

**STORMWATER MANAGEMENT MODEL ORDINANCE**

Implementing the Requirements of the

**Washington County Stormwater Management Plan**

ORDINANCE NO. 59

Buffalo Township, WASHINGTON COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on  
April 6, 2011

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# **ARTICLE I - GENERAL PROVISIONS**

## **Section 101. Short Title**

This Ordinance shall be known and may be cited as the Buffalo Township Stormwater Management Ordinance."

## **Section 102. Statement of Findings**

The governing body of Buffalo Township finds that:

- A. Inadequate management of accelerated stormwater runoff resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of existing streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces groundwater recharge, threatens public health and safety, and increases non-point source pollution of water resources.
- B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, welfare, and the protection of the people of Buffalo Township and all the people of the Commonwealth, their resources, and the environment.
- C. Inadequate planning and management of stormwater runoff resulting from land development and redevelopment throughout a watershed can also harm surface water resources by changing the natural hydrologic patterns; accelerating stream flows (which increase scour and erosion of streambeds and stream banks thereby elevating sedimentation); destroying aquatic habitat; and elevating aquatic pollutant concentrations and loadings such as sediments, nutrients, heavy metals, and pathogens. Groundwater resources are also impacted through loss of recharge.
- D. Stormwater is an important water resource which provides groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.
- E. Public education on the control of pollution from stormwater is an essential component in successfully addressing stormwater issues.
- F. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES).
- G. Non-stormwater discharges to municipal separate storm sewer systems can contribute to pollution of Waters of the Commonwealth.

## **Section 103. Purpose**

The purpose of this Ordinance is to promote health, safety, and welfare within Buffalo Township, Washington County, by minimizing the harms and maximizing the benefits described in Section 102 of this Ordinance through provisions intended to:

- A. Meet legal water quality requirements under state law, including regulations at 25 PA Code Chapter 93 to protect, maintain, reclaim, and restore the existing and designated uses of the Waters of the Commonwealth.

- B. Manage accelerated runoff and erosion and sedimentation problems close to their source, by regulating activities that cause these problems.
- C. Preserve the natural drainage systems as much as possible.
- D. Maintain groundwater recharge, to prevent degradation of surface and groundwater quality, and to otherwise protect water resources.
- E. Maintain existing flows and quality of streams and watercourses.
- F. Preserve and restore the flood-carrying capacity of streams and prevent scour and erosion of stream banks and streambeds.
- G. Manage stormwater impacts close to the runoff source, with a minimum of structures and a maximum use of natural processes.
- H. Provide procedures, performance standards, and design criteria for stormwater planning and management.
- I. Provide proper operations and maintenance of all temporary and permanent stormwater management facilities and Best Management Practices (BMPs) that are constructed and implemented.
- J. Provide standards to meet the NPDES permit requirements.

[MS4 PERMITTEES MUST INCLUDE THE FOLLOWING]

- K. Implement an "illegal discharge detection and elimination program" in MS4 permanent urbanized areas to address non-stormwater discharges into Buffalo Township's separate storm sewer system.

#### **Section 104. Statutory Authority**

- A. Primary Authority: Buffalo Township is empowered to regulate these activities by the authority of the Act of October 4, 1978, 32 P.S., P.L. 864 (Act 167), 32 P.S. Section 680.1 et seq., as amended, the "Storm Water Management Act", and the Second Class Township Code.
- B. Secondary Authority: Buffalo Township also is empowered to regulate land use activities that affect runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, The Pennsylvania Municipalities Planning Code, as amended.

#### **Section 105. Applicability**

This Ordinance shall apply to all areas of Buffalo Township, any Regulated Activity within Buffalo Township, and all stormwater runoff entering into Buffalo Township's separate storm sewer system from lands within the boundaries of Buffalo Township.

Earth disturbance activities and associated stormwater management controls are also regulated under existing state law and implementing regulations. This Ordinance shall operate in coordination with those parallel requirements; the requirements of this Ordinance shall be no less restrictive in meeting the purposes of this Ordinance than state law.

"Regulated Activities" are any earth disturbance activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff. "Regulated Activities" include, but are not limited to, the following listed items:

- A. Earth Disturbance Activities

- B. Land Development
- C. Subdivision
- D. Construction of new or additional impervious or semi-pervious surfaces
- E. Construction of new buildings or additions to existing buildings
- F. Diversion or piping of any natural or man-made stream channel
- G. Installation of stormwater management facilities or appurtenances thereto
- H. Installation of stormwater BMPs

See Section 302 of this Ordinance for Exemption/Modification Criteria.

#### **Section 106. Repealer**

Any ordinance, ordinance provision(s), or regulation of Buffalo Township inconsistent with any of the provision(s) of this Ordinance is hereby repealed to the extent of the inconsistency only.

#### **Section 107. Severability**

In the event that a court of competent jurisdiction declares any section(s) or provision(s) of this Ordinance invalid, such decision shall not affect the validity of any of the remaining section(s) or provision(s) of this Ordinance.

