

GLOSSARY

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ADEQUATE CHANNEL - A channel that will convey the designated frequency storm event without overtopping the channel banks or causing erosive damage to the channel bed or banks.

ADSORPTION - Adhesion of the molecules of a gas, liquid or dissolved substance to a surface. Adsorption differs from absorption in that absorption is the assimilation or incorporation of a gas, liquid or dissolved substance into another substance.

ADJUSTABLE GATE VALVE - A knife gate valve, activated by a handwheel, used to control the internal diameter of reverse slope pipes or allow rapid opening of the pond or filter system drain pipe.

AGGREGATE - Term for the stone or rock gravel needed to fill in an infiltration BMP such as a trench or porous pavement. Clean-washed aggregate is simply aggregate that has been washed clean so that it contains no sediment.

AQUATIC BENCH - A ten to fifteen foot bench around the inside perimeter of a permanent pool that is approximately 1 foot deep. Normally vegetated with emergent plants, the bench augments pollutant removal, provides habitat, conceals trash and water level drops, enhances safety.

ARTIFICIAL MARSH CREATION - Simulation of natural wetland features and functions via topographic and hydraulic modifications on non-wetland landscapes. Typical objectives for artificial marsh creation include ecosystem replacement or stormwater management.

AUSTIN SAND FILTRATION SYSTEM - An ultra-urban best management practice consisting of a sedimentation chamber or pond followed by a surface sand filter with collector underdrains in a gravel bed. Filtered effluent is conveyed to a storm sewer or channel by gravity flow or by pumping.

BMP FINGERPRINTING - Term refers to a series of techniques for locating BMPs (particularly ponds) within a development site so as to minimize their impacts to wetlands, forest and sensitive stream reaches.

BACTERIAL DECOMPOSITION OR MICROBIAL DECOMPOSITION - Microorganisms, or bacteria, have the ability to degrade organic compounds as food resources and to absorb nutrients and metals into their tissues to support growth.

BANK RUN - Gravelly deposits consisting of smooth round stones, generally indicative of the existence of a prehistoric sea. Such deposits are normally found in coastal plain regions.

BANK STABILIZATION - Methods of securing the structural integrity of earthen stream channel banks with structural supports to prevent bank slumping and undercutting of riparian trees, and overall erosion prevention. To maintain the ecological integrity of the system, recommended techniques include the use of willow stakes, imbricated riprap or brush bundles.

BANKFULL DISCHARGE - A flow condition where streamflow completely fills the stream channel up to the top of the bank. In undisturbed watersheds, the discharge condition occurs on average every one and a half to two years and controls the shape and form of natural channels.

BASEFLOW - The portion of stream flow that is not due to storm runoff, and is supported by groundwater seepage into a channel.

BERM, EARTHEN - An earthen mound used to direct the flow of runoff around or through a BMP.

BEST MANAGEMENT PRACTICE (BMP) - Structural or nonstructural practices which are designed to minimize the impacts of development on surface water quality. Most structural BMPs are designed to detain runoff until pollutants are allowed to settle out, be captured in a sand or composite filter, or infiltrate into the underlying soil.

BIOFILTRATION - The use of a series of vegetated swales to provide filtering treatment for stormwater as it is conveyed through the channel. The swales can be grassed, or contain emergency wetlands, or high marsh plants.

BIOLOGICAL MONITORING - Periodic surveys of aquatic biota as an indicator of the general health of a waterbody. Biological monitoring surveys can span the tropic spectrum, from macro-invertebrates to fish species.

BUFFER AREA - An area of natural or established vegetation managed to protect other components of a Resource Protection Area and State Waters from significant degradation due to land disturbances.

CATCHMENT - See - CONTRIBUTING WATERSHED AREA

CHANNEL - A natural stream or manmade waterway.

CHANNEL EROSION - The widening, deepening, and headward cutting of small channels and waterways, due to erosion caused by moderate to larger floods.

CHECK DAM - (a) A log or gabion structure placed perpendicular to a stream to enhance aquatic habitat. (b) An earthen or log structure, used in grass swales to reduce water velocities, promote sediment deposition, and enhance infiltration.

