BOARD OF SUPERVISORS
FRANCONIA TOWNSHIP

MONTGOMERY COUNTY, PENNSYLVANIA

ORDINANCE NO. 377

"STORMWATER AND WATERSHED MANAGEMENT"

AN ORDINANCE AMENDING CHAPTER 45 (BRUSH, GRASS, WEEDS), CHAPTER 85 (GRADING, EXCAVATION AND FILL), AND CHAPTER 122 (SUBDIVISION & LAND DEVELOPMENT), IMPLEMENTING PROVISIONS OF THE "NESHAMINY CREEK WATERSHED ACT 167 STORMWATER MANAGEMENT PLAN" IN ACCORDANCE WITH PA ACT 167 P.S. §§680.1 *et seq*, SETTING FORTH NEW AND AMENDING PRIOR DEFINITIONS; STORMWATER MANAGEMENT REGULATIONS FOR WATER QUALITY AND QUANITY; STORMWATER BEST MANAGEMENT PRACTICE (BMP) OPERATIONS AND MAINTENANCE REQUIREMENTS; INSPECTIONS AND RIGHT OF ENTRY REGUALTIONS; FEES AND EXPENSES; PROHIBITED ACTIVITIES; ENFORCEMENT OF THE ORDINANCE AND PENALTIES FOR VIOLATIONS.

The Board of Supervisors of Franconia Township does hereby **ENACT** and **ORDAIN:**

SECTION I. <u>Amendment to the Code</u>.

This Ordinance hereby amends The Codified Ordinances of Franconia Township, Chapter 45 (Brush, Grass, Weeds): Section 45-1 "Uncultivated Growth"; Chapter 85 (Grading, Excavation and Fill): Section 83-5 "Application"; Chapter 122 (Subdivision & Land Development): Section 122-05 "Definitions", Section 122-25 "Grading", Section 122-26 "Drainage", Section 122-75 "Statement of Findings", Section 122-76 "Purpose", Section 122-78 "Applicability". Section 122-79 "Exemptions, Section 122-81 "General requirements for Stormwater and Watershed Management, Section 122-82 "Stormwater and Watershed Management (Drainage) Plan", Section 122-83 "Erosion and sediment control during Regulated Earth Disturbance activities", Section 122-84 "Water quality requirements after Land Development and/or Regulated Earth Disturbance activities are complete", Section 122-85 "Water quantity infiltration requirements after Land Development and Regulated Earth Disturbance activities are complete", Section 122-86 "Water quantity requirements after Land Development and Regulated Earth Disturbance activities are complete for Stream Bank Protection", Section 122-87 "Additional water quantity requirements after Land Development and Regulated Earth Disturbance activities are complete", Section 122-88 "General Requirements for Stormwater for BMP Operations and Maintenance Plan", Section 122-91 "Adherence to approved BMP Operations and Maintenance Plan", Section 122-95 "Inspections", Section 122-97 "Fees", Section 122-98 "Expenses"

§ 45-1. Uncultivated growth prohibited.

No person who is the owner or occupier of any real property within Franconia Township shall permit the uncultivated growth thereon of weeds, grasses or other vegetation excepting such vegetative areas or structures designated as Stormwater Management Best Management Structures (BMP) as specified on a SWM BMP Plan approved pursuant to Article X.

§ 83-5. Application.

A. Every applicant for a grading permit shall file a written application with the Township Zoning Officer, which shall be forwarded to the Township Engineer for review. Such application shall:

(5). A Stormwater and Watershed Management Plan shall be provided in accordance with the requirements of Article X for all regulated activities over 5000 sq. ft. (1000 sq. ft.in the Neshaminy Watershed) including Post Construction Stormwater Management Facilities with an Operations and Management Plan.

§ 122-05. Definitions and word usage.

A. General usage. Words used in the singular include the plural, and words in the plural include the singular; words used in the masculine gender include the feminine, and words in the feminine gender include the masculine. The word "person" includes natural persons, corporations, associations and partnerships. The word "owner" shall mean a person who is the registered owner of real estate to be subdivided and/or developed in accordance with the provisions of this chapter. The word "street" indicates "road." The word "building" includes the word "structure," and both shall always be construed as if followed by the words "or part thereof." The word "occupied" includes the words "arranged, designed or intended to be used." The word "may" is permissive, and the words "shall" and "will" are always mandatory. The word "township" means the Township of Franconia, Montgomery County, Pennsylvania; the term "Board of Supervisors" means the Board of Supervisors of the Township of Franconia; and the term "Zoning Hearing Board" means the Zoning Hearing Board of the Township of Franconia. The word "Authority" means the Franconia Sewer Authority.

B. Definition of terms. Unless otherwise expressly stated, the following terms shall, for the purpose of this chapter, have the meanings indicated:

ACCELERATED EROSION – The removal of the surface of the land through the combined action of human activities and the natural processes, at a rate greater than would occur because of the natural process alone.

ACCEPTED ENGINEERING PRACTICE – That which conforms to accepted principles, tests or standards of nationally recognized technical or scientific authorities.

ACCESSORY BUILDING – A building subordinate to the principal building on a lot and used for purposes customarily incidental to those of the principal building.

AGRICULTURAL ACTIVITIES – The work of producing crops and raising livestock including tillage, plowing, disking, harrowing, pasturing and installation of conservation measures. Construction of new buildings or impervious area is not considered an agricultural activity

ALLEY – A right-of-way on which no structures front, serving as the secondary means of access to two or more properties.

ALTERATION – As applied to a building, any change or rearrangement in the structural parts or in the exit facilities; or any enlargement, whether by extension on any side or by any increase in height; or the moving from one location or position to another. 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; also the changing of surface conditions by causing the surface to be more or less impervious; land disturbance.

ANCHORING – The fastening of the mobile home to its mobile home stand in order to prevent upset or damage due to wind, erosion, flooding or other natural forces.

APPLICANT – A person as landowner, equitable landowner, or developer, as hereinafter defined, who has filed an application for approval of a subdivision, development plan, Regulated Earth Disturbance activity, or other Regulated Activity defined herein, including his heirs, successors and assigns under this Chapter.

APPLICATION FOR DEVELOPMENT PLAN – Applications required to be filed and approved prior to the start of subdivision or development.

AS-BUILT DRAWINGS – Engineering or surveyed site drawings maintained by the Project Contractors and Layout Surveyor during construction of the project and upon which documentation of the actual constructed locations of the buildings, site improvements and changes to the original 'Approved Final Plans' are noted. A licensed Professional Engineer or Land Surveyor shall review contractor's and layout surveyor's records for completeness which are to be added to polyester film copies for filing with the Township.

BANKFULL – The channel top-of-bank, or point from where water begins to overflow onto a floodplain.

BASEFLOW – Portion of stream discharge derived from groundwater; the sustained discharge that does not result from direct runoff or from water diversions, reservoir releases, piped discharges, or other human activities.

BEST MANAGEMENT PRACTICE (BMP) – Activities, facilities, designs, measures or procedures used to manage stormwater impacts from Regulated Earth Disturbance activities, to meet State Water Quality Requirements, to promote groundwater recharge and to otherwise meet the purposes of this Ordinance. Nonstructural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas structural BMPs or measures are those 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.

BIORETENTION – A Stormwater retention area that utilizes woody and herbaceous plants and soils to remove pollutants before infiltration occurs.

BLOCK – An area bounded by streets.

BOARD – The Board of Supervisors of Franconia Township, Montgomery County, Pennsylvania.

BUFFER – An area designed and functioning to separate the elements and uses of land which abut it and to ease the transition between them. Unless otherwise specified, buffers may be included as part of the required setbacks and yard areas. Buffers are divided into three types:

(1) OPEN BUFFER – A buffer normally comprised of grass, ground cover and/or possibly other landscaping material having a specified depth, but not necessarily having significant vertical components to achieve a certain height or density, the purpose of which is to achieve adequate spacing and attractive landscaping between two or more actively used areas.

(2) SCREEN BUFFER – A buffer comprised of natural and/or man-made material arranged in a certain specified depth, height and density to effectively block the view from one side to another during all seasons of the year and to reduce the transmittal of noise and odors between the sides.

(3) SOFTENING BUFFER – A buffer comprised of natural and/or man-made material arranged in a certain specified depth, height and density to ease and soften.

BUFFER (RIPARIAN) – The area of land immediately adjacent to any stream, measured perpendicular to and horizontally from the top-of-bank on both sides of a stream (see Top-of-bank).

BUILDER – A person who is charged with the responsibility of construction of buildings or other structures, or of making any construction improvements on any parcel of land. A builder is not necessarily the owner.

BUILDING – A combination of materials to form a permanent structure having walls or supports and a roof. Included shall be all mobile homes and trailers used for human habitation.

BUILDING COVERAGE – The maximum horizontal area covered by buildings at or above grade.

BUILDING SETBACK LINE – The line which establishes the minimum depth of front yard for a particular district, set forth in Chapter 145, Zoning, as measured from the ultimate right-of-way line.

CALIPER – Diameter of a tree's trunk measured 12 inches above the ground.

CARTWAY – The portion of a street or alley intended for vehicular use; the traveled part of the street, not including shoulders.

CENTRALIZED WATER SYSTEM – Water supply system(s), either publicly or privately owned, that serve the public, meaning service is not restricted by type of user or land use.

CHANNEL – An open drainage feature through which stormwater flows. Channels include, but shall not be limited to, natural and man-made drainage ways, swales, streams, ditches, canals, and pipes flowing partly full.

CHANNEL EROSION – The widening, deepening, or headward cutting of channels and waterways, caused by stormwater runoff or bankfull flows.

CISTERN – An underground reservoir or tank for storing rainwater.

CODE OF REGULATIONS – Such governing regulations as are adopted pursuant to this chapter for the regulation and management of condominium properties, including amendments thereof as may be adopted from time to time.

COMMON ELEMENTS – Includes (in reference to Article V):
(1) The land on which the building is located and portions of the building which are not included in a unit.
(2) The foundations, structural parts, supports, main walls, roofs, basements, halls, corridors, lobbies, stairways and entrances and exits of the building.
(3) The yards, parking areas and driveways.
(4) Portions of the land and buildings used exclusively for the management, operation or maintenance of the common elements.
(5) Installation of all central services and utilities.
(6) All apparatus and installations existing for common use.
(7) All other elements of the building necessary or convenient to its existence, management, operation, maintenance and safety or normally in common use.
(8) Such facilities as are designated in the declaration as "common elements."

COMMON OPEN SPACE – A parcel or parcels of land or a combination of land and water within a development site designed and intended for the use or enjoyment of residents of a development, not including streets, off-street parking areas and areas set aside for public facilities. The common open space shall essentially be free of buildings.

COMMON PARKING – Any parking area used by three or more dwelling units and having space for six or more motor vehicles.

COMPREHENSIVE PLAN – The Franconia Township Comprehensive Plan, consisting of maps, charts and textual matter, as well as any revisions thereto.

CONDOMINIUM – An estate in real property consisting of an individual interest in a space within a structure and/or a portion of property, together with an undivided interest in common elements.

CORNER CLEARANCE – The distance, at an intersection of two highways, between the near edge of the access driveway approach and the point of intersection of the pavement edges or the curbline extended.

CONSERVATION DISTRICT - The Montgomery County Conservation District.

COUNCIL – A homeowners' association or other entity who shall manage the business, operation and affairs of a condominium property on behalf of the unit owners. (Size is to be stated in the code of regulations for the property.)

CROSSWALK – A right-of-way for pedestrian use across a block, connecting two of the bounding streets.

CUL-DE-SAC – A street with access at one end and terminated at the other by a paved vehicular turnaround.

CULVERT – A structure with its appurtenant works, which carries water under or through an embankment or fill.

CURVE NUMBER – A Modeling Value used in the Hydrological Soil Cover Complex Method. It is a measure of the percentage of precipitation which is expected to run off from the watershed and is a function of the soil, vegetative cover, and tillage method as defined by the NCRS.

CUT – An excavation; the difference between a point on the original ground and a designated point of lower elevation on the final grade; also, the material removed in an excavation.

DAM – A man-made barrier, together with its appurtenant works, constructed for the purpose of impounding or storing water or another fluid or semi-fluid. A dam may include a refuse bank, fill or structure for highway, railroad or other purposes which impounds or may impound water or another fluid or semi-fluid.

DECLARATION – The instrument by which the owner of property submits the property to the provisions of 68 Pa. C.S.A. § 3101 et seq., the Pennsylvania Uniform Condominium Act, and all amendments thereto.

DECLARATION OF REVOCATION – A statement of intent to convert a condominium to a fee simple or rental property or structure, signed by 100% of the unit owners and the holders of all mortgages, judgments or other liens affecting the units.

DECLARATION PLAN – A survey of the property to be submitted to the provisions of 68 Pa.C.S.A. § 3101 et seq., the Pennsylvania Uniform Condominium Act, which shall bear the verified statement of a licensed land surveyor certifying that the declaration plan fully and accurately:
(1) Shows the property, the location of the building(s) thereon, the building and the layout of the floors of the building(s); including the units and the common elements; and
(2) Sets forth the name by which the property will be known and the unit designation for each unit therein.

DENSITY – The number of dwelling units per developable acre.

DEP – The Pennsylvania Department of Environmental Protection.

DESIGN PROFESSIONAL (Qualified) – A Pennsylvania Registered Professional Engineer, Registered Landscape Architect or Registered Professional Land Surveyor with competency to develop Stormwater & Watershed Management plans and proficient in such design.

DESIGN STORM – The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a 5-year storm) and duration (e.g., 24-hours), used in the design and evaluation of Stormwater & Watershed Management systems.

DETENTION BASIN – An impoundment designed to collect and retard stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate. Detention basins are designed to drain completely soon after a rainfall event and become dry until the next rainfall event.