#### **Section 108. Compatibility with Other Ordinance Requirements**

Approvals issued and actions taken pursuant to this Ordinance do not relieve the Applicant of the responsibility to comply with or to secure required permits or approvals for activities regulated by any other applicable codes, laws, rules, statutes, or ordinances. To the extent that this Ordinance imposes more rigorous or stringent requirements for stormwater management, the specific requirements contained in this Ordinance shall be followed.

#### **Section 109. Duty of Persons Engaged in the Development of Land**

Notwithstanding any provision(s) of this Ordinance, including exemptions, any landowner or any person engaged in the alteration or development of land which may affect stormwater runoff characteristics shall implement such measures as are reasonably necessary to prevent injury to health, safety, or other property. Such measures also shall include actions as are required to manage the rate, volume, direction, and quality of resulting stormwater runoff in a manner which otherwise adequately protects health, property, and water quality.

#### **Section 110. Municipal Liability Disclaimer**

- A. Neither the granting of any approval under this Ordinance, nor the compliance with the provisions of this Ordinance, or with any condition imposed by a municipal official hereunder, shall relieve any person from any responsibility for damage to persons or property resulting there from, or as otherwise imposed by law nor impose any liability upon the Municipality for damages to persons or property.
- B. The granting of a permit which includes any storm water management facilities shall not constitute a representation, guarantee or warranty of any kind by the Municipality, or by an official or employee thereof, of the practicability or safety of any structure, use or other plan proposed, and shall create no liability upon or cause of action against such public body, official or employee for any damage that may result pursuant thereto.

## **ARTICLE II - DEFINITIONS**

For the purpose of this Ordinance, certain terms and words used herein shall be interpreted as follows:

- A. Words used in the present tense include the future tense; the singular number includes the plural; and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word "includes" or "including" shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.
- C. The word "person" includes an individual, firm, association, organization, partnership, trust, company, corporation, or any other similar entity.
- D. The words "shall" and "must" are mandatory; the words "may" and "should" are permissive.
- E. The words "used or occupied" include the words "intended, designed, maintained, or arranged to be used, occupied or maintained".

**Accelerated Erosion** - The removal of the surface of the land through the combined action of human activity and natural processes at a rate greater than would occur because of the natural process alone.

**Agricultural Activities** - Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops, tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops, or pasturing and raising of livestock and installation of conservation measures. Construction of new buildings or impervious area is not considered an Agricultural Activity.

**Alteration** - As applied to land, a change in topography as a result of the moving of soil and rock from one location or position to another; changing of surface conditions by causing the surface to be more or less impervious; land disturbance.

**Applicant** - A landowner, developer, or other person who has filed an application for approval to engage in any Regulated Activities at a project site within the municipality.

**Best Management Practices (BMPs)** - Activities, facilities, designs, measures or procedures used to manage stormwater impacts from Regulated Activities, to meet State Water Quality Requirements, to promote groundwater recharge and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one of two broad categories or measures: "non-structural" or "structural". "Non-structural" BMPs are measures referred to as operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas "structural" BMPs are measures that consist of a physical device or practice that is installed to capture and treat stormwater runoff. "Structural" BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. "Structural" stormwater BMPs are permanent appurtenances to the project site.

**Channel Erosion** - The widening, deepening, and headward cutting of small channels and waterways, due to erosion caused by moderate to large floods.

**Cistern** - An underground reservoir or tank used for storing rainwater.

**Conservation District** - The Washington County Conservation District. The Washington County Conservation District has the authority under a delegation agreement executed with the Department of Environmental Protection to administer and enforce all or a portion of the regulations promulgated under 25 PA Code Chapter 102.

**Culvert** - A structure with appurtenant works that carries a stream and/or stormwater runoff under or through an embankment or fill.

**Dam** - An artificial barrier, together with its appurtenant works, constructed for the purpose of impounding or storing water or another fluid or semifluid, or a refuse bank, fill or structure for highway, railroad or other purposes which does or may impound water or another fluid or semifluid.

**Design Storm** - The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a 25-year storm) and duration (e.g., 24-hours), used in the design and evaluation of stormwater management systems. Also see Return Period.

**Designee** - The agent of this municipality and/or agent of the governing body involved with the administration, review or enforcement of any provisions of this Ordinance by contract or memorandum of understanding.

**Detention Basin** - An impoundment structure designed to manage stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate.

**Detention Volume** - The volume of runoff that is captured and released into Waters of the Commonwealth at a controlled rate.

**Developer** - A person, partnership, association, corporation, or other entity, or any responsible person therein or agent thereof, that undertakes any Regulated Activity of this Ordinance.

**Development Site - (Site)** - The specific tract of land for which a Regulated Activity is proposed. Also see Project Site.

**Disturbed Area** - An unstabilized land area where an Earth Disturbance Activity is occurring or has occurred.

**Downslope Property Line** - That portion of the property line of the lot, tract, or parcels of land being developed located such that all overland or pipe flow from the site would be directed toward it.