CHESAPEAKE BAY PRESERVATION ACT (CBPA) -- The Virginia statute enacted in April of 1988 to protect the Bay by placing restrictions on development in sensitive areas and requiring the suppression of pollutants in stormwater runoff. Sections 10.1-2100 through 10.1-2115 of the Code of Virginia.

CHESAPEAKE BAY PRESERVATION AREAS -- Those lands designated by a local jurisdiction within its boundaries which require restrictions on development and/or require reduction of pollutants in stormwater runoff in order to comply with the CBPA. Chesapeake Bay Preservation Areas include Resource Protection Areas and Resource Management Areas. The entire City of Alexandria is designated as Chesapeake Bay Preservation Areas.

CHESAPEAKE BAY PRESERVATION ORDINANCE (CBPO) -- The Alexandria, Virginia, ordinance which implements the CBPA within the City (Article XIII of the Alexandria Zoning Ordinance).

CONTRIBUTING WATERSHED AREA - That portion of the watershed contributing its runoff to the BMP in question.

CONVENTIONAL BEST MANAGEMENT PRACTICES (BMPs) - Structural BMPs which have traditionally been used for stormwater quality enhancement; wet ponds, extended detention ponds, and infiltration trenches.

DELAWARE SAND FILTER SYSTEM - An ultra-urban best management practice consisting of parallel sedimentation and sand filter trenches connected by a series of level weir notches to assure sheet flow onto the filter. Filtered effluent is conveyed to a storm sewer by gravity flow or by pumping.

DELTA-t - The magnitude of change in the temperature of downstream waters.

DESIGN STORM - A rainfall event of specified size and return frequency (e.g., a storm that occurs only once every 2 years) that is used to calculate the runoff volume and peak discharge rate to a BMP.

DEVELOPMENT - The construction or substantial alteration of residential, commercial, industrial, institutional, recreational, transportation or utility facilities or structures.

DE-WATERING - Refers to a process used in detention/retention facilities, whereby water is completely discharged or drawn down to a pre-established pool elevation by way of a perforated pipe.

De-watering allows the facility to recover its design storage capacity in a relatively short time after a storm event.

DIRECTOR - In this Handbook Supplement, the Director of Transportation and Environmental Services of the City of Alexandria.

DISTRICT OF COLUMBIA SAND FILTER SYSTEM - An ultra-urban best management practice consisting of an oil-grit separation chamber followed by a sand filter and collector underdrains in a gravel bed, all contained within an underground structural vault. Filtered effluent is conveyed to a storm sewer by gravity flow or by pumping.

DOWNSTREAM SCOUR - Downstream channel erosion usually associated with an upstream structure that has altered hydraulic conditions in the channel.

DRAWDOWN - The gradual reduction in water level in pond BMP due to the combined effect of infiltration and evaporation.

DRY POND CONVERSION - A modification made to an existing dry stormwater management pond to increase pollutant removal efficiencies. For example, the modification may involve a decrease in orifice size to create extended detention times, or the alteration of the riser to create a permanent pool and/or shallow marsh system.

EXTENDED DETENTION (ED) POND - A conventional best management practice that temporarily detains a portion of stormwater runoff for up to forty-eight hours after a storm using a fixed orifice. Such extended detention allows urban pollutants to settle out. The ED ponds are normally "dry" between storm events and do not have any permanent standing water.

An enhanced ED pond is designed to prevent clogging and resuspension. It provides greater flexibility in achieving target detention times. It may be equipped with plunge pools near the inlet, a micropool at the outlet, and utilize an adjustable reverse-sloped pipe at the ED control device.

ED CONTROL DEVICE - A pipe or series of pipes that extend from the riser of a stormwater pond that are used to gradually release stormwater from the pond over a 12 to 48 hour interval.

EMBANKMENT - A bank (of earth or riprap) used to keep back water.

EMERGENT PLANT - An aquatic plant that is rooted in the sediment but whose leaves are at or above the water surface. Such wetland plants provide habitat for wildlife and waterfowl in addition to removing urban pollutants.