DETENTION DISTRICT – Those subareas of a watershed in which some type of detention is required to meet the Plan requirements and the goals of an Act 167 Plan.

DETENTION VOLUME – The volume of runoff that is captured and released into the Waters of the Commonwealth at a controlled rate.

DEVELOPABLE ACRE – All land is defined as developable acreage except land area located within existing rights-of-way of public roads and overhead and underground utility lines, floodplains (defined as alluvial soils in the Soil Survey of Montgomery County, United States Department of Agriculture: 1967; and all applicable engineering studies which designate one-hundred-year-frequency flood levels, FEMA FIA Panels), and land area with slopes of 15% or greater. Developable acreage is used in density calculations.

DEVELOPER – Any landowner, equitable owner, agent of such landowner or tenant with the permission of such landowner, who makes or causes to be made a subdivision of land, land development or to undertake any Regulated Earth Disturbance activities at a project site in the Township as defined herein.

DEVELOPMENT – See “Developer”, “Development Plan”, "Earth Disturbance Activity." The term includes redevelopment

DEVELOPMENT PLAN – The provisions for guiding land alterations and development, including a plan of subdivision, all covenants relating to use, location and bulk of buildings and other structures, intensity of the use or density of development, streets, parking facilities, ways, common open space and

public facilities. The phrase "provisions of the development plan" shall mean the written and graphic materials referred to in this definition.

DEVELOPMENT SITE – The specific tract of land where any Land Development, Redevelopment or Earth Disturbance activities in the Township are planned, conducted or maintained.

DIFFUSED DRAINAGE DISCHARGE – Drainage discharge that is not confined to a single point location or channel, including sheet flow or shallow concentrated flow.

DISCHARGE – 1. (verb) To release water from a project, site, aquifer, drainage basin or other point of interest (verb); 2. (noun) The rate and volume of flow of water such as in a stream, generally expressed in cubic feet per second. See also Peak Discharge.

DISCHARGE POINT – The point of discharge for a stormwater facility.

DISCONNECTED IMPERIOUS AREA (DIA) – An impervious or impermeable surface that is disconnected from any stormwater drainage or conveyance system and is redirected or directed to a pervious area, which allows for infiltration, filtration, and increased time of concentration as specified in Appendix F, Disconnected Impervious Area.

DISTURBED AREAS – Non-stabilized land area where an earth disturbance activity is occurring or has occurred.

DITCH – A man-made waterway constructed for irrigation or stormwater conveyance purposes.

DOWNSTREAM PROPERTY LINE – That portion of the property line of the lot, tract, or parcels of land being developed, located such that overland or pipe flow from the project site would be directed towards it by gravity.

DCNR – The Pennsylvania Department of Natural Resources and Conservation.

DRAINAGE – The surface flow of storm water over the either on the surface of the land or subsurface through permeable soils and geological formations.

DRAINAGE CONVEYANCE FACILITY – A Stormwater & Watershed Management Facility designed to transport stormwater runoff that includes channels, swales, pipes, conduits, culverts, and storm sewers.

DRAINAGE EASEMENT – A right granted by a landowner to a grantee, allowing the use of private land for Stormwater & Watershed Management purposes.

DRAINAGE PLAN – The graphic documentation and supporting technical reports of the Stormwater & Watershed Management system, to be used for a given development site, the contents of which are established in Section 302 and are subject to municipal review and issuance of a Drainage Permit.

DRIVEWAY – A private way providing for vehicular and pedestrian access between a public street and a parking area within a lot or property.

DWELLING – A building designed and constructed for residential purposes in which people live.

DWELLING UNIT – One or more rooms arranged for the use of one or more individuals living together as a single housekeeping unit, with cooking, living, sanitary and sleeping facilities.

*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, road maintenance, utility excavations, building construction and the moving, depositing, stockpiling, or storing of soil, rock or earth materials.

EASEMENT – The limited use of private land for right-of-way, sanitary or storm facilities, streams, the preservation of natural features, drainage ditches or for access to other parts of the property or open space/recreational areas, where the owner or lessee of the property shall not erect any structure, but shall have the right to make any other use of the land which is not inconsistent with the purpose of the easement.

EMERGENCY SPILLWAY – A conveyance area that is used to pass peak discharge greater than the maximum design storm controlled by the stormwater facility.

ENCROACHMENT – A structure or activity that changes, expands or diminishes the course, current or cross section of a watercourse, floodway or body of water.

ENDORSEMENT – The review stamp of the Montgomery County Planning Commission.

ENGINEER – A professional engineer licensed as such in the Commonwealth of Pennsylvania.

EQUIVALENT RIGHT-OF-WAY – A theoretical right-of-way dimension calculated from the center line of designated private roads, the width of which corresponds to that of public roads performing the same function.

EROSION – The process by which the surface of the land, including channels, is worn away by water, wind, or chemical action.

EROSION AND SEDIMENT CONTROL PLAN – A plan for a project site which identifies BMPs to minimize accelerated erosion and sedimentation.

ESTABLISHED FLOOD LEVEL – A point on the boundary of the flood-prone (floodplain) area which is closest to the development site.

EXCAVATION – Any act by which natural materials are dug into, cut, quarried, uncovered, removed, displaced, relocated or bulldozed, as well as the conditions resulting therefrom.

EXCEPTIONAL VALUE WATERS – Surface waters of high quality which satisfy Pennsylvania 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 alteration. If the initial condition of the site is undeveloped land, the land use shall be considered as "meadow" unless the natural land cover is proven to generate lower curve numbers or Rational "C" value, such as forested lands.

EXISTING RECHARGE AREA – Undisturbed surface area or depression where stormwater collects and a portion of which infiltrates and replenishes the groundwater.

FILL – Any act by which natural materials are placed, pushed, dumped, pulled, transported or moved to a new location above the natural surface of the ground or on top of the stripped surface, as well as the conditions resulting therefrom.

FLOOD – A temporary condition of partial or complete inundation of land areas from the overflow of streams, rivers, and other waters of this Commonwealth.

FLOOD HAZARD BOUNDARY MAP – A map prepared by the Federal Insurance Administration of the United States Department of Housing and Urban Development designating the boundaries of areas having special flood hazards in Franconia Township. This map should only be used to comply with the pertinent requirements of the National Flood Insurance Program.

FLOODPLAIN – See "flood-prone area."

FLOOD-PRONE AREA – A relatively flat or low land area adjoining a stream, river or watercourse which is subject to partial or complete inundation during a one-hundred-year flood or any area subject to the unusual and rapid accumulation or runoff of surface waters from any source (a floodplain).

FLOODPROOFING – Those measures intended to reduce the risk to persons and property from construction activities in flood-prone areas as set forth in flood-proofing regulations published by the Office of the Chief of Engineers, United States Army, publication number EP 1165 2 314 (June 1972 and as subsequently amended). In said publication where reference is made to "below (or above) the RFD (regulatory flood datum)," it shall be interpreted as meaning below (or above) the established flood elevation. Said regulations are contained in the Building Code of Franconia Township, as amended.

FLOODWAY – The channel of a watercourse and those portions of the adjoining floodplains, which 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 from the top-of-bank.

FLUVIAL GEOMORPHOLOGY – The study of landforms associated with river channels and the processes that form them.

FOREST MANAGEMENT/TIMBER OPERATIONS – Planning and associated activities necessary for the management of forestland. These include timber inventory and preparation of forest management plans, silviculture treatment, cutting budgets, logging road design and construction, timber harvesting and reforestation.

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

GOVERNING BODY – elected municipal officials of municipalities (e.g. Township Supervisors or Township Council or Borough Council).

GRADE – 1. (noun) A slope, usually of a road, channel or natural ground specified in percent and shown on plans as specified herein. 2. (verb) To finish the surface of a roadbed, the top of an embankment, or the bottom of excavation.

GRASSED WATERWAY – A natural or man-made waterway, usually broad and shallow, covered with erosion-resistant grasses, used to convey surface water.

GROSS FLOOR AREA – The total area included within the exterior walls of a building, exclusive of open courts.

GROUND COVER – Natural mulch or non-deciduous or low-growing plants installed or planted in such a manner as to provide a continuous cover over the ground.

GROUNDWATER – Water beneath the earth's surface that supplies wells and springs, and is often between saturated soil and rock.

GROUNDWATER RECHARGE – Replenishment of existing natural underground water supplies from rain or overland flow.

HEIGHT – The height of a building shall be measured from the mean level of the ground surrounding the building to a point midway between the highest and the lowest points of the roof, provided that chimneys, spires, towers, elevator penthouses, tanks and similar projections shall not be included in calculating the height.

HEC-HMS – The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) - Hydrologic Modeling System (HMS). This model was used to model the Neshaminy and Little Neshaminy Creeks Watershed during the Act 167 Plan development and was the basis for the Standards and Criteria of this Ordinance.

HIGH QUALITY WATERS – Surface waters having quality which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water by satisfying Pennsylvania Code Title 25 Environmental Protection, Chapter 93 Water Quality Standards, § 93.4b(a).

HITCH – A device which is part of the frame or attaches to the frame of a mobile home and connects it to a power source for the purpose of transporting the unit.

HOTSPOTS – An area where land use or activity generates highly contaminated runoff, with concentrations of pollutants in excess of those typically found in Stormwater. Typical pollutant loadings in Stormwater may be found in Chapter 8 Section 6 of the *Pennsylvania Stormwater Best Management Practices Manual, Pennsylvania Department of Environmental Protection (PADEP) no. 363-0300-002 (2006)*.

HYDROGRAPH – A graph representing the discharge of water versus time for a selected point in the drainage system.

HYDROLOGIC REGIME – The hydrologic cycle or balance that sustains quality and quantity of stormwater, baseflow, storage, and groundwater supplies under natural conditions.

HYDROLOGIC SOIL GROUP – A classification of soils by the Natural Resources Conservation Service, formerly the Soil Conservation Service, into four runoff potential groups. The groups range from A soils, which are very permeable and produce little runoff, to D soils, which are not very permeable and produce much more runoff.

IMPOUNDMENT – A retention or detention basin designed to retain stormwater runoff and release it at a controlled rate.

IMPERVIOUS SURFACE – A surface that prevents the infiltration of water into the ground. Impervious surface includes, but is not limited to, any roof, parking or driveway areas, and any new streets and sidewalks. Any surface areas designed to initially be gravel or crushed stone shall be assumed to be impervious surfaces.

IMPROVEMENT – Grading, paving, curbing, streetlights and signs, fire hydrants, wells, water mains, sanitary sewers, storm drains, sidewalks, parking areas or landscaping.

INFILL – Development that occurs on smaller parcels that remain undeveloped but are within or very close proximity to urban or densely developed areas. Infill development usually relies on existing infrastructure and does not require an extension of water, sewer or other public utilities.

INFILTRATION – Movement of surface water into the soil, where it is absorbed by plant roots, evaporated into the atmosphere, or percolated downward to recharge groundwater.

INFILTRATION STRUCTURES – A structure designed to direct runoff into the underground water (e.g., French drains, seepage pits, or seepage trenches).

INLET – The upstream end of any structure through which water may flow.

INTERMITTENT STREAM – A stream that flows only part of the time. Flow generally occurs for several weeks or months in response to seasonal precipitation or groundwater discharge.

INPERVIOUS SURFACE – A physical surface of a site that allows due to its structure does not allow the infiltration of water into the ground.

INTERMEDIATE ISLAND – That section of the roadway right-of-way between the pavement edge or curb and the property line, which occurs between driveways.

KARST – A type of topography or landscape characterized by surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

LAND DEVELOPMENT –

(1) Any of the following activities:

(a) The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving:

[1] A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a Single nonresidential building on a lot or lots, regardless of the number of occupants or tenure; or

[2] The division or allocation of land or space, whether initially or cumulatively, 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.

(b) A subdivision of land.

(2) A land development shall not include the following:

(a) The conversion of an existing single-family detached dwelling or single-family semidetached dwelling into not more than three residential units, unless such units are intended to be a condominium.

(b) The addition of an accessory building, including farm buildings, on a lot or lots subordinate to an existing principal building.

LANDOWNER – The legal or beneficial owner or owners of land, or a building thereon, or a portion of either, including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if he is authorized under the lease to exercise the rights of the landowner, or other person having a proprietary interest in land.

LIMITING ZONE – A soil horizon or condition in the soil profile or underlying strata that includes one of the following:

(1) A seasonal high water table, whether perched or regional, determined by direct observation of the water table or indicated by soil mottling.

(2) A rock with open joints, fracture or solution channels, or masses of loose rock fragments, including gravel, with insufficient fine soil to fill the voids between the fragments.

(3) A rock formation, other stratum or soil condition that is so slowly permeable that it effectively limits downward passage of effluent.

LOT – A tract or parcel of land intended for separate use, building development or transfer of ownership.

LOT AREA – The area contained within the property lines of the individual parcels of land, excluding any permanent body of water, any area within any public or private right-of-way and ultimate right-of-way of a road and any area of an overhead public utility right-of-way, but including the area of any easement other than the area of a permanent drainage easement containing open channels. Where a permanent drainage easement contains an open channel on the lot, the lot area shall not be less than the minimum lot area as specified or required by the Township Zoning Ordinance plus the area of the drainage easement.

LOW IMPACT DEVELOPMENT (LID) PRACTICES – Practices that will minimize proposed conditions runoff rates and volumes, which will minimize needs for artificial conveyance and storage facilities.

MAIN STEM (MAINCHANNEL) – Any stream segment or other runoff conveyance used as a reach in the Neshaminy and Little Neshaminy Creeks hydrologic model.

MANNING EQUATION – 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.