**Drainage Conveyance Facility** - A stormwater management facility designed to convey stormwater runoff and shall include streams, channels, swales, pipes, conduits, culverts, storm sewers, etc.

**Drainage Easement** - A right granted by a landowner to a grantee, allowing the use of private land for stormwater management, drainage, or conveyance purposes.

**Drainageway** - Any natural or artificial watercourse, trench, ditch, pipe, swale, channel, or similar depression into which surface water flows.

**Earth Disturbance Activity** - A construction or other human activity which disturbs the surface of the land, including, but not limited to, clearing and grubbing, grading, excavations, embankments, land development, agricultural plowing or tilling, timber harvesting activities, road maintenance activities, mineral extraction, and the moving, depositing, stockpiling, or storing of soil, rock or earth materials.

**Erosion** - The movement of soil particles by the action of water, wind, ice, or other natural forces.



**Erosion and Sediment Pollution Control Plan** - A plan which is designed to minimize accelerated erosion and sedimentation.

**Exceptional Value Waters** - Surface waters of high quality, which satisfies PA Code Title 25 Environmental Protection, Chapter 93 Water Quality Standards 93.4b(b) (relating to anti-degradation).

**Existing Conditions** - The initial condition of a project site prior to the proposed construction. If the initial condition of the site is undeveloped land and not forested, the land use shall be considered as "meadow" unless the natural land cover is documented to generate lower Curve Numbers or Rational "C" Coefficient.

**FEMA** - The Federal Emergency Management Agency.

**Flood** - A general but temporary condition of partial or complete inundation of normally dry land areas from the overflow of streams, rivers, and other Waters of the Commonwealth.

**Flood Fringe** - The remaining portions of the 100-year floodplain outside of the floodway boundary.

**Floodplain** - Any land area susceptible to inundation by water from any natural source or delineated by applicable Department of Housing and Urban Development, Federal Insurance Administration Flood Hazard Boundary - mapped as being a special flood hazard area. Included are lands adjoining a river or stream that have been or may be inundated by a 100-year flood. Also included are areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania Department of Environmental Protection (PADEP) Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by PADEP).

**Floodway** - The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the 100-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year frequency floodway, it is assumed - absent evidence to the contrary - that the floodway extends from the stream to 50 feet landward from the top of the bank of the stream.

**Forest Management/Timber Operations** - Planning and activities necessary for the management of forestland. These include timber inventory and preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation and reforestation.

**Freeboard** - A vertical distance between the elevation of the design high water and the top of a dam, levee, tank, basin, or diversion ridge. The space is required as a safety margin in a pond or basin.

**Grade** - A slope, usually of a road, channel or natural ground specified in percent and shown on plans as specified herein.

**(To) Grade** - To finish the surface of a roadbed, top of embankment or bottom of excavation.

**Groundwater Recharge** - Replenishment of existing natural underground water supplies.

**HEC-HMS Model Calibrated** - (Hydrologic Engineering Center Hydrologic Modeling System) A computer-based hydrologic modeling technique adapted to the watershed(s) in Washington County for the Act 167 Plan. The model has been calibrated by adjusting key model input parameters.

**High Quality Waters** - Surface water having quality, which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water by satisfying PA Code Title 25 Environmental Protection, Chapter 93 Water Quality Standards 93.4b(a).

**Hydrologic Soil Group (HSG)** - Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into one of four HSG (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The Natural Resource Conservation Service (NRCS) of the US Department of Agriculture defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of interest may be identified from a soil survey report from the local NRCS office or the County Conservation District.

**Impaired Waterway** - Surface water segment found not attaining any one of the defined uses and is included on the Stream Integrated List represents stream assessments in an integrated format for the Clean Water Act Section 303(d) listing.

**Impervious Surface (Impervious Area)** - A surface that prevents the infiltration of water into the ground. Impervious surface (or areas) include, but is not limited to: roofs, additional indoor living spaces, patios, garages, storage sheds and similar structures, parking or driveway areas, and any new streets and sidewalks. Any surface areas proposed to initially be gravel or crushed stone shall be assumed to be impervious surfaces.

**Impoundment** - A retention or detention basin designed to retain stormwater runoff and release it at a controlled rate.

**Infiltration Structures** - A structure designed to direct runoff into the ground (e.g., french drains, seepage pits, seepage trench, etc.).

**Inlet** - A surface connection to a closed drain. A structure at the diversion end of a conduit. The upstream end of any structure through which water may flow.

**Karst** - A type of topography or landscape characterized by surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, steep-sided hills, underground drainage and caves. Karst is formed on carbonate rocks, such as limestone or dolomites and sometimes gypsum.

**Land Development (Development)** - (i) The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving (a) a group of two or more buildings, or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) Any subdivision of land; (iii) Development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

**Low Impact Development (LID)** - an approach to land development that uses various land planning and design practices and technologies to simultaneously conserve and protect natural resource systems and reduce infrastructure costs. LID still allows land to be developed, but in a cost-effective manner that helps mitigate potential environmental impacts.