END OF PIPE CONTROL - Water quality control technologies suited for the control of existing urban stormwater at the point of storm sewer discharge to a stream. Due to typical space constraints, these technologies are usually designed to provide a water quality control rather than quantity control.

EXFILTRATION - The downward movement of runoff through the bottom of an infiltration BMP into the subsoil.

EXTENDED DETENTION - A stormwater design feature that provides for the gradual release of a volume of water (0.25 - 1.0 inches per impervious acre) over a 12 to 48 hour interval to increase settling of urban pollutants, and protect the receiving channel from frequent flooding.

FILTER FABRIC - Textile of relatively small mesh or pore size that is used to (a) allow water to pass through while keeping sediment out (permeable), or (b) prevent both runoff and sediment from passing through (impermeable).

FLOODING - A volume of water that is too great to be confined within the banks or walls of the stream, water body or conveyance system and that overflows onto adjacent lands, causing or threatening damage.

FLOW SPLITTER - An engineered, hydraulic structure designed to divert a portion of stream flow to a BMP located out of the channel, or to direct stormwater to a parallel pipe system, or to bypass a portion of baseflow around a pond.

FOREBAY - An extra storage area provided near an inlet of a BMP to trap incoming sediments before they accumulate in a pond BMP.

FREQUENT FLOODING - A phenomenon in urban streams whereby the number of bankfull and sub-bankfull flood events increases sharply after development. The frequency of these disruptive floods is a direct function of watershed imperviousness.

FRINGE WETLAND CREATION - Planting of emergent aquatic vegetation along the perimeter of open water to enhance pollutant uptake, increase forage and cover for wildlife and aquatic species, and improve the appearance of a pond.

GABION - A large rectangular basket of heavy gauge wire mesh which holds large cobbles and boulders. Used in streams and ponds to change flow patterns, stabilize banks, or prevent erosion.

GEOMEMBRANE - A completely impermeable lining beneath a sediment pond or sand filter system which is built directly into the ground.

GEOTEXTILE FABRIC - See FILTER FABRIC.

GRASSED SWALE - A conventional grass swale is an earthen conveyance system in which the filtering action of grass and soil infiltration are utilized to remove pollutants from urban stormwater. An enhanced grass swale, or biofilter, utilizes checkdams and wide depressions to increase runoff storage and promote greater settling of pollutants.

GRAVITATIONAL SETTLING - The tendency of particulate matter to "drop out" of stormwater runoff as it flows downstream when runoff velocities are moderate and/or slopes are not too steep.
HEAD - The pressure exerted by a liquid, usually expressed in terms of the height of a fluid column.

HIGH MARSH - Diverse wetland type found in areas that are infrequently inundated or have wet soils. In pond systems, the high marsh zone extends from the permanent pool to the maximum ED water surface elevation.

IMPERVIOUS COVER - A surface composed of any material that significantly impedes or prevents natural infiltration of water into the soil. Impervious surfaces include, but are not limited to: roofs, buildings, streets, parking areas, and any concrete, asphalt, or compacted stone surface.

INFILTRATION BASIN - An impoundment where incoming stormwater runoff is stored until it gradually exfiltrates through the soil of the basin floor.

INFILTRATION TRENCH - A conventional best management practice consisting of a shallow, excavated trench that has been back-filled with stone to create an underground reservoir. Stormwater runoff diverted into the trench gradually exfiltrates from the bottom of the trench into the subsoil and eventually into the water table.

An enhanced infiltration trench has an extensive pretreatment system to remove sediment and oil. It requires an on-site geotechnical investigation to determine appropriate design and location.

INFILTRATION WELL - An ultra-urban best management practice consisting of a cistern for capturing and storing the water quality volume connected to the underlying water table by a well casing containing a filter of sand, gravel and activated charcoal. Systems currently in use have patents pending. Infiltration wells are Class V Underground Injection Wells under 40 CFR 144.12, and their existence must be reported to the U.S. Environmental Protection Agency (Region III in Philadelphia for Alexandria).

LAND DISTURBANCE - Any land change which may result in soil erosion from water or wind and the movement of sediments into State Waters or onto lands in the Commonwealth, including, but not limited to: clearing, grading, excavation, transporting and filling of land.