MINIMIZE – To reduce to the smallest amount possible. "Minimize" does not mean to eliminate but rather that the most substantial efforts possible under the circumstances have been taken to reduce the adverse effect of the action (such as grading, clearing, construction, etc.).

MUNICIPAL STORM SEWER SYSTEM (MS4) – As defined in 25 Pa. Code Section 92.1.

MUNICIPALITY – Franconia Township, Montgomery County, Pennsylvania.

MOBILE HOME – A single-family detached dwelling intended for permanent occupancy, which may not meet local building codes but does meet the standards of the Pennsylvania Department of Community and Economic Development and appropriate federal agencies and is certified by them, contained in one unit or in two or more units designed to be joined into one integral unit capable of again being separated for repeated towing, which arrives at a site complete and ready for occupancy except for minor and incidental unpacking and assembly operations, and constructed so that it may be

used with or without a permanent foundation, including any roofed addition such as extra rooms, covered patios, porches, etc.

MOBILE HOME DEVELOPMENT – A parcel of land under single ownership which has been planned and improved in compliance with the requirements of the Mobile Home Development District for the placement of mobile homes, conventionally built or modular single-family detached homes, or combinations thereof, for non-transient use; consisting of two or more mobile home lots and 15 acres or greater in size.

MOBILE HOME LOT – A parcel of land in a mobile home development, provided with the necessary utility connections, patio and other appurtenances necessary for the erection thereon of a single mobile home, and the exclusive use of its occupants, though it may instead be designed, developed and used for a modular or conventionally built single-family detached home rather than a mobile home.

MOBILE HOME STAND – That part of an individual lot which has been reserved and prepared for the placement of the mobile home.

MODULAR HOME – A single-family or multifamily dwelling intended for permanent occupancy, made by assembling one or more factory-produced three-dimensional sections into an integral living unit, whose construction materials and specifications conform to those of conventionally built units.

MOTOR HOME – A travel trailer which combines the living section and the power source into a single unit.

MUNICIPAL ENGINEER – A professional engineer licensed as such in the Commonwealth of Pennsylvania, duly appointed as the engineer for Franconia Township.

MUNICIPALITY – Franconia Township, Montgomery County, Pennsylvania.

NATURAL HYDROLOGIC REGIME (see Hydrologic Regime)

NATURAL RECHARGE AREA – Undisturbed surface area or depression where stormwater collects, and a portion of which infiltrates and replenishes the groundwater.

NONPOINT SOURCE POLLUTION – Pollution that enters a water body from diffuse origins in the watershed and does not result from discernible, confined, or discrete conveyances.

NON-STORMWATER DISCHARGES – Water flowing in stormwater collection facilities, such as pipes or swales, which is not the result of a rainfall event or snowmelt.

NON-STRUCTURAL BEST MANAGEMENT PRACTICE (BMPs**)** – Methods of controlling stormwater runoff quantity and quality, such as innovative site planning, impervious area and grading reduction, protection of natural depression areas, temporary ponding on site and other techniques.

NON-SYSTEM WELLS – On-site well(s) for use by a landowner and not part of a public water system.

NPDES – National Pollutant Discharge Elimination System, the federal government's system for issuance of permits under the Clean Water Act, which is delegated to DEP in Pennsylvania.

NRCS – Natural Resource Conservation Service (previously Soil Conservation Service).

OFFICIAL MAP SUMMARY – The map of current adoption showing the rights-of-way and approximate location of the lines of existing and proposed public streets for the whole of Franconia Township.

OUTFALL – "Point source" as described in 40 CFR § 122.2, and the point where the Township's storm sewer system, or other storm sewer systems, discharges to surface waters of the Commonwealth.

OUTLET (STORM SEWER SYSTEM) – Points of water disposal to a stream, river, lake, tidewater or artificial drain.

PARENT TRACT – The parcel of land from which a land development or subdivision originates, determined from the date of municipal adoption of this ordinance.

PARKING SPACE – A space, surfaced to whatever extent necessary to permit use under all normal seasonal weather conditions, available for the parking of one motor vehicle, with the dimensions required by § 122-19 of this chapter.

PARKING LOT STORMWATER STORAGE – Involves the use of parking areas as temporary impoundments with controlled release rates during rainstorms.

PAVEMENT EDGE – The edge of the main traveled portion of any street or highway, exclusive of shoulder or berm.

PEAK DISCHARGE – The maximum rate of stormwater runoff from a specific storm event.

PENN STATE RUNOFF MODEL – A computer-based hydrologic model developed at the Pennsylvania State University.

PERMANENT-TYPE CONSTRUCTION – Plain or reinforced concrete, bituminous concrete or macadam of required thickness.

PERENTIAL STREAM – A stream which contains water at all times except during extreme drought

PERVIOUS SURFACE – A physical surface of a site that allows the infiltration of water into the ground.

PERSON – Any natural person, firm, partnership, co-partnership, association or corporation, public or private, or a governmental unit, public utility or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

PIPE – A culvert, closed conduit, or similar structure (including appurtenances) that conveys stormwater, sanitary sewerage or other liquid as part of a system.

PLAN – A graphic or written representation or document which, in the case of condominiums, shall include a declaration, code of regulations and declaration plan.

PLAN, IMPROVEMENT CONSTRUCTION – A plan showing the construction details of streets, drains, sewers, bridges, culverts and other improvements as required by this chapter, showing the details required by Article II of this chapter.

PLAN, LAND DEVELOPMENT – A tentative sketch plan, preliminary, major or final plan, including written and graphic material showing the provision for development of a tract, when plans of subdivision would not be applicable.

PLAN, MINOR SUBDIVISION – The division of a single lot, tract or parcel of land, not a part of a prior subdivision, into not more than two lots, parcel or parcels of land for the purpose, whether immediate or future, of lease, transfer of ownership or the act of building structures and installing site improvements for residential use; such lots shall front on an existing street, not involve any new street or road or the extension of municipal facilities or the creation of any public improvements; and shall conform to all provisions of the Township Zoning Ordinance and this chapter and rules and regulations promulgated thereunder.

PLAN, PRELIMINARY MAJOR – A plan prepared for discussion with the Township Planning Commission and Board of Supervisors showing the proposed street and lot layout, the deed restrictions, easements and all other items required under Article II of this chapter for the entire parcel of land being subdivided.

PLAN, RECORD MAJOR – A plan prepared for recording showing the ultimate width of streets, the lot lines, easements and all other items required under Article II of this chapter.

PLAN, TENTATIVE SKETCH – A draft showing proposed streets, lots or buildings related to topography that is to be used as the basis for informal discussion between the representatives of the Township Planning Commission and the sub-divider, developer or builder.

PLANNING COMMISSION – The Planning Commission of Franconia Township.

PLANTING AREA – Any area designated for landscaping purposes.

POINT SOURCE – Any discernible, confined and 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 Pa. Code § 92.1.

POST CONSTRUCTION – Period after construction during which disturbed areas are stabilized, stormwater controls are in place and functioning and all proposed improvements in the approved land development plan are completed.

PREDEVELOPMENT – Undeveloped/Natural Condition or existing site conditions of a property prior to the filing an application for Land Development or Regulated Earthmoving.

PRETREATMENT – Techniques employed in stormwater BMPs to provide storage or filtering to trap coarse materials and other pollutants before they enter the system, but not necessarily designed to meet the water quality volume requirements of Section 406.

PROJECT SITE – The specific area of land where any Land Development or Regulated Earth Disturbance activities in the Township are planned, conducted or maintained.

PROPERTY LINE CLEARANCE – The distance measured along the pavement edge or curb between the property frontage boundary line and the edge of the driveway.

PUBLIC HEARING – A formal meeting held pursuant to public notice by the Franconia Township Board of Supervisors or Planning Commission, intended to inform and obtain public comment, prior to taking action in accordance with the Pennsylvania Municipalities Planning Code.

PUBLIC MEETING – A forum held pursuant to notice under the Act of July 3, 1986 (P.L. 388, No. 84), known as the "Sunshine Act."

PUBLIC NOTICE – Notice published once each week for two successive weeks in a newspaper of general circulation in Franconia Township. Such notice shall state the time and place of the hearing and the particular nature of the matter to be considered at the hearing. The first publication shall be not less than 30 days and the second publication shall be not less than seven days from the date of the hearing.

RADIUS CURB – That section of curb forming an arc beginning at the end of a driveway and continuing to throat of the driveway.

RATIONAL FORMULA (Method) – A hydrological rainfall-runoff technique used to estimate storm runoff and peak flow.

RECHARGE – The replenishment of groundwater through the infiltration of rainfall, other surface waters, or land application of water or treated wastewater.

RECORD DRAWING – 1) Plans for Recording in the County Courthouse executed by Subdivision or Land Development Plan applicant and acknowledged by the Township as 'Final Approved' in accordance with this Code. 2) Original Design Documents revised to illustrate the as-built conditions including all changes from the 'Final Approved' Plan as may have been subsequently approved by the Design Engineer pursuant to the review of the Township Engineer.

REDEVELOPMENT – Earth Disturbance activities on land which has previously been disturbed or developed including any development that requires demolition or removal of existing structures or impervious surfaces at a site and replacement with new impervious surfaces. (Maintenance activities such as pavement top-layer milling and re-paving are not considered to be redevelopment. Interior remodeling projects and tenant improvements are also not considered to be redevelopment. Utility trenches in streets are not considered redevelopment unless more than 50% of the street width including shoulders is removed and re-paved).

REGULATED ACTIVITIES – Actions or proposed actions that have an impact on stormwater runoff quality or quantity and that are specified in Section 122-78.B.

REGULATED EARTH DISTURBANCE ACTIVITY – Any Earth Disturbance Activity one acre or more with a point source discharge to surface waters or the Township's storm sewer system, or five acres or more regardless of the planned runoff. This includes Earth Disturbance on any portion of, part, or during any stage of, a larger common plan of development. This only includes road maintenance activities involving 25 acres or more of Earth Disturbance.

REGULATORY FLOOD or INTERMEDIATE REGIONAL FLOOD – The one-hundred-year flood, which is a flood having an average frequency of occurrence on the order of once in 100 years, although the flood may occur in any year.

REGULATORY FLOOD ELEVATION or INTERMEDIATE REGIONAL FLOOD ELEVATION – The one-hundred-year flood elevation based upon the information contained in a floodplain information report prepared by the United States Army Corps of Engineers, the Federal Emergency Management Agency or other consulting engineer (where available).

RELEASE RATE – The percentage of existing conditions peak rate of runoff from a site or subarea to which the proposed conditions peak rate of runoff must be reduced to protect downstream areas.

REPAVING – Replacement of the impervious surface that does not involve excavation or reconstruction of an existing paved (impervious) surface.

REPLACEMENT PAVING – Reconstruction of and full replacement of an existing paved (impervious) surface.

RESERVE STRIP – A parcel of land separating a street from adjacent properties.

RETENTION BASIN – A structure in which stormwater is stored in part over an extended period of time and not released during or immediately after the storm event. Retention basins may designed for infiltration purposes, and may not have a direct outlet to a water course. The retention basin must infiltrate stored water in 4 days or less for purposes of this ordinance as a BMP.

RETENTION Volume/Removed Runoff – The volume of runoff that is captured and not released directly into the surface Waters of the 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 of once every twenty-five years.

RIGHT-OF-WAY – A strip of land occupied or intended to be occupied by a street, alley, crosswalk or for other public or semipublic purposes. The usage of the term "right-of-way" for land plotting purposes in Franconia Township shall mean that every right-of-way hereinafter established and shown on a final record plan is to be separate and distinct from the lots or parcels adjoining such right-of-way and not included within the dimensions or areas of such lots or parcels.

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 cross-section, such as grading and repairing existing unpaved road surfaces, cutting road banks, cleaning or clearing drainage ditches and other similar activities.

ROOF DRAINS – A drainage conduit or pipe that collects water runoff from a roof and leads it away from the structure.

ROOFTOP DETENTION – The temporary ponding and gradual release of stormwater falling directly onto flat roof surfaces using controlled-flow roof drains into building designs.

RUNOFF – The surface water discharge or rate of discharge of a given watershed after a fall of rain or snow that does not enter the soil but runs off the surface of land into a stormwater collection system, watercourse, pond, wetland, storm water basin or field.

RUNOFF FROM A FULLY DEVELOPED AREA UPSTREAM – The surface water runoff that can be reasonably anticipated upon maximum development of that area of the watershed located upstream from the subject tract, as permitted by prevailing zoning or the Township Comprehensive Plan.

RURAL AREA – An area where roadways have been built to typical rural highway standards without sidewalks and curbs.

SECTIONAL HOMES – See "modular home."

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 in such a way as to retain rock, sand, gravel, silt, or other material transported by water during construction.

SEDIMENT POLLUTON – The placement, discharge or any other introduction of sediment into the waters of the Commonwealth.

SEDIMENTATION – The process by which mineral or organic matter is accumulated or deposited by moving wind, water or gravity. Once this matter is deposited (or remains suspended in water), it is usually referred to as "sediment."

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 underground water.

SEPARATE STORM SEWER SYSTEM – A conveyance or system of conveyances (including roads with drainage systems, Township streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) primarily used for collecting and conveying stormwater runoff and not for collection or conveyance of septage or other liquids.

SETBACK – The lateral distance between the right-of-way line and the roadside business building, liquid fuel pump island, display stand or other object, the use of which will result in space for vehicles to stop or park between such facilities and the right-of-way line.

SHALLOW CONCENTRATED FLOW – Stormwater runoff flowing in shallow, defined ruts prior to entering a defined channel or waterway.

SHEET FLOW – A flow process associated with broad, shallow water movement on sloping ground surfaces that is not channelized or concentrated.

SHOULDER LINE – The intersection of the shoulder slope with the side slope or ditch slope.