**Main Stem (Main Channel)** - Any stream segment or other runoff conveyance facility used as a reach in the Washington County Act 167 watershed hydrologic model(s).

**Manning Equation (Manning Formula)** - A method for calculation of velocity of flow (e.g., feet per second) and flow rate (e.g., cubic feet per second) in open channels based upon channel shape, roughness, depth of flow and slope. "Open channels" may include closed conduits so long as the flow is not under pressure.

**Municipality** – Buffalo Township, Washington County, Pennsylvania.

**National Pollutant Discharge Elimination System (NPDES)** - The federal government's system for issuance of permits under the Clean Water Act, which is delegated to PADEP in Pennsylvania.

**NOAA Atlas 14:** - Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, US Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland (2004). NOAA's Atlas 14 can be accessed at Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>

**Non-point Source Pollution** - Pollution that enters a water body from diffuse origins in the watershed and does not result from discernible, confined, or discrete conveyances.

**NRCS** - Natural Resource Conservation Service (previously Soil Conservation Service (SCS)).

**Open Channel** - A drainage element in which stormwater flows with an open surface. Open channels include, but shall not be limited to, natural and man-made drainageways, swales, streams, ditches, canals, and pipes not under pressure.

**Outfall** - (i) Point where water flows from a conduit, stream, or drain; (ii) "Point Source" as described in 40 CFR § 122.2 at the point where the Municipality's storm sewer system discharges to surface Waters of the Commonwealth.

**Outlet** - Points of water disposal from a stream, river, lake, tidewater, or artificial drain.

**PADEP** - The Pennsylvania Department of Environmental Protection.

**Parking Lot Storage** - Involves the use of impervious parking areas as temporary impoundments with controlled release rates during rainstorms.

**Peak Discharge** - The maximum rate of stormwater runoff from a specific storm event.

**Person** - An individual, partnership, public or private association or corporation, or a governmental unit, public utility or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

**Pervious Area** - Any area not defined as impervious.

**Pipe** - A culvert, closed conduit, or similar structure (including appurtenances) that conveys stormwater.

**Planning Commission** - The Planning Commission of Buffalo Township.

**Point Source** - Any discernible, confined, or discrete conveyance, including, but not limited to: any pipe, ditch, channel, tunnel, or conduit from which stormwater is or may be discharged, as defined in State regulations at 25 Pennsylvania Code § 92.1.

**Probable Maximum Flood (PMF)** - The flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in any area. The PMF is derived from the probable maximum precipitation (PMP) as determined on the basis of data obtained from the National Oceanographic and Atmospheric Administration (NOAA).

**Project Site** - The specific area of land where any Regulated Activities in the Municipality are planned, conducted, or maintained.

**Qualified Professional** - Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by the Ordinance.

**Rational Formula** - A rainfall-runoff relation used to estimate peak flow.

**Redevelopment** - Earth disturbance activities on land, which has previously been developed.

**Regulated Activities** - Any earth disturbance activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff.

**Regulated Earth Disturbance Activity** - Activity involving Earth Disturbance subject to regulation under 25 PA Code Chapter 92, Chapter 102, or the Clean Streams Law.

**Release Rate** - The percentage of pre-development peak rate of runoff from a site or subwatershed area to which the post-development peak rate of runoff must be reduced to protect downstream areas.

**Release Rate District** - Those subwatershed areas in which post-development flows must be reduced to a certain percentage of pre-development flows as required to meet the plan requirements and the goals of Act 167.

**Retention Basin** - An impoundment in which stormwater is stored and not released during the storm event. Stored water may be released from the basin at some time after the end of the storm.

**Retention Volume/Removed Runoff** - The volume of runoff that is captured and not released directly into the surface Waters of this Commonwealth during or after a storm event.

**Return Period** - The average interval, in years, within which a storm event of a given magnitude can be expected to recur. For example, the 25-year return period rainfall would be expected to recur on the average once every twenty-five years; or stated in another way, the probability of a 25-year storm occurring in any one given year is 0.04 (i.e. a 4% chance).

**Riparian Buffer** - A vegetated area bordering perennial and intermittent streams and wetlands, that serves as a protective filter to help protect streams and wetlands from the impacts of adjacent land uses.

**Riser** - A vertical pipe extending from the bottom of a pond that is used to control the discharge rate from the pond for a specified design storm.

**Road Maintenance** - Earth disturbance activities within the existing road right-of-way, such as grading and repairing existing unpaved road surfaces, cutting road banks, cleaning or clearing drainage ditches, and other similar activities. Road maintenance activities that do not disturb the subbase of a paved road (such as milling and overlays) are not considered earth disturbance activities.

**Rooftop Detention** - Temporary ponding and gradual release of stormwater falling directly onto flat roof surfaces by incorporating controlled-flow roof drains into building designs.

**Runoff** - Any part of precipitation that flows over the land surface.

**Runoff Capture Volume** - The volume of runoff that is captured (retained) and not released into surface Waters of the Commonwealth during or after a storm event.