LEVEL SPREADER - A device used to spread out stormwater runoff uniformly over the ground surface as sheet flow (i.e., not through channels). The purpose of level spreaders are to prevent concentrated, erosive flows from occurring, and to enhance infiltration.

LOW MARSH - Wetland type with emergent plant species that require some depth of standing water throughout the year. The low marsh zone in pond systems is created in areas where the permanent pool is zero to twelve inches deep.

LOWFLOW 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.

MICROPOOL - A smaller permanent pool used in a stormwater pond due to extenuating circumstances, i.e. concern over the thermal impacts of larger ponds, impacts on existing wetlands, or lack of topographic relief.

MICROTOPOGRAPHY - Refers to the contours along the bottom of a shallow marsh system. A complex microtopography creates a great variety of environmental conditions that favor the unique requirements of many different species of wetland plants.

MULTIPLE POND SYSTEM - A collective term for a cluster of pond designs that incorporate redundant runoff treatment techniques within a single pond or series of ponds. These pond designs employ a combination of two or more of the following; extended detention, permanent pool shallow wetlands, or infiltration. Examples of a multiple pond system include the wet ED pond, ED wetlands, in filter ponds and pond-marsh systems.

NATURAL BUFFER - A low sloping area of maintained grassy or woody vegetation located between a pollutant source and a waterbody. A natural buffer is formed when a designated portion of a developed piece of land is left unaltered from its natural state during development. A natural vegetative buffer differs from a vegetated filter strip that it is "natural" and in that they need not be used solely for water quality purposes.

To be effective, such areas must be protected against concentrated flow.

NONPOINT SOURCE POLLUTION -- Pollution or contamination from diffuse sources which cannot be pinpointed that is not regulated as a point source under Section 402 of the Federal Clean Water Act.

NONTIDAL WETLANDS - Those wetlands, other than tidal wetlands, that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, as defined by the U.S. Environmental Protection Agency pursuant to Section 404 of the Federal Clean Water Act, in 33 CFR 328.3b, dated November 13, 1986.

OBSERVATION WELL - A test well installed in an infiltration trench to monitor draining times after installation.

OFF-LINE BMP - A water quality facility designed to treat a portion of stormwater usually 0.5 to 1.0 inches per impervious acre) which has been diverted from a stream or storm drain.

OFF-LINE TREATMENT - A BMP system that is located outside of the stream channel or drainage path. A flow splitter is used to divert runoff from the channel and into the BMP for subsequent treatment.

OIL/GRIT SEPARATOR - A best management practice consisting of a three-stage underground retention system designed to remove heavy particulate and absorbed hydrocarbons. Also known as a **WATER QUALITY INLET**.

ONSITE STORMWATER MANAGEMENT FACILITIES - Facilities which are designated to control stormwater runoff from a specific site.

OUTFALL - The point of discharge for a river, drain, pipe, etc.
PARALLEL PIPE SYSTEM - A technique for protecting sensitive streams. Excess stormwater runoff is piped in a parallel direction along the stream buffer instead of being discharged directly into the stream.

PEAT SAND FILTER - An ultra-urban best management practice, utilizing the natural adsorptive features of fabric or hemic peat, which consists of a sedimentation chamber or pond followed by a surface vertical filter system with a grass cover crop, and alternating layers of peat and sand underlain by collector pipes in a gravel bed. The peat sand filter is presently used for municipal waste treatment systems and is being adapted for use in stormwater management.

PERMANENT POOL - A three to ten foot meter deep pool in a stormwater pond system, that provides removal of urban pollutants through settling and biological uptake.

PILOT CHANNEL - A riprap or paved channel that routes runoff through a BMP to prevent erosion of the surface.

PLUNGE POOL - A small permanent pool located at either the inlet to a BMP or at the outfall of a BMP. The primary purpose of the pool is to dissipate the velocity of stormwater runoff, but it also can provide some pre-treatment, as well.

