent groundwater table or perched groundwater may reach on a seasonal basis.

Site: Any lot or parcel of land or contiguous combination where development occurs. For utility lines, trenches or other similar work, the site includes only the disturbance area directly related to the linear work activity.

Soakage Trench: A subsurface infiltration stormwater management facility that includes a perforated pipe laid in drain rock. A soakage trench is a UIC by DEQ definition.

Stormwater: Water that originates as precipitation on a particular site, basin, or watershed. Also referred to as runoff.

Stormwater Facility Landscaping (Landscaping): The vegetation (plantings), topsoil, rocks, and other surface elements associated with stormwater management facility design.

Stormwater Management: Techniques used to reduce pollutants from, detain, retain, or provide a discharge point for stormwater runoff that best preserves or mimics the natural hydrologic cycle. Stormwater management reduces combined sewer overflows and basement sewer backups, and helps meet the capacity of existing infrastructure.

Stormwater Management Facility: A facility or other technique used to reduce the volume, flow rate or pollutant content of stormwater runoff. Stormwater facilities

may reuse, collect, convey, detain, retain, or provide a discharge point for stormwater runoff.

Stormwater Retrofit: Installation of a new stormwater facility to treat stormwater from existing impervious area, including, but not limited to, roofs, patios, walkways, and driving or parking surfaces.

Sump: 1) A large public drywell used to infiltrate stormwater from public streets. Sumps are generally 48 inches in diameter and 30 feet deep. 2) Any volume of a facility below the point of outlet in which water or solids can accumulate.

Surcharge: 1) A flow condition when the downstream hydraulic capacity is less than the upstream inflow causing water to back up and rise above the inside crown of a pipe or facility. 2) The greatest measured distance from the water surface to the pipe crown.

Surface Infiltration Facility: A vegetated facility designed to receive and infiltrate stormwater runoff at the ground surface to meet stormwater infiltration/discharge requirements.

Tenant Improvements: Structural upgrades made to the interior or exterior of buildings.

Temporary Structure: A structure that is a separate and distinct entity from all other structures for a continuous period of three years or less. A temporary structure must be created and removed in its entirety, including impervious area associated with the structure, within three years. Paved areas such as parking lots that are developed alongside structures are not considered temporary for the purpose of this manual.

Time of Concentration (T of C or TOC): The amount of time it takes stormwater runoff to travel from the most distant point (measured by travel time) on a particular site or drainage basin to a particular point of interest.

Total Suspended Solids (TSS): Total suspended matter that either floats on the surface or is suspended in water or wastewater and that is removable by laboratory filtering in accordance with 40 CFR Table B.

Underground Injection Control (UIC): Defined by DEQ as any system, structure, or activity that is intended to discharge fluids below the ground surface such as sumps, drywells, and soakage trenches.

Vegetated Facilities: Stormwater management facilities that rely on plantings as an integral component of their functionality.

Vegetated Filter: A gently sloping, densely vegetated area used to filter, slow, and infiltrate sheetflow stormwater.

Vegetated Infiltration Basin (Rain Garden): A vegetated facility that temporarily holds and infiltrates stormwater into the ground.

Vegetated Swale (Bioswale): A long, narrow, vegetated channel used to collect, convey and reduce pollutants from stormwater runoff. Check dams are used to slow runoff, settle sediment, and improve infiltration and pollution reduction.

Water Body: Coastal waters, rivers, sloughs, continuous and intermittent streams and seeps, ponds, lakes, aquifers, and wetlands.

Water Quality Limited: Waters identified by DEQ that do not meet water quality standards. Total Maximum Daily Load (TMDL) must be developed for these waters to satisfy Clean Water Act (CWA) requirements. The most recent EPA-approved Section 303(d) list for Oregon can be found at www.deq.state.or.us/wq/assessment/assessment.htm.

Water Table: The upper surface of an unconfined water body, the surface of which is at atmospheric pressure and fluctuates seasonally. The water table is defined by the levels at which water stands in wells that penetrate the water body (City Water Pollution Control Facility Permit).

Wellhead Protection Area: A drinking water source area where additional groundwater protections are in place to secure the City's drinking water supplies and protect public health. The City regulates the storage, use, and transportation of chemicals in these sensitive areas, and more stringent stormwater management standards may apply. Additional information is available at <http://www.portlandoregon.gov/water/29890>.

Wet Pond: A vegetated basin with a permanent pool of water, used to provide pollution reduction for a particular drainage basin. The permanent pool of water provides a storage volume for pollutants to settle out and extended wet detention ponds have additional storage capacity for flow control.

Wetland: An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil

conditions. Wetlands include swamps, marshes, bogs, and similar areas, except those constructed as pollution reduction or flow control facilities.