SHRUB – A woody perennial plant having persistent woody stems branching from the base.

SIDEWALKS – A permanent hard paved walkway, continuous for a reasonable distance and an integral part of the highway development, solely for the use of pedestrians.

SIGHT DISTANCE – The distance of unobstructed view along the center line of a street from the driver's sight height to an elevated item in the street as defined by the Pennsylvania Department of Transportation's Highway Occupancy Driveway Sight Distance Regulations.

SIGHT TRIANGLE – Proper sight lines must be maintained at all intersections of streets. Measured along the center line, there should be a clear sight triangle of 75 feet from the point of intersection based on the posted speed limit. No building or present or future obstruction will be permitted in this area.

SKIRTS – Panels specifically designed for the purpose of screening the underside of a mobile home by forming an extension of the vertical exterior walls of the mobile home and covering the entire distance between the bottom of the exterior walls and the ground elevation below.

SLDO – Subdivision and Land Development Ordinance.

SLOPE – The face of an embankment or cut section; any ground whose surface makes an angle with the plane of the horizon. Slopes are usually expressed in a percentage based upon vertical difference in feet per 100 feet of horizontal distance.

SOIL COVER COMPLEX METHOD – A method of runoff computation developed by the NRCS that is based on relating soil type and land use/cover to a runoff parameter called Curve Number (CN).

SOIL STABILIZATION – Chemical or structural treatment of a mass of soil to increase or maintain its stability or otherwise improve its engineering properties.

SOIL SURVEY – A report entitled "Soil Survey of Montgomery County, Pennsylvania," published April 1967 by the Soil Conservation Service, United States Department of Agriculture, which is available in the township or through the Extension Service, Agricultural Agent, the Pennsylvania State University in Norristown.

SOURCE WATER PROTECTION AREAS (SWPA) – The zone through which contaminants, if present, are likely to migrate and reach a drinking water well or surface water intake.

SPECIAL PROTECTION WATERSHEDS – Watersheds that have been designated in Pennsylvania Code Title 25 Environmental Protection, Chapter 93 Water Quality Standards as exceptional value (EV) or high quality (HQ) waters.

SPILLWAY – A conveyance that is used to pass the peak discharge of the maximum design storm that is controlled by the Stormwater facility.

STABILIZED MATERIAL – Any aggregate such as gravel, stone, slag or mixtures of such aggregates with soil, placed in such a manner as to provide a smooth, stable, all-weather surface not subject to undue raveling.

STATE WATER QUALITY REQUIREMENTS – As defined under state regulations (protection of *designated* and *existing* uses - 25 Pa. Code Chapters 93 and 96) including:

(1) Each stream segment in Pennsylvania has a "designated use," such as "cold water fishery" or "potable water supply," which are listed in 25 Pa. Code Chapter 93. These uses must be protected and maintained, under state regulations.

(2) "Existing uses" are those attained as of November 1975, regardless whether they have been designated in 25 Pa. Code Chapter 93. Regulated Earth Disturbance activities must be designed to protect and maintain existing uses and maintain the level of water quality necessary to protect those uses in all streams, and to protect and maintain water quality in special protection streams.

(3) Water quality involves the chemical, biological and physical characteristics of surface water bodies. After Regulated Earth Disturbance activities are complete, these characteristics can be impacted by addition of pollutants such as sediment, and changes in habitat through increased flow volumes and/or rates as a result of changes in land surface area from those activities. Therefore, permanent discharges to surface waters must be managed to protect the stream bank, streambed and structural integrity of the waterway, to prevent these impacts.

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 "Return Period".

STORM SEWER – A system of pipes and/or open channels that convey intercepted runoff and stormwater from other sources, but exclude domestic sewage and industrial wastes.

STORMWATER – The surface runoff generated by precipitation reaching the ground surface.

STORMWATER MANAGEMENT BEST PRACTICES – Those structural physical constructed facilities and non-physical land management practices intended to reduce the rate and volume of rainfall runoff and improve runoff water quality is abbreviated as BMPs or SWM BMPs.

STORMWATER MANAGEMENT FACILITY – Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff quality, rate or quantity. Typical Stormwater & Watershed Management facilities include, but are not limited to, detention and retention basins, open channels, storm sewers, pipes, and infiltration structures.

STORMWATER MANAGEMENT PLAN – The watershed plans, known as the "East Branch Perkiomen Creek Watershed Act 167 Stormwater Management Plan" and "Neshaminy and Little Neshaminy Creeks Watershed Act 167 Stormwater Management Plan," for managing those land use activities that will influence stormwater runoff quality and quantity and that would impact the East Branch Perkiomen Creek and Neshaminy and Little Neshaminy Creek Watersheds adopted by Bucks and Montgomery Counties as required by the Act of October 4, 1978, P.L. 864 (Act 167).

STORMWATER AND WATERSHED MANAGEMENT SITE PLAN – The plan prepared by the Applicant or his representative of plats, construction details and supporting computations indicating how stormwater runoff will be managed at the particular site of interest according to this Ordinance (Includes a site specific Stormwater Management Site Plan in a non NPDES or Act 167 Context).

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.

STREAM – A natural watercourse.

STREAM BUFFER (RIPARIAN BUFFER**)** – The land area adjacent to each side of a stream, essential to maintaining water quality. (See Buffer)

STREAM ENCLOSURE – A bridge, culvert or other structure in excess of 100 feet in length upstream to downstream which encloses a regulated water of the Commonwealth.

STREAM FREQUENCY – The number of times that a given storm "event" occurs or is exceeded on the average in a stated period of years. See "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.

STREAMBANK EROSION – The widening, deepening, or headward cutting of channels, streams and waterways, whether natural or man-made, caused by Stormwater runoff or bankfull flows.

SUBAREA (Sub-watershed) – The smallest drainage unit of a watershed for which stormwater management criteria have been established in the Stormwater Management Plan.

STREET, HALF – A street of less than the required right-of-way, that is, where a street is proposed or a right-of-way is provided along a property line where the center line of the street would be the property line.

STREET LINE – The dividing line between a lot and the right-of-way of a street, legally open or officially recorded by the township.

STREET, MARGINAL ACCESS – A street parallel and adjacent to a primary street providing access to abutting properties by a cartway separated from the primary street by a reserve strip.

STREET, PRIMARY – A street carrying heavy traffic volumes of fast-moving traffic.

STREET, RESIDENTIAL – A street used primarily as the principal means of access to local properties and which carries a small volume of traffic.

STREET or ROAD – A right-of-way, publicly or privately owned, serving primarily as means of vehicular and pedestrian travel, furnishing access to abutting properties, which may also be used to provide space for sewers, public utilities, shade trees and sidewalks.

STREET, SECONDARY – A street connecting local residential streets to primary streets and which carries a lesser volume of traffic.

STRUCTURE – Anything constructed or erected on the ground or attached to the ground, including but not limited to buildings, factories, sheds, cabins, mobile homes and other similar items.

SUBAREA (SUBWATERSHED) – The smallest drainage unit of a watershed for which Stormwater & Watershed Management criteria have 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, partition by the court for distribution to heirs or devisees, 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 10 acres not involving any new street or easement of access or any residential dwelling shall be exempted.

SURFACE WATERS OF THE COMMONWEALTH – Any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of conveyance of surface water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth.

SURVEYOR– A professional land surveyor licensed as such in the Commonwealth of Pennsylvania.

SWALE – A low-lying stretch of land which gathers or carries surface water runoff.

SWM Site Plan – The documentation of the Stormwater Management system, including supporting graphs, specifications, construction details and technical analysis, to be used for a given development site, the contents of which are further defined herein. Also same as a Stormwater and Watershed Management Plan, or a subset thereof, for a specific land parcel proposed for building(s), building expansion, impervious or semi-impervious paving, grading or otherwise disruption of the existing topography, land surface or hydrologic regime.

TENURE – The form of occupancy of a unit, i.e., fee-simple sale, rental, condominium, cooperative, etc.

TIME OF CONCENTRATION (Tc) – The time required 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.

TOP-OF-BANK – Highest point of elevation in a stream channel cross-section at which a rising water level just begins to flow out of the channel and over the floodplain.

TIMBER OPERATIONS – See Forest Management

TIME-OF-CONCENTRATION (Tc) – The shortest time required for surface runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. This time may be the combined total of overland flow time and flow time in pipes or channels as the shortest flow path.

TOP-OF-BANK – Highest point of elevation in a stream channel cross-section at which a rising water level just begins to flow out of the channel and over the floodplain.

TOPSOIL – Surface soils and subsurface soils which presumably are fertile soils and soil material, ordinarily rich in organic matter or humus debris. Topsoil is usually found in the uppermost soil layer called the "A horizon."

TOWNSHIP – Franconia Township, Montgomery County, Pennsylvania.

TRACT AREA – The total acreage within the lot lines, excluding that area continuously covered by water and rights-of-way of existing public roads.

TRAVEL TRAILER – A recreational vehicle requiring a separate power source for pulling it, which may include living, sleeping, eating and sanitary facilities, but which is designed for vacation travel and not for long-term or permanent occupancy.

TREE – Any woody plant with a well-defined stem at least 11/2 inches in caliper at 12 inches above the ground.

TREE MASS – A grouping of three or more trees, each at least 11/2 inches in caliper, within a one-hundred-square-foot area.

TREE, MATURE – Any tree of six inches or more in caliper, whether standing alone, in tree masses or woodlands. A mature tree shall be a healthy specimen and shall be a desirable species, as determined by the Municipal Landscape Architect.

TREE, SPECIMEN – Any tree with a caliper that is 75% or more of the record tree of the same species in the Commonwealth of Pennsylvania.

ULTIMATE RIGHT-OF-WAY – The expected future right-of-way computed from the center line of an established right-of-way, as shown on the Official Map Summary of Franconia Township.

ULTIMATE RIGHT-OF-WAY LINE – The line parallel to the center line of any public street which defines the boundary of the ultimate right-of-way.

URBAN AREA – An area where the roadways have been built to typical city street standards, including sidewalks and curbs.

USE AREA – Any area of land that is given to one category of land use and is used to compute the net density of that use.

VEGETATED SWALE – A natural or man-made waterway, usually broad and shallow, covered with erosion-resistant grasses, used to convey surface water.

VEHICLE – Any device in, upon or by which any person or property is or may be transported or drawn upon a public highway.

VEHICULAR USE AREA – Any paved ground surface, except a street, used by any type of vehicle, whether moving or at rest.

VERNAL POND (Pool) – Seasonal depressional wetlands that are covered by shallow water for variable periods from winter to spring, but may be completely dry for most of the summer and fall.

VISUAL SCREEN – A barrier of living or nonliving landscape material put in place for the purpose of obscuring the view of the premises screened; also called a "buffer."

WATER CONNECTION – The water connection consists of all pipes, fittings and appurtenances from the water riser pipe to the water inlet pipe of the distribution system within the mobile home.

WATERCOURSE – A channel or conveyance of surface water, permanent stream, intermittent stream, river, brook, creek or a channel or ditch for water, whether natural or man-made.

WATERSHED – Region or area drained by a river, watercourse or other body of water, whether natural or artificial.

WATERS OF THE COMMOMNWEALTH – Any and all rivers, streams, creeks, rivulets, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all 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 as defined by law.

WATER RISER PIPE – The water riser pipe is that portion of the water service pipe which extends vertically to the ground elevation and terminates at a designated point at each mobile home lot.

WATER SYSTEMS – Water supply system(s), either publicly or privately owned, that serve the general public is (are) not restricted to type of user or land use.

WELLHEAD – 1.) a structure built over a well, 2.) the source of water for a well.

WELLHEAD PROTECTION AREA – The surface and subsurface area surrounding a water supply well, well field, or spring supplying a public water system, through which contaminants are reasonably likely to move toward and reach the water source.

WET BASIN – Pond for stormwater runoff management that is designed to detain urban runoff and always contains water.

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. Wetlands generally include swamps, marshes, bogs, fens, and similar areas.

WOODLAND – A stand of predominantly native vegetation covering at least one acre, consisting of at least 50% cover of mature trees of varying size.

YARD – An open, unoccupied space on the same lot with a building or buildings or use, open and unobstructed from the ground to the sky.

§ 83-5. Application.

A. Every applicant for a grading permit shall file a written application with the Township Zoning Officer, which shall be forwarded to the Township Engineer for review. Such application shall: (5). Stormwater and Watershed Management Plan shall be provided in accordance with the requirements of Article X for all regulated activities over 5000 sq. ft. (1000 sq. ft.in the Neshaminy Watershed) including Post Construction Stormwater Management Facilities with an Operations and Management Plan.

§ 122-25. Grading.

A. Site Excavation and fill. No permanent excavation or fill shall be made with a face steeper in slope than two to one except under one or more of the following conditions:

   1. The excavation or fill is located so that a line having a slope of 1 1/2 horizontal to one vertical and passing through any portion of the face will be entirely inside of the property lines of the property on which the excavation or fill is made.

   2. The material in which the excavation or fill is made is sufficiently stable to sustain a slope of steeper than two to one, and a written statement of a civil engineer, licensed by the Commonwealth of Pennsylvania and experienced in soil engineering, to that effect is submitted to the Township Engineer and approved by him. The statement shall state that the site has been inspected and the deviation from the slope specified hereinbefore will not result in injury to persons or damage to property.

   3. A concrete or stone-masonry wall constructed according to present or future designs of the Township of Franconia is provided to support the face of the excavation or fill.

B. Slopes and fences. The top or bottom edge of slopes shall be a minimum of three feet from property or right-of-way lines of streets or alleys in order to permit the normal rounding of the edge without encroaching on the abutting property. All property lines (where walls or slopes are steeper than one horizontal to one vertical and five feet or more in height) shall be protected by a chain-link fence four feet in height approved by the township. The fence shall be an integral part of the wall.