PONDSCAPING - A method of designing the plant structure of a stormwater wetland or pond using inundation zones. The proposed wetland or pond system is divided into zones which differ in the level and frequency of inflow. For each zone, plant species are chosen based on their potential to thrive, given the inflow pattern of the zone.

POROUS PAVEMENT - An alternative to conventional pavement whereby runoff is diverted through a porous asphalt layer and into an underground stone reservoir. The stored runoff then gradually infiltrates into the subsoil. Not recommended for use in Alexandria.

POST-DEVELOPMENT - Conditions that reasonably may be expected or anticipated to exist after completion of the development activity on a specific site or tract of land.

PRE-DEVELOPMENT - The land use that exists at the time that plans for development (or redevelopment) are submitted to the City of Alexandria. Where phased development (preliminary grading, roads and utilities, etc.) or plan approval occurs, the existing use at the time the first item is submitted establishes pre-development conditions.

REDEVELOPMENT - The process of developing land that is or has been previously developed.

REGIONAL BEST MANAGEMENT PRACTICE (BMP) - a best management practice which treats the stormwater runoff from a large watershed, typically 100 acres or greater.

REGIONAL STORMWATER MANAGEMENT FACILITY - A facility or series of facilities designed to control stormwater runoff quantity and/or quality from a large contributing area, although only portions of the watershed may experience development

RESOURCE MANAGEMENT AREAS (RMAs) - Land that, if improperly used or developed, has a potential for causing significant water quality degradation or for diminishing the functional value of a Resource Protection Area. All lands in Alexandria not included in the Resource Protection Areas are included in the RMA.

RESOURCE PROTECTION AREAS (RPAs) - Sensitive land adjacent to or near the shoreline that has either an intrinsic water quality value due to the ecological and biological processes such land performs or that is sensitive to uses or significant degradation to the quality of State Waters. In their natural condition, these lands provide for the removal, reduction, or assimilation of nonpoint source pollution entering the Chesapeake Bay and its tributaries. An area of land that includes one of the following land types shall be considered to be within a resource protection area: tidal wetlands; nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams; tidal shores; tributary streambeds not owned by the Commonwealth; and buffer areas 100 feet in width located landward of the above components and along both sides of tributary streams.

RETROFIT - The creation/modification of stormwater management systems in developed areas through the construction of wet ponds, infiltration systems, wetland plantings, stream bank stabilization, and other BMP techniques for improving water quality and creating aquatic habitat. A retrofit can consist of the construction of a new BMP in the developed area, the enhancement of an older stormwater management structure, or a combination of improvement and new construction.

REVERSE SLOPE PIPE - A pipe that extends downwards from the riser into the permanent pool that sets the water surface elevation of pool. The lower end of the pipe is located up to 1 foot below the water surface. Very useful technique for regulating ED times, and it seldom clogs.

RIPARIAN - A relatively narrow strip of land that borders a stream or river, often coincides with the maximum water surface elevation of the one-hundred year storm.

RIPARIAN REFORESTATION - The replanting of the banks and floodplain of a stream with a native forest and shrub species to stabilize erodible soils, improve both surface and ground water quality, increase stream shading, and enhance wildlife habitat.

RIPRAP - A combination of large stone, cobbles and boulders used to line channels, stabilize banks, reduce runoff velocities, or filter out sediment.

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.

ROTOTILLING - Mechanical means of tilling, or rotating, the soil.

RUNOFF OR STORMWATER RUNOFF - That portion of precipitation that is discharged across the land surfaces or through conveyances to one or more waterways.

RUNOFF CONVEYANCE - Methods for safely conveying stormwater to a BMP to minimize disruption of the stream network, and promote infiltration or filtering of the runoff.

RUNOFF FREQUENCY SPECTRUM - The frequency distribution of unit area runoff volumes generated by a long, term continuous time-series of rainfall events. Used to develop BMP and stormwater sizing rules.

RUNOFF PRETREATMENT - Techniques to capture or trap coarse sediments before they enter a BMP to preserve storage volumes or prevent clogging within the BMP. Examples include forebays and micropools for pond BMPs, and plunge pools, grass filter strips and filter fabric for infiltration BMPs.