**Sediment** - Soils or other materials transported by surface water as a product of erosion.

**Sediment Basin** - A barrier, dam, retention or detention basin located and designed to retain rock, sand, gravel, silt, or other material transported by stormwater runoff.

**Sediment Pollution** - The placement, discharge, or any other introduction of sediment into Waters of the Commonwealth occurring from the failure to properly design, construct, implement or maintain control measures and control facilities in accordance with the requirements of this Ordinance.

**Sedimentation** - The process by which mineral or organic matter is accumulated or deposited by the movement of water.

**Seepage Pit/Seepage Trench** - An area of excavated earth filled with loose stone or similar coarse material, into which surface water is directed for infiltration into the ground.

**Separate Storm Sewer System** - A conveyance or system of conveyances (including roads with drainage systems, Municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) primarily used for collecting and conveying stormwater runoff.

**Sheet Flow** - Runoff that flows over the ground surface as a thin, even layer, not concentrated in a channel.

**Soil Cover Complex Method** - A method of runoff computation developed by the Natural Resources Conservation Service (NRCS) that is based on relating soil type and land use/cover to a runoff parameter called Curve Number (CN).

**Spillway (Emergency)** - A depression in the embankment of a pond or basin, or other overflow structure, that is used to pass peak discharges greater than the maximum design storm controlled by the pond or basin.

**State Water Quality Requirements** - The regulatory requirements to protect, maintain, reclaim, and restore water quality under Title 25 of that Pennsylvania Code and the Clean Streams Law.

**Storage Indication Method** - A reservoir routing procedure based on solution of the continuity equation (inflow minus outflow equals the change in storage) with outflow defined as a function of storage volume and depth.

**Storm Frequency** - The number of times that a given storm "event" occurs or is exceeded on the average in a stated period of years. See also Return Period.

**Storm Sewer** - A system of pipes and/or open channels that convey intercepted runoff and stormwater from other sources, but excludes domestic sewage and industrial wastes.

**Stormwater** - Drainage runoff from the surface of the land resulting from precipitation, snow, or ice melt.

**Stormwater Hotspot** - A land use or activity that generates higher concentrations of hydrocarbons, trace metals, or toxicants than are found in typical stormwater runoff.

**Stormwater Management Facilities** - Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff. Typical stormwater management facilities include, but are not limited to: detention and retention basins, open channels, storm sewers, pipes and infiltration facilities.

**Stormwater Management Plan** - The Washington County Stormwater Management Plan for managing stormwater runoff in Washington County as required by the Act of October 4, 1978, P.L. 864, (Act 167) and known as the "Storm Water Management Act".

**Stormwater Management Site Plan (SWM Site Plan)** - The plan prepared by the Applicant or his representative indicating how stormwater runoff will be managed at the project site in accordance with this Ordinance.

**Stream Enclosure** - A bridge, culvert, or other structure in excess of 100 feet in length upstream to downstream which encloses a regulated Waters of the Commonwealth.

**Subwatershed Area** - The smallest drainage unit of a watershed for which stormwater management criteria has been established in the Stormwater Management Plan.

**Subdivision** - The division or re-division of a lot, tract, or parcel of land by any means, into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of lease, transfer of ownership, or building or lot development, provided; however, that the subdivision by lease of land for agricultural purposes into parcels of more than ten acres, not involving any new street or easement of access or any residential dwellings, shall be exempt {Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247}.

**Swale** - A low-lying stretch of land that gathers or carries surface water runoff.

**Timber Operations** - See "Forest Management".

**Time of Concentration (T<sub>c</sub>)** - The time for surface runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. This time is the combined total of overland flow time and flow time in pipes or channels, if any.

**USDA** - The United States Department of Agriculture.

**Watercourse** - A channel or conveyance of surface water, such as a stream or creek, having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

**Waters of the Commonwealth** - Rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs and other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of the Commonwealth of Pennsylvania.

**Watershed** - Region or area drained by a river, watercourse, or other surface water, whether natural or artificial.

**Wetland** - Those areas that are inundated or saturated by surface or groundwater 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, including swamps, marshes, bogs and similar areas. (The term includes but is not limited to wetland areas listed in the State Water Plan, the United States Forest Service Wetlands Inventory of Pennsylvania, the Pennsylvania Coastal Zone Management Plan and a wetland area designated by a river basin commission. This definition is used by the United States Environmental Protection Agency and the United States Army Corps of Engineers.)