C. Site grading plan. The Township Engineer shall require a grading plan in conjunction with the plan of subdivision, land development or regulated earthmoving activity in order to ensure

compliance with the above standards and the provisions of a separately enacted Grading Ordinance.

D. Stormwater and Watershed Management Plan shall be provided in accordance with the requirements of Article X for all regulated activities over 5000 sq. ft. (1000 sq. ft.in the Neshaminy Watershed) including Post Construction Stormwater Management Facilities each of which shall include an Operations and Management Plan.

§ 122-26. Drainage.

A. Design Requirements.

1. Storm drains, storm and surface drainage. All storm drains and drainage facilities such as gutters, catch basins, bridges and culverts shall be installed and the land graded for adequate drainage as shown on the grading plan submitted and approved with the preliminary plan. Surface grading of non-paved surfaces shall be of a minimum grade of 2% (0.02 ft./ft.) except where underdrain is provided within designed channels such minimal surface grade shall be 1% (0.01 ft./ft.).

2. When required:

(a) Storm drains and appurtenances shall be required to be constructed by the subdivider to take surface water from the bottom of vertical grades, where gutter flows exceed one half the lane width of a highway, in channels where flow velocity exceeds the ability of the channel lining to resist erosion or degradation, where underdrain is necessary to lead water away from springs and to avoid excessive use of cross gutters at street intersections and elsewhere. All surface waters shall be enclosed in storm drainage structures except where the Stormwater Management and Watershed Plan encourages designed infiltration in surface water channels or natural channels are maintainable.

[1] Open watercourses are to be preserved where they exist naturally and where, in the opinion of the departments affected, they will not interfere with public convenience or safety, but in fact will provide comparable or superior drainage capabilities of piped drainage. Stabilization design of eroding natural waterways shall be incorporated with the Stormwater and Watershed Management Plan.

[2] When submitting a plan for approval involving the construction of storm drainage facilities, the designer's computations shall be submitted in duplicate to facilitate the checking of design.

[3] Design of storm drainage facilities shall be completed in accordance with accepted engineering practices in conjunction with standards and approval to be given by the Township Engineer.

2. (b) Storm drainage facilities, including PCSWM, shall be designed so that the peak discharge of runoff after development for the design storm shall be no more than the peak flow before the development was undertaken or the less under Article X, Stormwater and Watershed Management. For development and redevelopment sites, the ground cover used to determine the existing conditions runoff volume and flow rate for

the developed portion of the site shall be based upon actual land cover conditions. If the developed site contains impervious surfaces, 20 percent of the impervious surface area shall be considered meadow in the model for existing conditions.

3. Location. Wherever practicable storm drains shall be located behind the curb and within the right-of-way of the street. They shall be protected by a cover of at least 18 inches.

4. Size, grade and type. Storm drains shall be adequate for the anticipated runoff when the area is fully developed as permitted by zoning. They shall have a minimum internal diameter of 18 inches and a minimum grade of 1/2 of 1% unless otherwise approved by the Township Engineer. Storm drainage piping beneath paved surfaces, adjacent and/or within paved surfaces and /or highway right-of-ways, or as may be directed by the Township Engineer, shall be Reinforced Concrete Pipe of the appropriate design class.

5. Change in direction. Special curved storm drain sections may be used where abrupt changes are made in alignment in lieu of constructing manholes only for pipe sizes over 30 inches in diameter and with permission of the Township Engineer.

6. Manholes. Manholes shall be constructed at all changes in horizontal or vertical alignment; shall be spaced not more than 300 feet apart on pipe of 24 inches internal diameter or less, and not more than 400 feet apart where larger sizes are installed. Inlets may be substituted for manholes where they will serve a useful purpose.

7. Inlets. Inlet spacing shall be so arranged that 95% of the gutter flow will be captured. Inlets should be spaced to intercept sufficient flow to handle at least 1/2 of the traveled cartway lane. No inlet smaller than Franconia Standard Type 4 Foot Special Inlet shall be used on streets with grades of 4% or less. Franconia Standard Type 6 Foot Special Inlets shall be used on streets with grades of more than 4%. Inlets at street intersections shall be placed on the tangent and not on the curved portions. The gutter adjacent to and immediately upgrade from the inlet shall be so warped as to direct the water into the inlet.

8. Castings. Manhole and inlet castings, together with their covers or gratings, shall conform to Pennsylvania Department of Transportation or township standards, as may be in effect at the time the design of the sewer is submitted.

9. Stormwater roof drains. Stormwater roof drains and pipes shall not discharge water over a sidewalk but shall be either infiltrated into a designed infiltration system or extended under the sidewalk into the storm-sewer collection system.

10. Unnatural drainage. Wherever construction stops or concentrates the natural flow of storm drainage in such a way as to affect adjoining properties, approval of the owners should be obtained in writing and a copy filed with the Township Manager. Approval of plans by the township does not authorize or sanction drainage affecting adjoining properties.

11. Drainage from non-natural sources. Water originating from other than natural sources, such as air-conditioning, dwelling units, sump pumps or other dry-weather flow, shall be treated in accordance with DEP NPDES requirements and Article X. It is desirable that the engineer seek to avoid the discharge of water under the sidewalk through the curb into the gutter except as may be allowed under Article X.

B. Design submission and supporting computations.

1. Stormwater runoff calculations shall use a generally accepted calculation technique that is based on the NRCS soil cover complex method. Design Parameters shall be those in SCS TR-55. Table 122-26.1 summarizes other computation methods that the Design Engineer may select as the appropriate technique in consultation with the Township Engineer based on the individual limitations and suitability of each method for a particular site.

   The Rational Method is an alternate technique that may be used for drainage areas under 200 acres in consultation with the Township Engineer. Runoff coefficients (c) for both existing and proposed conditions shall utilize PennDOT Design Manual for this method unless otherwise directed by the Township Engineer.

2. All calculations consistent with the Franconia Code using the soil cover complex method shall use the appropriate design rainfall depths for the various return period storms for PennDOT Region 5. Neshaminy Watershed shall use NOAA Atlas 14, Doylestown Gage (35-221). If a hydrologic computer model such as PRSM, HEC-1 or HEC-HMS is used for stormwater runoff calculations, then the duration of the modeled design rainfall event shall be 24 hours.

3. Runoff Curve Numbers (CN) for existing to be used in the soil cover complex method, Rational Method or other selected Hydrologic Methodology shall assume the existing conditions flow rate determination, undeveloped land shall be considered as "meadow" in good condition, unless the natural ground cover generates a lower curve number or Rational 'C' value (i.e., forest).

4. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration for overland flow, with sheet flow limited to return periods from the Design Storm Curves from PA Department of Transportation Design Rainfall Curves(1986). Times of concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of *Urban Hydrology for Small Watersheds*, NRCS, TR-55 (as amended or replaced from time to time by NRCS – 100 Foot Maximum Length).

5. The designer shall consider that the runoff from proposed sites graded to the subsoil will not have the same runoff conditions as the site under existing conditions even if topsoiled and seeded. The designer shall increase their proposed condition CN or C value to reflect proposed soil conditions.

6. The design of any stormwater detention facilities intended to meet the performance standards of this Chapter shall be verified by routing the design storm hydrograph through these facilities using the Storage-Indication Method. For drainage areas greater than 0.5 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. The municipality may approve the use of any generally accepted full hydrograph approximation technique that shall use a total runoff volume that is consistent with the volume from a method that produces a full hydrograph.

Table 122-26.1

Acceptable Computation Hydrologic Methodologies For Stormwater Management Plans

METHOD	METHOD DEVELOPED BY	APPLICABILITY
TR-20 (or commercial computer package based on TR-20)	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary.
TR-55 (or commercial computer package)		Applicable for development USDA NRCS plans within limitations described.
HEC-1, HEC-HMS	U.S. Army C.O.E	Applicable where use of full Hydrologic computer models
PSRM	Penn State University	Applicable where use of a Hydrologic computer model is desirable or necessary; simpler than TR-20 or HEC-1
Rational Method PennDOT Design Manual (or commercial computer package based on Rational Method)		For sites less than 200 acres, or approved by Township Engineer
Other Methods		As approved by the Twp. Eng.

7. All plans showing the proposed storm sewer construction must be accompanied by a complete design submitted by the PA Registered Engineer or Land Surveyor. Such design shall include hydraulic grade line, pipe full capacity, full and partial full velocity, inlet interception efficiency with bypass channel flow width, outfall flow spread and apron stability sizing computations.

8. When subdivisions or land developments are submitted to the township for approval in sections, a complete storm sewer design for the proposed subdivision and land development shall be submitted. The proposed design must include the entire tract, including all contributing upstream drainage area(s) and projected land use.

9. If only a section of a subdivision or land development is contemplated for construction, the engineer shall show how he proposes to handle stormwater from this section in order to prevent damage to adjacent properties. If temporary construction is required, the engineer shall include such structures in the plan submitted.

10. In the event that such temporary measures cannot ensure protection to adjacent properties, then the main outfall line of the storm sewer shall be included as part of the construction for the proposed section.

§ 122-76. Purpose.

The purpose of this Article is to promote health, safety, and welfare within the Township and its watersheds by minimizing the harms and maximizing the benefits through provisions designed to:

A. Manage stormwater runoff impacts including erosion and sedimentation at their sources and in community settings by regulating stormwater collection and disposal activities including incorporation of new technologies using recognized Best Management Practices (BMPs) where practicable.

B. Minimize increases in Stormwater volume, peak flows and land development impervious surfaces.

C. Utilize and preserve the existing natural drainage systems as much as possible.

D. Manage stormwater impacts close to the runoff source while relying on natural processes for treatment and infiltration on the Development Site to the extent practicable.

E. Provide for infiltration of Stormwater, where geologically feasible in order to maintain groundwater recharge and prevent degradation of surface and groundwater quality and to otherwise protect water resources.

F. Maintain existing base flows and quality of streams and watercourses.

G. Comply with legal water quality requirements under state law, including regulations at 25 PA Code Chapter 93.4a, to protect and maintain "existing uses" and maintain a level of water quality to support those uses in all streams, and to protect and maintain water quality in "special protection" streams.

H. Prevent scour and erosion of streambanks and streambeds including the preservation of the natural flood-carrying capacity of streams and the improvement thereof where feasible.

I. Provide for proper operations and maintenance of all permanent stormwater management BMPs that are implemented in the Township.

J. Provide a mechanism to identify controls necessary to meet the NPDES permit requirements.

K. Implement an illegal discharge detection and elimination program to address non-stormwater discharges into the Township's storm sewer system.

L. Provide review procedures and performance standards for stormwater management planning and BMP maintenance operations.

§ 122-78 Applicability.

A. This Ordinance applies to any Land Development and/or Regulated Earth Disturbance activities within any watershed in the Township, and includes regulation of the discharge of any stormwater runoff entering into the Township's or private association storm sewer system or waterways from lands within the boundaries of the Township.

B. The following activities are defined as "Regulated Activities" and shall be regulated by this Ordinance unless exempted under **§ 122-79**:

1. Land developments or Re-development,

2. Construction of new buildings or additions to existing buildings,

3. Non agricultural subdivision of land for the construction of building(s), accessory structures, driveways, parking areas or other constructed features that affect the natural hydrologic regime of the land.

4. Alteration of the natural hydrologic regime for any non-agricultural or non-forestry purpose as may be not exempt from municipal control by state law or regulation.

5. Construction or reconstruction of, or the addition of, new impervious or semi-pervious surfaces (i.e., driveways, parking lots, roads, etc. except for reconstruction of municipal roads).

6. Diversion by piping or encroachments within or along any natural or man-made channel.

7. Nonstructural and structural stormwater management BMPs or appurtenances thereto.

8. Earth disturbance or installation of impervious surfaces of an area of more then 5,000 sq. ft., (or 1000 sq. ft. within the Neshaminy Creek Watershed), whether singular or in combination on the same tract or application.

9. Any of the above Regulated Activities which were approved more than 5 years prior to the effective date of this Article and resubmitted for municipal approval.

10. Prohibited or polluted discharges to the surface of the land or a stormwater collection or conveyance system as defined by law.

§ 122-79 Exemptions

A. The following land use activities are exempt from the SWM Plan submission requirements of this Article.

1. Use of land for gardening for home consumption.

2. Agriculture when operated in accordance with a conservation plan, nutrient management plan or erosion and sedimentation control plan approved by the County Conservation District, including activities such as growing crops, rotating crops, tilling of soil and grazing animals. Installation of new or expansion of existing farmsteads, animal housing, waste storage and production areas having impervious surfaces that result in a net increase in earth disturbance of greater than five thousand (5,000) square feet shall be subject to the provisions of this ordinance.

3. Forest Management operations which are following the Department of Environmental Protection's management practices contained in its publication "Soil Erosion and Sedimentation Control Guidelines for Forestry" or other requirements that are outlined in 25 Pa. Code Chapter 102, and are operating under an approved E&S Plan although such operations must comply with stream buffer requirements.

4. Development, or re-development, that has less than 5,000 square feet of new, additional or replaced impervious surface cover or earth disturbance (or 1000 sq. ft. within the Neshaminy Creek Watershed).

5. Road Replacement or repairing.

6. Maintenance Exemption. Any maintenance to an existing stormwater management system made in accordance with plans and specifications approved by the Township.

B. This criterion shall apply to the total development or earth disturbance even if the development is to take place in phases in which future subdivisions and respective earth disturbance computations shall be cumulatively considered.

C. Additional exemption criteria and responsibilities of the property owner, developer, contractor or agent:

1. An exemption shall not relieve the Applicant from implementing such measures as are necessary to protect the public health, safety, and adjacent and downstream properties.