SAFETY BENCH - A ten to fifteen foot level or almost level area located immediately landward of a permanent pool. The bench extends around the entire shoreline to provide for access of maintenance equipment and to eliminate hazards.

SAND FILTER - A relatively new technique for treating stormwater, whereby the first flush of runoff is diverted into a self-contained bed of sand. The runoff is then strained through the sand, collected in underground pipes and returned back to the stream or channel. Sand filter systems are in use as ultra-urban best management practices in Austin, Texas, the District of Columbia, the States of Florida and Delaware and the City of Alexandria.

An enhanced sand filter utilizes layers of peat, limestone, and/or topsoil, and may also have a grass cover crop. The adsorptive media of an enhanced sand filter is expected to improve removal rates.

SEDIMENT FOREBAY - Stormwater design feature that employs the use of a small settling basin to settle out incoming sediments before they are delivered to a stormwater BMP. Particularly useful in tandem with infiltration devices, wet ponds or marshes.

SHORT CIRCUITING - The passage of runoff through a BMP in less than the theoretical or design treatment time.

SLURRY - Thin mixture of water and any of several fine, insoluble materials; therefore, an OIL SLURRY is a thin mixture of water and oil.

STORMWATER MANAGEMENT FACILITY - A device that collects stormwater runoff and changes the characteristics of that runoff including, but not limited to: the quantity and quantity, the period of release or the velocity of flow.

STORMWATER TREATMENT - Detention, retention, filtering or infiltration of a given volume of stormwater to remove urban pollutants and reduce frequent flooding.

STORMWATER WETLAND - A shallow pool that creates growing conditions suitable for the growth of marsh plants. A stormwater wetland is designed to maximize pollutant removal through wetland uptake, retention and settling.

A stormwater wetland is a constructed system and typically is not located within delineated a natural wetland. In addition, a stormwater wetland differs from an artificial wetland created to comply with mitigation requirements in that the stormwater wetland does not replicate all the ecological functions of natural wetlands.

An enhanced stormwater wetland is designed for more effective pollutant removal and species diversity. It also includes design elements such as a forebay, complex microtopography, and pondscaping with multiple species of wetland trees, shrubs and plants.

STREAM BUFFER - A strip of vegetated land adjacent to a stream that is preserved from development activity to protect water quality, aquatic and terrestrial habitats.

SUBSOIL - The bed or stratum of earth lying below the surface soil.

SUBSTRATE AMENDMENTS - A technique to improve the texture, and organic content of soils in a newly excavated pond system. The addition of organic rich soils is often required to ensure the survival of aquatic and terrestrial landscaping around ponds.

SUMP PIT - A single-chamber oil/grit separator used to pretreat runoff before it enters an infiltration trench.

SWALE - A natural depression or wide shallow ditch used to temporarily store route, or filter runoff.

TIDAL SHORE - land contiguous to a tidal body of water between the mean low water level and the mean high water level.

TIDAL WETLANDS - vegetated and non-vegetated wetlands defined in Section 62.1-13.2 of the Code of Virginia.

TRASH AND DEBRIS REMOVAL - Mechanical removal of debris, snags, and trash deposits from the streambanks to improve the appearance of the stream.

TRIBUTARY STREAMS - Any perennial stream that is so depicted on the most recent U.S. Geological Survey 7-1/2 minute topographic quadrangle map (scale 1:24,000), or which the records of the

Director identify as a perennial stream. Unless specifically conveyed to other owners by act of the General Assembly, the beds of tributary streams in Virginia are owned by the Commonwealth.

UNDERDRAIN - Plastic pipes with holes drilled through the shell, installed on the bottom of an infiltration BMP, or sand filter, which are used to collect and remove excess runoff or filtered effluent.

ULTRA-URBAN BEST MANAGEMENT PRACTICES (BMPs) - BMPs which have characteristics which allow them to be located in small spaces or underground in heavily built-up areas where conventional BMPs would be impractical because of space or land value considerations.

ULTRA-URBAN ENVIRONMENT - Heavily built-up areas where little or no open space exists. These areas are usually characterized by very high land values.

USE - Any activity on the land other than development including, but not limited to: agriculture, horticulture and silvaculture.