**Acronyms:**

- BMPs - Best Management Practices
- CN - Curve Number
- E&S - Erosion and Sedimentation
- EV - Exceptional Value
- FEMA - Federal Emergency Management Agency
- HEC-HMS - Hydrologic Engineering Center Hydrologic Modeling System)
- HQ - High Quality
- HSG - Hydrologic Soil Group
- LID - Low Impact Development
- MPC - Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247
- MS4 - Municipal Separate Storm Sewer System
- NPDES - National Pollutant Discharge Elimination System
- NOAA - US Department of Commerce, National Oceanic and Atmospheric Administration
- NRCS - Natural Resource Conservation Service
- O&M - Operation and Maintenance
- PADEP - The Pennsylvania Department of Environmental Protection
- PENNDOT - Pennsylvania Department of Transportation
- PMF - Probable Maximum Flood
- SWM - Stormwater Management
- T<sub>c</sub> - Time of Concentration
- USDA - United States Department of Agriculture

## **ARTICLE III - STORMWATER MANAGEMENT STANDARDS**

### **Section 301. General Requirements**

- A. For all Regulated Activities, unless specifically exempted in Section 302:
1. Preparation and implementation of an approved SWM Site Plan is required.
  2. No Regulated Activities shall commence until the municipality issues written approval of a SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
  3. The SWM Site Plan shall demonstrate that adequate capacity will be provided to meet the Volume and Rate Control Requirements, as described under Sections 304 and 305 of this Ordinance.
  4. The SWM Site Plan approved by the municipality, shall be on-site throughout the duration of the Regulated Activities.
- B. For all Regulated Earth Disturbance Activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the Regulated Earth Disturbance Activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code (including, but not limited to Chapter 102 Erosion and Sediment Control) and the Clean Streams Law. Various BMPs and their design standards are listed in the *Erosion and Sediment Pollution Control Program Manual (E&S Manual)*, No. 363-2134-008 (April 15, 2000), as amended and updated.
- C. For all Regulated Activities, stormwater BMPs shall be designed, installed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law, conform to the State Water Quality Requirements, meet all requirements under the Storm Water Management Act and any more stringent requirements as determined by the municipality.
- D. The municipality may, after consultation with PADEP, approve measures for meeting the State Water Quality Requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with state law, including, but not limited to, the Clean Streams Law.
- E. All Regulated Activities shall include, to the maximum extent practicable, measures to:
1. Protect health, safety, and property.
  2. Meet the water quality goals of this Ordinance by implementing measures to:
    - a. Minimize disturbance to floodplains, wetlands, natural slopes, existing native vegetation and woodlands.
    - b. Create, maintain, or extend riparian buffers and protect existing forested buffers.
    - c. Provide trees and woodlands adjacent to impervious areas whenever feasible.
    - d. Minimize the creation of impervious surfaces and the degradation of Waters of the Commonwealth and promote groundwater recharge.
    - e. Protect natural systems and processes (drainageways, vegetation, soils, and sensitive areas) and maintain, as much as possible, the natural hydrologic regime.
    - f. Incorporate natural site elements (wetlands, stream corridors, mature forests) as design elements.
    - g. Avoid erosive flow conditions in natural flow pathways.



- h. Minimize soil disturbance and soil compaction.
- i. Minimize thermal impacts to Waters of the Commonwealth.
- j. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible and decentralize and manage stormwater at its source.

F. Impervious Areas:

- 1. The measurement of impervious areas shall include all of the impervious areas in the total proposed development, even if development is to take place in stages.
- 2. For developments taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.

G. If diffused flow is proposed to be concentrated and discharged onto adjacent property, the Applicant must document that adequate downstream conveyance facilities exist to safely transport the concentrated discharge, or otherwise prove that no erosion, sedimentation, flooding, or other harm will result from the concentrated discharge.

- 1. Applicant must provide written permission for proposed concentrated flow across adjacent properties if no existing drainage channel or watercourse exists.
- 2. Such stormwater flows shall be subject to the requirements of this ordinance.

H. Stormwater drainage systems shall be provided in order to permit unimpeded flow along natural watercourses, except as modified by stormwater management facilities or open channels consistent with this Ordinance.

I. Where watercourses traverse a development site, drainage easements (encompassing the 100-year elevation with a minimum width of 20 feet) shall be provided conforming to the line of such watercourses. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations that may adversely affect the flow of stormwater within any portion of the easement. Also, maintenance, including mowing of vegetation within the easement may be required, except as approved by the appropriate governing authority.

J. When it can be shown that, due to topographic conditions, natural drainageways on the site cannot adequately provide for drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainageways. Work within natural drainage ways shall be subject to approval by PADEP under regulations at 25 PA Code Chapter 105 through the Joint Permit Application process, or, where deemed appropriate by PADEP, through the General Permit process.

K. Any stormwater management facilities or any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures, etc.) that are regulated by this Ordinance, that will be located in or adjacent to Waters of the Commonwealth (including wetlands), shall be subject to approval by PADEP under regulations at 25 PA Code Chapter 105 through the Joint Permit Application process, or, where deemed appropriate by PADEP, the General Permit process. When there is a question whether wetlands may be involved, it is the responsibility of the Applicant or his agent to show that the land in question cannot be classified as wetlands; otherwise, approval to work in the area must be obtained from PADEP.

L. Should any stormwater management facility require a dam safety permit under PADEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety.

M. Any stormwater management facilities regulated by this Ordinance that will be located on, or discharged onto State highway rights-of-ways shall be subject to approval by the Pennsylvania Department of Transportation (PENNDOT).