2. HQ and EV streams - This exemption shall not relieve the Applicant from meeting the special requirements for watersheds draining to high quality (HQ) or exceptional value (EV) waters identified and Source Water Protection Areas (SWPA) and requirements for nonstructural project design sequencing in accordance with DEP Regulations.

3. Drainage Problems - If a drainage problem is documented or known to exist downstream or downslope of the proposed activity Franconia Township may deny exemption status to such activity and require compliance in full with the requirements of this Article.

D. Emergency Exemption. Emergency maintenance work performed for the protection of public health, safety and Welfare. A written description of the scope and extent of any emergency work performed shall be submitted to the Township within (2) calendar days of the commencement of the activity. If the Township finds that the work is not an emergency, then the work shall cease immediately and the requirements of this ordinance shall be addressed as applicable.

E. Exceptions Specific to the Neshaminy Watershed:

1. Regulated Activities that create impervious surfaces smaller than or equal to 1,000 square feet do not have to apply the volume control requirements of this Article. Regulated Activities of this size are exempt from the peak rate control requirements and the SWM Site Plan preparation located in **§122-82** of this Article. If the activity is found to be a significant contributor of pollution to the waters of this Commonwealth, the Township may enforce any of the above requirements of this Article.

2. Regulated Activities that create impervious surfaces greater than 1,000 square feet up to and including 5,000 square feet are exempt only from the peak rate control requirements of this Article.

3. Small Project Site Plan for small residential regulated activities creating impervious surface greater than 1,000 square feet up to and including 5,000 square feet provides small residential regulated activities with the opportunity to submit a plan without having to hire professional services. Requires pre-approval by Township Code Enforcement. Requirements for the Small Project Site Plan as in the Township Standard Details.

F. Additional Exemption Criteria:

1. Exemption Responsibilities – An exemption shall not relieve the Applicant from implementing such measures as are necessary to protect public health, safety, and property.

2. Drainage Problems – Where drainage problems are documented or known to exist downstream of or is expected from the proposed activity, the Township may deny exemptions.

3. Exemptions are limited to specific portions of this Article.

4. HQ and EV Streams – The Township may deny exemptions in high quality (HQ) or exceptional value (EV) waters and Source Water Protection Areas (SWPA).

§122-81. General requirements for Stormwater and Watershed Management.

A. All Regulated Earth Disturbance activities within the Township shall be designed, implemented, operated and maintained to meet the purposes of this Article, through three elements:

1. Erosion and Sediment control during the Earth Disturbance activities (e.g., during construction), and

2. Water quality protection measures with Volume Control after completion of Earth Disturbance activities (PCSWM – Post Construction Stormwater Management, e.g., after construction), including an Operations and Maintenance plan.

3. Water quantity management during and after Earth Disturbance or other Land Development activities for Peak Rate Runoff Control.

B. No Regulated Earth Disturbance or Stormwater Discharge activities within the Township shall commence until the requirements of this Article are met and all applicable Township and state permits issued.

C. Erosion and sediment control during Regulated Earth Disturbance activities shall be addressed as required by Section 122.83.

D. Post-Construction (PCSWM) water quality protection shall be addressed as required by Section 122-84. Operations and maintenance of permanent stormwater BMPs shall be addressed as required by Sections 122-88 through 122-94.

E. All Best Management Practices (BMPs) used to meet the requirements of this Article shall conform to the State Water Quality Requirements and such more stringent requirements as may be determined by the Township or DEP Approved Act 167 Plans.

G. The design of all storm water management facilities and best management practice facilities shall comply with the requirements of this Chapter using PennDOT Region 5 intensity-duration-frequency curves (except within the Neshaminy Watershed)..

H. Hot Spots are areas where the land use or activity does, or has, produce(d) a higher concentration of trace metals, hydrocarbons or priority pollutants that may infest storm water runoff as may be delineated by qualified experts with supporting technical evaluations.

1. The use of infiltration BMPs is prohibited on hot spot land use areas. Storm water runoff from hot spot land uses shall be pretreated as approved by DEP. In no case may the same BMP be employed consecutively to meet this requirement.

2. Design of pretreatment shall include supporting documentation by Technical or Scientific Professionals with demonstrated expertise in the field.

I. All BMP design shall incorporate biologic controls consistent with the West Nile Guidance of the Montgomery County Conservation District or similar recognized authority in management of the specific mosquito carrier species.

§122-82 Stormwater and Watershed Management (Drainage) Plan.

A. For any of the activities regulated by this Article, the preliminary or final approval of subdivision and/or land development plans, the issuance of any building or occupancy permit, or the commencement of any earth disturbance, such activity may not proceed until the Property Owner or Applicant or his/her agent has received written approval of a Stormwater and Watershed Management Plan from the Municipality and an adequate Erosion and Sediment Control Plan review by the Conservation District or NPDES Permit for Stormwater Discharges Associated with Construction Activities (if the proposed land disturbance is greater than 1 acre) or Post Construction Stormwater Discharges.

The following Plan requirements apply to all Land Development and certain Regulated Earth Disturbance activities, and must be submitted in support of any Land Development, non-exempt Subdivision or Grading Permit Application for review and approval by the Township Engineer. Issuance of Drainage Permits, either in conjunction or separately, whether or not issued with any Grading or Building permits, must be prior to commencement of Regulated Earth Disturbance activities or Stormwater Discharges:

1. All plan requirements under § 122-10 Preliminary plan for major subdivision or land development and § 122-11 Final plan, as applicable.

2. Existing and Resource and Site Analysis Map (ERSAM) showing environmentally sensitive areas including, but not limited to, steep slopes, ponds, lakes, streams, wetlands, hydric soils, vernal pools, stream buffers, hydrologic soil groups. Existing and proposed Land development, any existing recharge areas, potential infiltration areas or permeable soil areas as well as offsite contributing runoff sources, downstream receiving swales, channels or watercourses and affected downstream or downslope properties shall also be included.

3. The overall Stormwater & Watershed Management concept for the project including expected project schedule, development stages or project phases and all interim facilities and management.

4. All structural and non-structural stormwater collection, management and disposal systems including BMPs such as infiltration beds, bio-retention, areas for groundwater recharge including Wetland replacement areas, swales, ponds for aesthetic considerations and other modifications to the land proposed or required in conformance with this Article, other Chapters of the Franconia Code or state laws or regulations.

5. *Erosion and Sediment Control Plan, including all supporting computations, as submitted and approved in conformance with state law and regulations by the Montgomery County Conservation District under NPDES or adequacy review as noted above.

6. Description, design and details for all non-point source pollution controls including all BMPs during and after development.

7. Post Construction Stormwater Management (PCSWM) for both Quality and Quantity Controls.

8. Supporting hydrologic and hydraulic computations including source and authority of computational techniques.

9. A Post Construction Operations and Maintenance Plan for all permanent PCSWM facilities.

B. Requirements Applicable to All Stormwater & Watershed Management Systems

1. **Stormwater drainage systems shall be provided such as to permit unimpeded flow along natural watercourses, except as modified by Stormwater & Watershed Management facilities or open channels consistent with this ordinance.

2. The Stormwater and Watershed Management plan must be designed consistent with the sequencing provisions of Section 122-82.C to ensure maintenance of the natural hydrologic regime and to promote groundwater recharge and protect groundwater and surface water quality and quantity. The SWM BMP plan designer must proceed sequentially in accordance with §122-84, 85, 86.

3. The existing points of concentrated drainage that discharge onto adjacent property shall not be altered without permission of the affected property owner(s) and shall be subject to any applicable discharge criteria specified in this Article.

4. Areas of existing diffused drainage discharge shall be subject to any applicable discharge criteria in the general direction of existing discharge, whether proposed to be concentrated or maintained as diffused drainage areas, except as otherwise provided by this Article. 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.

5. Whenever a watercourse is located within a development site, it shall remain open in its natural state and location and should not be piped, impeded, or altered (except for road crossings). It is the responsibility of the developer to stabilize existing eroded stream/channel bank.

6. Where a development site is traversed by watercourses drainage easements 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.

7. 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 drainageways shall be subject to approval by the Township and the DEP

through the Joint Permit Application process, or, where deemed appropriate by DEP, through the General Permit process.

8. Any Stormwater & Watershed Management facilities regulated by this ordinance that would be located in or adjacent to waters of the Commonwealth or wetlands shall be subject to approval by DEP through the Joint Permit Application process, or, where deemed appropriate by DEP through the General Permit process. When there is a question whether wetlands may be involved, it is the responsibility of the applicant or their agent to show that the land in question is not classified as wetlands utilizing a recognized expert experienced in DEP and Corp of Engineers Criteria; otherwise approval to work in the area must be obtained from DEP.

9. Any Stormwater & Watershed Management facilities regulated by this ordinance that would be located on, along or discharge into or beneath the state highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation (PennDOT).

10. Minimization of impervious surfaces and infiltration of runoff through seepage beds, infiltration trenches, etc., where feasible, is required to reduce the size or need for facilities.

11. Roof drains shall discharge to infiltration areas or vegetative BMPs to the maximum extent practicable

12. Special requirements for watersheds draining to high quality (HQ) and exceptional value (EV) waters: The temperature and quality of water and streams that have been declared as exceptional value and high quality are to be maintained as defined in Chapter 93, Water Quality Standards, Title 25 of Pennsylvania Department of Environmental Protection Rules and Regulations. Temperature sensitive BMPs and stormwater conveyance systems are to be used and designed with storage pool areas and supply outflow channels and should be shaded with trees. This will require modification of berms for permanent ponds and the relaxation of restrictions on planting vegetation within the facilities, provided that capacity for volumes and rate control is maintained. At a minimum, the southern half on pond shorelines shall be planted with shade or canopy trees within 10 feet of the pond shoreline. In conjunction with this requirement, the maximum slope allowed on the berm area to be planted is 10 to 1. This will lessen the destabilization of berm soils due to root growth. A long-term maintenance schedule and management plan for the thermal control BMPs is to be established and recorded for all development sites.

13. All stormwater runoff shall be pretreated for water quality prior to discharge to surface or groundwater as required by Section 303 of this ordinance.

C. The applicant shall demonstrate that they designed the Regulated Activities in the following sequence to minimize the increases in stormwater runoff and impacts to water quality:

1. Prepare an Existing Resource and Site Analysis Map (ERSAM), showing environmentally sensitive areas including, but not limited to, steep slopes, ponds, lakes, streams, wetlands, hydric soils, vernal pools, flood plains, stream buffer zones, hydrologic soil groups A, B, C, and D, any existing recharge areas and any other requirements outlined in the Municipal Subdivision and Land Development Ordinance. Establish stream buffer according to recommended criteria or applicable ordinances.

2. Prepare a draft project layout avoiding sensitive areas identified in Section 122-82.C.1 and minimizing total site earth disturbance as much as possible. The ratio of disturbed area to the entire site area and measures taken to minimize earth disturbance shall be included in the ERSAM.

3. Identify site specific existing conditions drainage areas, discharge points, recharge areas, and hydrologic soil groups A and B.

4. Evaluate Nonstructural Stormwater & Watershed Management Alternatives as outlined in the *Pennsylvania Handbook of Best Management Practices for Developing Areas, DEP Pennsylvania Stormwater Best Management Practices Manual* or other applicable design manuals generally recognized by the professional community.
    a. Minimize earth disturbance
    b. Minimize impervious surfaces
    c. Break up large impervious surfaces.

5. Satisfy water quality objective (Section 122-84).

6. Satisfy groundwater recharge (infiltration) objective (Section 122-85) and provide for stormwater treatment prior to infiltration.

7. Satisfy streambank erosion protection objective (Section 122-86).

8. Conduct a predevelopment runoff analysis.

9. Prepare final project design to maintain predevelopment drainage areas and discharge points, to minimize earth disturbance and impervious surfaces, and to reduce runoff to the maximum extent possible, the use of surface or point discharges.

10. Conduct a post-construction conditions runoff analysis based on the final design to meet the release rate and overbank flow limitations and extreme event requirements

11. Manage any remaining runoff through treatment prior to discharge, as part of detention, bio-retention, direct discharge or other structural control.

D. The following permits, if applicable, must be obtained and provided to the Township prior to issuance of a 'Stormwater and Watershed Management Permit' and commencement of Regulated Earth Disturbance activities or Stormwater Discharges.

1. Any Stormwater & Watershed Management facility that would be located in or adjacent to surface waters of the Commonwealth, including wetlands, subject to permit by DEP under 25 Pa. Code Chapter 105.

2. Any Stormwater & Watershed Management facility that would be located on a State highway right-of-way, or require access from a state highway subject to approval by the Pennsylvania Department of Transportation (PENNDOT) under a Highway Occupancy Permit or adequacy review.

3. Culverts, bridges, storm sewers or any other facilities which must pass or convey flows from the tributary area and any facility which may constitute a dam subject to permit by DEP under 25 Pa. Code Chapter 105.

4. NPDES Permitting or adequacy review under DEP regulations that require an Erosion and Sediment Control Plan for any Earth Disturbance activity of 5,000 square feet or more, under 25 Pa. Code § 102.4(b).

§122-83. Erosion and sediment control during Regulated Earth Disturbance activities.

A. No Regulated Earth Disturbance activities within the Township shall commence until approval by the Township of an Erosion and Sediment Control Plan for construction activities and issuance of appropriate outside agency permits and/or letters of adequacy.

B. DEP has regulations that require an Erosion and Sediment Control Plan for any Earth Disturbance activity of 5,000 square feet or more, under 25 Pa. Code § 102. The applicant agrees to meet these regulations and requirements and shall provide evidence to the Township.

C. In addition, under 25 Pa. Code Chapter 92, a DEP "NPDES Construction Activities" permit is required for Regulated Earth Disturbance activities.