VACUUM SWEEPING - Method of removing quantities of coarse-grained sediments from porous pavement in order to prevent clogging. Not effective in removing fine-grained pollutants.

VEGETATED FILTER STRIP - A vegetated section of land designed to accept runoff as overland sheet flow from upstream development. It may adopt any natural vegetated form, from grassy meadow to small forest. The dense vegetative cover facilitates pollutant removal.

A filter strip cannot treat high velocity flows; therefore, they have generally be recommended for use in agriculture and low density development.

A vegetated filter strip differs from a natural buffer in that the strip is not "natural"; rather, it is designed and constructed specifically for the purpose of pollutant removal. A filter strip can also be an enhanced natural buffer, however, whereby the removal capability of the natural buffer is improved through engineering and maintenance activities such as land grading or the installation of a level spreader.

A filter strip also differs from a grassed swale in that a swale is a concave vegetated conveyance system, whereas a filter strip has a fairly level surface.

WATER-DEPENDENT FACILITY - A development of land that cannot exist outside the Resource Protection Area and must be located on the shoreline by reason of the intrinsic nature of its operation. These facilities include, but are not limited to: ports; the

intake and outfall structures of power plants, sewage treatment plants, and storm sewers; marinas and other boat docking facilities; beaches and other public water-oriented recreation areas; and fisheries and other marine resources facilities.

WATER QUALITY INLET - Best management practice consisting of a three-stage underground retention system designed to remove heavy particulate and absorbed hydrocarbons. Also, known as an **OIL/GRIT SEPARATOR**.

WATER QUALITY VOLUME (WQV) - The volume equal to the first 0.5 inch of stormwater runoff from the total impervious areas of a development site.

WATER QUALITY VOLUME (WQV) DEFAULT CONDITION - The situation that occurs when the Virginia Stormwater Management Regulations requirement that at least the first 0.5 inch of runoff from all the impervious areas of a site be treated in a BMP creates the need for a larger BMP than would be required to meet the pollutant removal requirements of the Chesapeake Bay Preservation Act Regulations (the larger requirement always governs).

WATER QUALITY VOLUME (WQV) STORAGE TANK - An ultra-urban best management practice consisting of a Water Quality Inlet followed by an underground tank with a capacity to store the WQV and a remotely-controlled pump. WQV Storage Tanks are primarily for use in combined sewer areas. After the danger of a combined sewer overflow (CSO) has passed, the stored water is conveyed by pumping to the combined sewer for treatment in the wastewater treatment plant. Where the approval of the wastewater treatment agency can be obtained, this BMP may also be discharged into a separate sanitary sewer for wastewater plant treatment.

WATERSHED - the total drainage area contributing runoff to a single point.

WEIR - A structure that extends across the width of a channel and is intended to impound, delay or in some way alter the flow of water through the channel. A **CHECK DAM** is a type of weir as is any kind of dam.

A **PORTED WEIR** is a wall or dam that contains openings through which water may pass. Ported weirs slow the velocity of flow and therefore, can assist in the removal of pollutants in runoff by providing opportunities for pollutants to settle, infiltrate or be absorbed.

WETLANDS - Tidal wetlands and non-tidal wetlands.

WET POND (OR STORMWATER RETENTION BASIN) - A conventional best management practice consisting of a permanent pool of water for treating incoming stormwater runoff.

In enhanced wet pond designs, a forebay is installed to trap incoming sediments where they can be easily removed; a fringe wetland is also established around the perimeter of the pond.

WETLAND MITIGATION - Regulatory requirement to replace wetland areas destroyed or impacted by proposed land disturbances with artificially created wetland areas.

WETLAND MULCH - A technique for establishing low or high marsh areas where the top twelve inches of wetland soil from a donor wetland are spread thinly over the surface of a created wetland site as a mulch. The seedbank and organic matter of the mulch helps to rapidly establish a diverse wetland system.

WETLAND PLANT UPTAKE - Wetland plant species rely on nutrients (i.e., phosphorus and nitrogen) as a food source; thus, they may intercept and remove nutrients from either surface or subsurface flow.