- N. Minimization of impervious surfaces and infiltration of runoff through seepage beds, infiltration trenches, etc., are encouraged, where soil conditions and geology permit, to reduce the size or eliminate the need for detention facilities.
- O. Infiltration BMPs should be dispersed throughout the site, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Ordinance.
- P. Roof drains shall not be connected to streets, sanitary or storm sewers, or roadside ditches in order to promote overland flow and infiltration/percolation of stormwater where it is advantageous to do so. When it is more advantageous to connect directly to streets or storm sewers, then the Municipality shall permit it on a case-by-case basis.
- Q. Applicants are encouraged to use Low Impact Development Practices to comply with the requirements of this Ordinance and the State Water Quality Requirements.
- R. When stormwater management facilities are proposed within 1,000 feet of a downstream Municipality, the Developer shall notify the downstream municipality and supply a copy of the SWM Plan, if requested, for review and comment.

### **Section 302. Exemptions/Modifications**

- A. Under no circumstance shall the Applicant be exempt from implementing such measures as necessary to:
  - 1. Meet State Water Quality Standards and Requirements under Title 25 of that Pennsylvania Code and the Clean Streams Law.
  - 2. Protect health, safety, and property.
  - 3. Meet special requirements for High Quality (HQ) and Exceptional Value (EV) watersheds.
- B. The Applicant must utilize the following BMPs to the maximum extent practicable to receive consideration for the exemptions:
  - 1. Design around and limit disturbance of Floodplains, Wetlands, Natural Slopes over 15%, existing native vegetation, and other sensitive and special value features.
  - 2. Maintain riparian and forested buffers.
  - 3. Limit grading and maintain non-erosive flow conditions in natural flow paths.
  - 4. Maintain existing tree canopies near impervious areas.
  - 5. Minimize soil disturbance and reclaim disturbed areas with topsoil and vegetation.
  - 6. Direct runoff to pervious areas.
- C. The Applicant's proposed development/additional impervious area may not adversely impact the following:
  - 1. Capacities of existing drainageways and storm sewer systems.
  - 2. Velocities and erosion.
  - 3. Quality of runoff if direct discharge is proposed.
  - 4. Existing known problem areas.
  - 5. Safe conveyance of the additional runoff.
  - 6. Downstream property owners.

D. Single Family Residential activities are exempt from these requirements provided the construction:

1. Comply with Sections 301.G, 302.A, 302.B, 302.C, and
2. Have building setback 75 feet from downstream property lines, and
3. Driveways:
  - a. Runoff must discharge onto pervious surface with a gravel strip or other spreading device.
  - b. No more than 1,000 square feet of paved surface may discharge to any one point.
  - c. The length of flow on the pervious must exceed the length of the paved surface flow.
4. The municipality can require more information or require mitigation of certain impacts through installation of stormwater management BMP's if there is a threat to property, health, or safety.

E. An Applicant proposing Regulated Activities, after demonstrating compliance with Sections 302.A, 302.B, and 302.C, may be exempted from various requirements of this Ordinance according to the following table:

New Impervious Area <sup>1, 2</sup> (square footage)	Applicant Must Provide
0 – 2,500	No submission
2,500 – 5,000	Documentation of impervious surfaces (Small Project SWM Application) <sup>3</sup>
> 5,000	Rate Controls, Volume Controls & SWM Site Plan

NOTES:

- <sup>1</sup> New Impervious Area since the date of Adoption of this Ordinance.
- <sup>2</sup> Gravel in existing condition shall be considered pervious and gravel in proposed condition shall be considered impervious.
- <sup>3</sup> The first page of the Small Project Stormwater Management Application included in Appendix E may be used to document new impervious surfaces.

**[ALTERNATIVE – for those municipalities who wish to more effectively control stormwater runoff at a lower level, replace the above provision with the following]**

D. An Applicant proposing Regulated Activities, after demonstrating compliance with Sections 302.A, 302.B, and 302.C, may be exempted from various requirements of this Ordinance according to the following table:

New Impervious Area <sup>1, 2</sup> (square footage)	Applicant Must Provide
0 – 1,000	No submission
1,000 – 2,500	Documentation of impervious surfaces (Small Project SWM Application) <sup>3</sup>
2,500 – 5,000	Volume Controls & Small Project SWM Application <sup>3</sup>
> 5,000	Rate Controls, Volume Controls & SWM Site Plan

NOTES:

- <sup>1</sup> New Impervious Area since the date of Adoption of this Ordinance.
- <sup>2</sup> Gravel in existing condition shall be considered pervious and gravel in proposed condition shall be considered impervious.
- <sup>3</sup> The Small Project Stormwater Management Application included in Appendix E may be used for projects under 5,000 sf of new impervious surface and single family home construction. The Small Project SWM Application allows documentation of new impervious surface, credits through disconnection of impervious surfaces and tree planting, and sizing of Volume Control BMP's that may be required.