D. Evidence of any necessary permit(s) for Regulated Earth Disturbance activities from the appropriate DEP regional office or County Conservation District must be provided to the Township. The issuance of an NPDES Construction Permit (or permit coverage under the statewide General Permit) satisfies the requirements of §122-26.

E. A copy of the Erosion and Sediment Control plan and any required permit, as required by DEP regulations, shall be available at the project site at all times.

§122-84. Water quality requirements and Stormwater Volume Control after Land Development and/or Regulated Earth Disturbance activities are complete.

A. No Land Development or Regulated Earth Disturbance activities within the Township shall commence until approval by the Township of a plan which demonstrates compliance with State Water Quality Requirements and Stormwater Volume Control after construction is complete. All Regulated Activities shall include such measures as necessary to:

1. Protect health, safety, and property:

2. Meet the water quality goals of this Article by implementing measures to:

a. Minimize disturbance to floodplains, wetlands, and wooded areas.

b. Create, maintain, repair or extend riparian buffers.

c. Avoid erosive flow conditions in natural flow pathways.

d. Minimize thermal impacts to waters of this Commonwealth.

e. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible consistent with other provisions of this Code.

3. To the maximum extent practicable, the Plan shall incorporate the techniques for Low Impact Development Practices (e.g. protecting existing trees, reducing area of impervious surface, cluster development, and protecting open space as described in the *Pennsylvania Stormwater Best Management Practices Manual*, Pennsylvania Department of Environmental Protection (PADEP) no. 363-0300-002 (2006)) where not inconsistent with this Code.

B. The BMPs must be designed, implemented and maintained to meet State Water Quality Requirements, and any other more stringent requirements as determined by the Township. (In the Neshaminy Watershed Post-development total runoff should not be increased from pre-development total runoff for all storms equal to or less than the 2-year 24-hour duration precipitation).

C. To control post-construction stormwater impacts from Regulated Earth Disturbance activities, State Water Quality Requirements can be met by BMPs, including site design, which provide for replication of pre-construction stormwater infiltration and runoff conditions, so that post-construction stormwater discharges do not degrade the physical, chemical or biological characteristics of the receiving waters. As described in the DEP Comprehensive Stormwater Management Policy (#392-0300-002, September 28, 2002, as amended from time to time), this may be achieved by the following:

1. Infiltration: replication of pre-construction stormwater infiltration conditions,

2. Treatment: use of water quality treatment BMPs to ensure filtering out of the chemical and physical pollutants from the stormwater runoff; and

3. Streambank and Streambed Protection: management of volume and rate of post-construction stormwater discharges to prevent physical degradation of receiving waters (e.g., from scouring).

D. DEP has regulations that require municipalities to ensure design, implementation and maintenance of Best Management Practices ("BMPs") that control runoff from new development and redevelopment after Regulated Earth Disturbance activities are complete. These requirements include the need to implement post-construction stormwater BMPs with assurance of long-term operations and maintenance of those BMPs.

E. Evidence of any necessary permit(s) for Regulated Earth Disturbance activities from the appropriate DEP regional office must be provided to the Township.

F. In addition to the performance standards and design criteria requirements of this Article, the applicant SHALL comply with the following water quality requirements.

1. Adequate storage and treatment facilities will be provided to capture and treat stormwater runoff from developed or disturbed areas. The Recharge Volume computed under Section 122-85.A.2 may be a component of the Water Quality Volume if the applicant chooses to manage both components in a single facility. If the Recharge Volume is less than the Water Quality Volume, the remaining Water Quality Volume may be captured and treated by methods other than recharge/infiltration BMPs. The required Water Quality Volume (WQv) is the storage capacity needed to capture and to treat a portion of stormwater runoff from the developed areas of the site produced from 90 percent of the average annual rainfall (P).

2. To achieve this goal, the following criterion is established:

   The following calculation formula is to be used to determine the water quality storage volume, (WQv), in acre-feet of storage (management of sediment accumulation must be included with computations to insure the maintenance of the desired storage volume).

Eqn. 122-84.1

$$WQv = [(P)(Rv)(A)]/12$$

WQv = Water Quality Volume (acre-feet)
P = Rainfall Amount equal to 90% of events producing this rainfall (in)
A = Area of the project contributing to the water quality BMP (acres)

Rv = 0.05 + 0.009(I) where I is the percent of the area that is impervious surface (impervious area/A*100)

The P value to be utilized to meet this requirement is 1.95 (1.0 in Neshaminy Watershed) inches.

3. Design of BMPs used for water quality control shall be in accordance with design specifications outlined in the *Pennsylvania Handbook of Best Management Practices for Developing Areas, DEP BMP Design Manual,* or other professionally recognized applicable design manuals or peer reviewed technical publications. The following factors SHALL be considered when evaluating the suitability of BMPs used to control water quality at a given development site:

   a. Total contributing drainage area.
   b. Permeability and infiltration rate of the site soils.
   c. Slope and depth to bedrock.
   d. Seasonal high water table.
   e. Proximity to building foundations and well heads.
   f. Erodibility of soils.
   g. Land availability and configuration of the topography.
   h. Peak discharge and required volume control.
   i. Stream bank erosion.
   j. Efficiency of the BMPs to mitigate potential water quality problems.
   k. The volume of runoff that will be effectively treated.
   l. The nature of the pollutant being removed.
   m. Maintenance requirements.
   n. Creation/protection of aquatic and wildlife habitat.
   o. Recreational value.
   p. Enhancement of aesthetic and property value.

G. Neshaminy Watershed Simplified Method (Regulated Activities less than or equal to 1 acre)

1. Stormwater facilities shall capture the runoff volume from at least the first two inches (2″) of runoff from all new impervious surfaces.

   Volume (cubic feet) = (2″ runoff / 12 inches) * impervious surface (sq ft**)**

2. At least the first inch (1″) of runoff volume from the new impervious surfaces shall be permanently removed from the runoff flow—i.e., it shall not be released into the surface waters of the Commonwealth. The calculated volume shall be either reused, evapotranspired or infiltrated through structural or nonstructural means.

   Volume (cubic feet) = (1″ runoff / 12 inches) * impervious surface (sq ft)

3. Infiltration facilities should be designed to accommodate the first half inch (0.5″) of the permanently removed runoff.

4. No more than one inch (1″) of runoff volume from impervious surfaces shall be released from the site. The release time must be over 24 to 72 hours.

§122-85. Water quantity infiltration requirements after Land Development and Regulated Earth Disturbance activities are complete.

A. Ground Water Recharge (Infiltration) BMPs shall meet the following minimum requirements:

Regulated activities will be required to recharge (infiltrate) a portion of the runoff created by the development as part of an overall stormwater management plan designed for the site. The volume of runoff to be recharged shall be determined from sections 122-85.A.2.a. or 122-85.A.2.b. depending upon demonstrated site conditions.

1. Infiltration BMPs intended to receive runoff from developed areas shall be selected based on suitability of soils and site conditions and shall be constructed on soils that have the following characteristics:

   a. A minimum depth of 24 inches between the bottom of the BMP and the limiting zone.

   b. An infiltration and/or percolation rate sufficient to accept the additional stormwater load and drain completely as determined by field tests conducted by the applicant's design professional.

   c. The recharge facility shall be capable of completely infiltrating the recharge volume within four days (96 hours).

   d. Pretreatment shall be provided prior to infiltration.

   e. The requirements for recharge are applied to all *disturbed areas*, even if they are ultimately to be an undeveloped land use such as grass, since studies have found that compaction of the soils during disturbance reduces their infiltrative capacity.

2. The recharge volume (Re) shall be computed by first obtaining the infiltration requirement using methods in either section 122-85.A.2.a or 122-85A.2.b. then multiplying by the total proposed impervious area. The overall required recharge volume for a site is computed by multiplying total impervious area by the infiltration requirement.

   a. NRCS Curve Number equation.

      The following criteria shall apply.

      The NRCS runoff shall be utilized to calculate infiltration requirements (P) in inches.

      Equation 122-85.1

      For zero runoff: P = I (Infiltration) = (200 / CN) – 2

      where: P = I = infiltration requirement (inches)

CN = SCS(NRCS) curve number of the existing conditions contributing to the recharge facility.

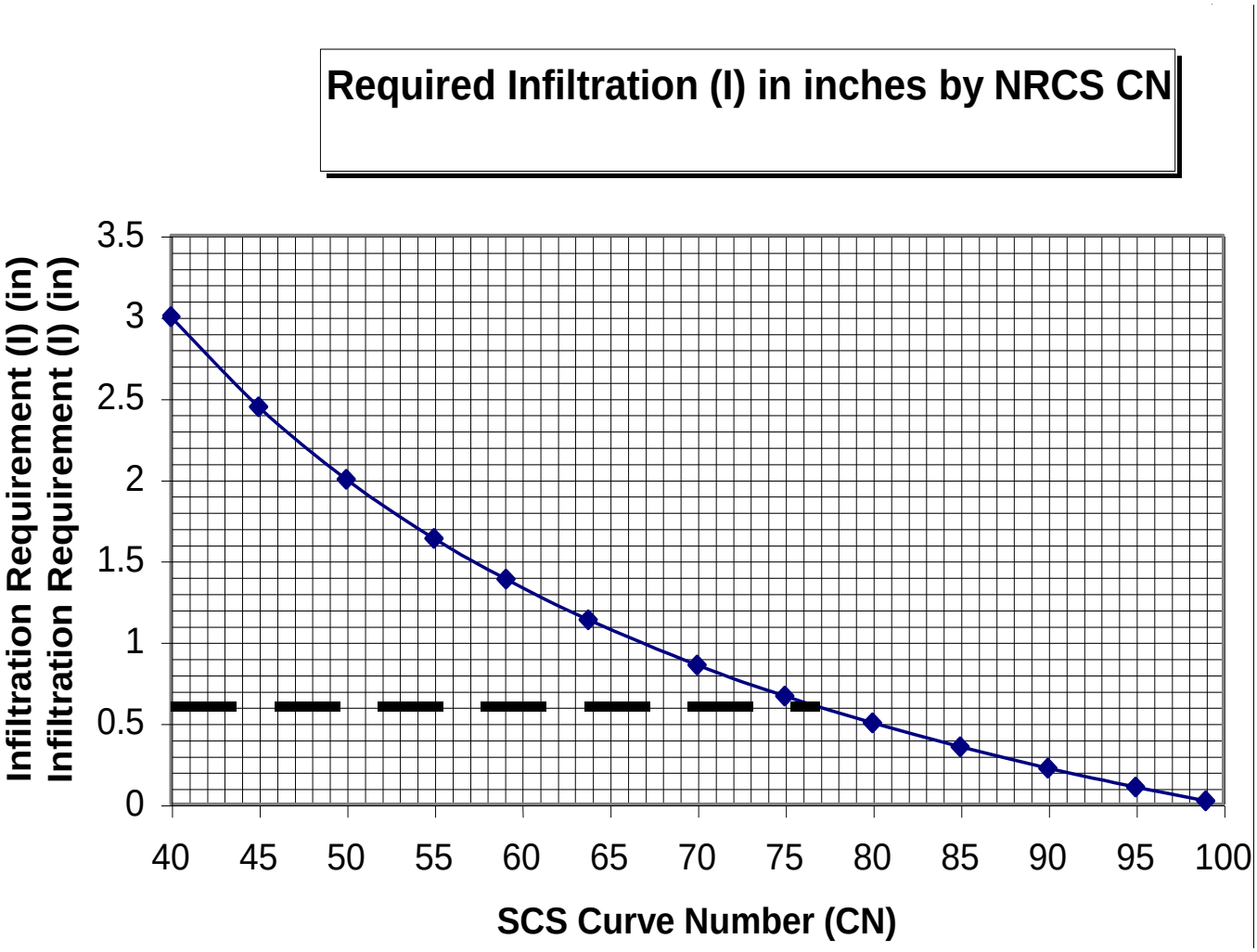
This equation can be displayed graphically in, and the infiltration requirement can also be determined from Equation 122-85.1.

Equation 122-85.2

The recharge volume (Re_v) required would therefore be computed as:

Re_v = I * impervious area (SF) / 12 = Cubic Feet (CF)

Figure 122-85.1. Infiltration Requirement Based upon NRCS Curve Number.



b. Annual Recharge Water Budget Approach.

It has been determined that infiltrating 0.6 inches of runoff from the impervious areas will aid in maintaining the hydrologic regime of the watershed. If the goals of Section 122-85.A.2.a cannot be achieved, then 0.6 inches of rainfall shall be infiltrated from all impervious areas, up to an existing site conditions curve number of 77. Above a curve number of 77, Equation 122-85.1 or Figure 122-85.1 should be used to determine the Infiltration requirement.

where: I = 0.6 inches\

The recharge volume (Re_v) required would therefore be computed as:

Re_v = I * percent impervious area (SF) / 12 = (CF)

The recharge values derived from these methods are the minimum volumes the Applicant must control through an infiltration/recharge BMP facility. However, if a site has areas of soils where additional volume of infiltration can be achieved, the applicant is encouraged to recharge as much of the Stormwater runoff from the site as possible.

B. The general process for designing the infiltration BMP shall be:

A detailed soils evaluation of the project site shall be required to determine the suitability of recharge facilities. The evaluation shall be performed by a qualified applicant and, at a minimum, address soil permeability, depth to bedrock, and subgrade stability.

1. Analyze hydrologic soil groups as well as natural and man-made features within the watershed to determine general areas of suitability for infiltration practices.

2. Provide field tests, such as double ring infiltration tests, at the level of the proposed infiltration surface to determine the appropriate hydraulic conductivity rate.

3. Design the infiltration structure for the required storm volume based on field determined capacity at the level of the proposed infiltration surface.