- F. An Applicant proposing Regulated Activities, after demonstrating compliance with Sections 302.A, 302.B, and 302.C, may be exempted from various requirements of this Ordinance if documentation can be provided that a downstream man-made water body (i.e., reservoir, lake, or man-made wetlands) has been designed or modified to address the potential stormwater flooding impacts of the proposed development.
  - 1. Volume Control requirements specified in Section 304 may be exempted if the Regulated Activity if facilities were already planned, approved and permitted as part of another project such as a subdivision.
  - 2. Rate Control requirements specified in Section 305 may be exempted if the Regulated Activity if facilities were already planned approved and permitted as part of another project such as a subdivision.
  
- G. The purpose this section is to ensure consistency of stormwater management planning between local ordinances and NPDES permitting (when required) and to ensure that the Applicant has a single and clear set of stormwater management standards to which the Applicant is subject. The Municipality may accept alternative stormwater management controls under this section provided that:
  - 1. The Municipality, in consultation with the PADEP, determines that meeting the Volume Control requirements (See Section 304) is not possible or places an undue hardship on the Applicant.
  - 2. The alternative controls are documented to be acceptable to PADEP, for NPDES requirements pertaining to post construction stormwater management requirements.
  - 3. The alternative controls are in compliance with all other sections of this ordinance, including but not limited to Sections 301.D and 302.A-C.
  
- H. Agricultural activities are exempt from requirements of this Ordinance provided the activities are performed according to the requirements of 25 PA Code Chapter 102.
  
- I. Forest management and timber operations are exempt from the Rate and Volume Control requirement and SWM Site Plan preparation requirement of this Ordinance provided the activities are performed according to the requirements of 25 PA Code Chapter 102. It should be noted that temporary roadways are not exempt.
  - 1. All temporary and permanent haul roads that are not to receive an asphalt wearing course shall be designed and constructed consistent with recommendations of the Center for Dirt and Gravel Road Studies and the *PA State Conservation Commission's Dirt and Gravel Road Maintenance Program*.

**Section 303. Waivers**

- A. The provisions of this Ordinance are the minimum standards for the protection of the public welfare.
  
- B. All waiver requests must meet the provisions of Section 303.G. and H. Waivers shall not be issued from implementing such measures as necessary to:
  - 1. Meet State Water Quality Standards and Requirements.
  - 2. Protect health, safety, and property.
  - 3. Meet special requirements for High Quality (HQ) and Exceptional Value (EV) watersheds as defined by PA Title 25, Chapter 93, Water Quality Standards.

Municipalities will then consider waivers in accordance with Section 301.D, which states that the municipality may, after consultation with PADEP, approve measures for meeting the State Water Quality Requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with state law, including, but not limited to, the Clean Streams Law.

- C. If an Applicant demonstrates to the satisfaction of the governing body of the Municipality that any mandatory provision of this Ordinance is unreasonable or causes unique or undue unreasonableness or hardship as it applies to the proposed Project, or that an alternate design may result in a superior result within the context of Section 102 and 103 of this Ordinance, the governing body of the Municipality upon obtaining the comments and recommendations of the Municipal Engineer may grant a waiver or relief so that substantial justice may be done and the public interest is secured; provided that such waiver will not have the effect of nullifying the intent and purpose of this Ordinance.
- D. The Applicant shall submit all requests for waivers in writing and shall include such requests as a part of the plan review and approval process. The Applicant shall state in full the facts of unreasonableness or hardship on which the request is based, the provision or provisions of the Ordinance that are involved, and the minimum waiver or relief that is necessary. The Applicant shall state how the requested waiver and how the Applicant's proposal shall result in an equal or better means of complying with the intent or Purpose and general principles of this Ordinance.
- E. The Municipality shall keep a written record of all actions on waiver requests.
- F. The Municipality may charge a fee for each waiver request, which shall be used to offset the administrative costs of reviewing the waiver request. The Applicant shall also agree to reimburse the Municipality for reasonable and necessary fees that may be incurred by the Municipal Engineer in any review of a waiver request.
- G. In granting waivers, the Municipality may impose reasonable conditions that will, in its judgment, secure substantially the objectives of the standards or requirements that are to be modified.
- H. The Municipality may grant applications for waivers when the following findings are made, as relevant:
  - I. That the waiver shall result in an equal or better means of complying with the intent of this Ordinance.
    - a. The waiver is the minimum necessary to provide relief.
    - b. The applicant is not requesting a waiver based on cost considerations.
    - c. Existing down gradient stormwater problems will not be exacerbated.
    - d. Runoff is not being diverted to a different drainage area.
    - e. Increased flooding or ponding on off-site properties or roadways will not occur.
    - f. Potential icing conditions will not occur.
    - g. Increase of peak flow or volume from the site will not occur.
    - h. Erosive conditions due to increased peak flows or volume will not occur.
    - i. Adverse impact to water quality will not result.
    - j. Increased 100-Year Floodplain levels will not result.
    - k. Infiltration of runoff throughout the proposed site has been provided where practicable and pre-development ground water recharge protected.
    - l. Peak flow attenuation of runoff has been provided.
    - m. Long term operation and maintenance activities are established.