4. Infiltration may not be feasible on every site due to site-specific limitations such as soil type. Where the recharge volume requirement cannot be physically accomplished, as may be supported by field soils testing, supporting documentation and justification shall be supplied to the municipality with the drainage plan. The design professional shall have the burden of providing such testing and offering alternative design to accomplish the goals of this Article.

5. If on-lot infiltration structures are proposed by the applicant's design professional, it must be demonstrated to the municipality that the soils are conducive to infiltrate on the lots identified (For Neshaminy Watershed Design the infiltration structure based on field determined capacity at the level of the proposed infiltration surface and based on the safety factor of 50 %.). All open-air infiltration facilities shall be designed to completely infiltrate runoff volume within three (3) days (72 hours) from the start of the design storm.

C. Extreme caution shall be exercised where infiltration is proposed in geologically susceptible areas such as strip mines or limestone areas. Extreme caution shall also be exercised where salt or chloride would be a pollutant since soils do little to filter this pollutant and it may contaminate the groundwater. Extreme caution shall be exercised where infiltration is proposed in source water protection areas. The qualified design professional shall evaluate the possibility of groundwater contamination from the proposed infiltration/recharge facility and perform a hydrogeologic justification study if necessary. The infiltration requirement in High Quality/Exceptional Value waters shall be subject to the DEP's Title 25: Chapter 93 Anti-degradation Regulations. The municipality may require the installation of an impermeable liner in BMP and/or detention basins where the possibility of groundwater contamination exists. A detailed hydrogeologic investigation may be required by the municipality

D. The municipality shall require the applicant to provide safeguards against groundwater contamination for uses which may cause groundwater contamination, should there be a mishap or spill.

E. Recharge/infiltration facilities shall be used in conjunction with other innovative or traditional BMPs, stormwater control facilities, and nonstructural Stormwater management alternatives.

F. Hot Spots are sites where the land use or activity produces a higher concentration of trace metals, hydrocarbons, or priority pollutants often found in urban runoff. The use of infiltration BMPs within Hot Spots is prohibited.

§122-86. Water quantity requirements after Land Development and Regulated Earth Disturbance activities are complete for Peak Rate Control to Protect against Downstream Erosion and Flooding, including Stream Bank Protection.

A. In addition to the water quality volume, to minimize the impact of stormwater runoff on downstream streambank erosion and flooding, the requirement is to design a BMP to detain the post development (proposed) conditions 2-year, 24-hour design storm to the existing conditions 1-year flow using the SCS Type II distribution. Additionally, provisions shall be made (such as adding a small orifice at the bottom of the outlet structure) so that the proposed conditions 1-year storm takes a minimum of 24 hours to drain from the facility from a point where the maximum volume of water from the 1-year storm is captured. (i.e., the maximum water surface elevation is achieved in the facility.)

B. Release of water can begin at the start of the storm (i.e., the invert of the water quality orifice is at the invert of the facility). The design of the facility shall consider and minimize the chances of clogging and sedimentation. Orifices smaller than 8 inches diameter are not recommended. However, if the Design Engineer can provide proof that the smaller orifices are protected from clogging by use of trash racks, etc., smaller orifices may be permitted. Trash racks are required for any primary orifice. All open-air infiltration facilities shall be designed to completely infiltrate runoff volume within three (3) days (72 hours) from the start of the design storm

§122-87. Additional water quantity requirements after Land Development and Regulated Earth Disturbance activities are complete. Land Development and other Regulated Earth Disturbance activities must control proposed post disturbance runoff rates to the Existing Condition runoff rates for the applicable Design storms and as otherwise restricted herein.

A. The East Branch Perkiomen Creek watershed has been divided into stormwater management districts as shown on the Watershed Map in Appendix 1. Proposed post construction conditions peak rates of runoff from any regulated activity shall meet the peak release rates of runoff prior to development for the design storms specified below.

These are in addition to the requirements for water quality (Section 122-84), ground water recharge (Section 122-85), and streambank erosion (Section 122-85).

Standards for managing runoff from each subarea in the East Branch Perkiomen Creek watershed are as noted for each district. Development sites located in each of the A, B, or C Districts must control proposed conditions runoff rates to existing conditions runoff rates for the design storms as follows:

District	Design Storm Proposed conditions	Design Storm Existing conditions
A	2-year	1-year
	5-year	5-year
	10-year	10-year
	25-year	25-year
	50-year	50-year
	100-year	100-year
B	2-year	1-year
	5-year	2-year
	10-year	5-year
	25-year	10-year
	50-year	25-year
	100-year	50-year
C-1	2-year	1-year
	5-year	2-year
	10-year	10-year
	25-year	25-year
C-2*	2-year	1-year
	5-year	2-year
	10-year	5-year
	25-year	10-year
	50-year	25-year
	100-year	50-year

B. All Neshaminy Watershed Post Land Development Runoff Rates shall meet the standards in Stormwater Management District A. All other Stormwater and Watershed Management Plans shall comply with the requirements of Stormwater Management District C-1, as noted in 122-87.A. Proposed conditions rates of runoff from any Regulated Activity shall not exceed the

peak release rates of runoff from existing conditions for the design storms specified on the Storm water Management District Watershed Map

C. District Boundaries—The boundaries of the stormwater management districts are shown on an official stormwater management districts map that is available for inspection at the municipal office. The exact location of the Stormwater Management District boundaries, as they apply to a given development site, shall be determined by mapping the boundaries using topographic contours to determine watershed ridge lines (or most accurate data as may be required) provided as part of the Stormwater and Watershed Management Plan.

D. Sites Located in More Than One District—For a proposed development site located within two or more stormwater management district category subareas, the peak discharge rate from any subarea shall be the existing conditions peak discharge for that subarea. The calculated peak discharges shall apply regardless of whether the grading plan changes the drainage area by subarea. An exception to the above may be granted if discharges from multiple subareas recombine in proximity to the site. In this case, peak discharge in any direction may be a 100 percent release rate provided that the overall site discharge meets the weighted average release rate.

E. Off-Site Areas—Off-site areas that drain through a proposed development site are not subject to release rate criteria when determining allowable peak runoff rates to the extent they bypass the on-site controls. However, on-site drainage facilities shall be designed to safely convey off-site flows through the development site. Where off-site flows are routed through the system their hydrological and hydraulic effects on the total system must be considered.

F. Site Areas—Where the area of a site being impacted by a proposed development activity differs significantly from the total site area, only the proposed disturbed area utilizing stormwater management measures shall be subject to the management district criteria. Non-impacted or undisturbed areas that do flow into or are bypassing the stormwater management facilities would not be subject to the management district criteria.

G. "Downstream Hydraulic Capacity Analysis"—Any downstream capacity hydraulic analysis conducted in accordance with this ordinance shall use the following criteria for determining adequacy for accepting increased peak flow rates:

1. Natural or man-made channels or swales must be able to convey the increased runoff associated with a 2-year return period event within their banks at velocities consistent with protection of the channels from erosion. Acceptable velocities shall be based upon criteria included in the Department of Environmental Protection's *Erosion and Sediment Pollution Control Program Manual*.

2. Natural or man-made channels or swales must be able to convey increased 25-year return period runoff without creating any hazard to persons or property. In the event the natural or man-made channels convey flows along or through developed properties a 100 year return period runoff storm shall be utilized.

3. Culverts, bridges, storm sewers or any other facilities which must pass or convey flows from the tributary area must be designed in accordance with the Department of Environmental Protection's Chapter 105 regulations (if applicable) and, at minimum, pass the increased 25-year return period runoff.

H. Regional Stormwater Management Facilities Alternatives—For certain areas within the study area, the Township may elect to provide one control facility for more than one development site than to provide an individual control facility for each development site. The initiative and funding for any regional runoff control alternatives are the responsibility of prospective applicants. The design of any regional control facility must incorporate reasonable development of the entire upstream watershed. The peak outflow of a regional control facility

would be determined on a case-by-case basis using the hydrologic model of the watershed consistent with protection of the downstream watershed areas. "Hydrologic model" refers to the calibrated model as developed for the stormwater management plan. It is a requirement that, even if regional facilities are proposed for the water quantity control, that the water quality, streambank erosion, and recharge criteria be accomplished on-site, or as close to the source of the runoff as possible. All proposed facilities must be consistent with the Township's NPDES MS4 Permit and TMDL Strategy.

I. Any stormwater management facility (i.e., detention basin BMP) designed to store runoff and requiring a berm or earthen embankment required or regulated by this ordinance shall be designed to provide an emergency spillway to handle flow up to and including the 100-year proposed conditions. The height of embankment must be set as to provide a minimum 1.0 foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year proposed conditions peak inflow. Should any stormwater management facility require a dam safety permit under Title 25, Environmental Protection, Chapter 105, Dam Safety and Waterway Management, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety which may be required to pass storms larger than a 100-year event.

J. Any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures), and any work involving wetlands as directed in DEP Chapter 105 regulations (as amended or replaced from time to time by DEP), shall be designed in accordance with Chapter 105 and will require a permit from DEP. Any other drainage conveyance facility that does not fall under Chapter 105 regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the 25-year design storm with a minimum 1.0 foot of freeboard measured below the lowest point along the top of the roadway. Roadway crossings located within designated floodplain areas must be able to convey runoff from a 100-year design storm with a minimum 1.0 foot of freeboard measured below the lowest point along the top of the roadway. Any facility that constitutes a dam as defined in DEP Chapter 105 regulations may require a permit under dam safety regulations. Any facility located within a PennDOT right-of-way must meet PennDOT minimum design standards and permit submission requirements.

K. Any drainage/conveyance facility and/or channel that does not fall under Chapter 105 regulations, must be able to convey, without damage to the drainage structure or roadway, runoff from the 10-year design storm. Conveyance facilities to or exiting from stormwater management facilities (i.e., detention basins) shall be designed to convey the design flow to or from that structure. Roadway crossings located within designated floodplain areas must be able to convey runoff from a 100-year design storm. Any facility located within a PennDOT right-of-way must meet PennDOT minimum design standards and permit submission requirements.

L. Additional Criteria for Neshaminy Watershed Storm water Calculation Methology. The following criteria shall be used for runoff calculations:

1. For development sites not considered redevelopment, the ground cover used to determine the existing conditions runoff volume and flow rate shall be as follows:

   a. Wooded sites shall use a ground cover of "woods in good condition."

   b. The undeveloped portion of the site including agriculture, bare earth, and fallow ground shall be considered as "meadow in good condition," unless the natural ground cover generates a lower curve number (CN) or Rational "c" value (i.e., woods) as listed in SCS TR-55 and PennDOT Design Manual 5, respectively.

3. For development and redevelopment sites, the ground cover used to determine the existing conditions runoff volume and flow rate for the developed portion of the site shall be based upon actual land cover conditions. If the developed site contains

impervious surfaces, 20 percent of the impervious surface area shall be considered meadow in the model for existing conditions.

M. Alternative Criteria for Neshaminy Watershed Redevelopment Sites – For redevelopment sites, one of the following minimum design parameters shall be accomplished, whichever is most appropriate for the given site conditions as determined by the Township Engineer:

1. Meet the full requirements specified by this section.

or

2. Reduce the total impervious surface on the site by at least twenty (20) percent based upon a comparison of existing impervious surface to proposed impervious surface.

§122-88. General Requirements for stormwater for BMP Operations and Maintenance plan.

A. No Regulated Earth Disturbance activities within the Township shall commence until approval by the Township of a BMP Operations and Maintenance Plan which describes how the permanent (e.g., post-construction) stormwater BMPs will be properly operated and maintained.

B. The following items shall be included in the BMP Operations and Maintenance Plan:

1. Plat(s) of the project area, in a form that meets the requirements for recording at the offices of the Recorder of Deeds of Montgomery County, and shall be submitted on 24-inch x 36 inch plan sheets. The contents of the Plat(s) shall include, but not be limited to:

a. Clear identification of the location and nature of permanent stormwater BMPs,

b. The location of the project site relative to highways, municipal boundaries or other identifiable landmarks,

c. Existing and final contours at intervals of two feet, or others as appropriate,

d. Existing streams, lakes, ponds, or other bodies of water within the project site area,

e. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, and areas of natural vegetation to be preserved,

f. The locations of all existing and proposed utilities, sanitary sewers, and water lines within 50 feet of property lines of the project site,

g. Proposed final changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added,

h. Proposed final structures, roads, paved areas, and buildings, and

i. A thirty-foot wide access easement around all stormwater BMPs that would provide ingress to and egress from a public right-of-way.

2. A description of how each permanent stormwater BMP will be operated and maintained, and the identity of the person(s) responsible for operations and maintenance,

3. The name of the project site, the name and address of the owner of the property, and the name of the individual or firm preparing the Plan, and

4. A statement, signed by the landowner, acknowledging that the stormwater BMPs are fixtures that can be altered or removed only after approval by the Township.

§122-91. Adherence to approved BMP Operations and Maintenance Plan.

A. It shall be unlawful to alter or remove any permanent stormwater BMP required by an approved BMP Operations and Maintenance Plan, or to allow the property to remain in a condition which does not conform to an approved BMP Operations and Maintenance Plan, unless an exception is granted in writing by the Township.

B. Stormwater Management (SWM) Best Management Practices (BMPs) should be inspected for proper operation by the landowner, or the owner's designee (including the municipality for dedicated and owned facilities), according to the following list of minimum frequencies:

1. Annually for the first 5 years,
2. Once every 3 years thereafter,
3. During or immediately after the cessation of a 10-year or greater storm,

   and/or

4. As specified in the Operations and Maintenance (O&M) agreement. Written reports will be filed with the Township in a designated format suitable for Township Compliance with NPDES MS4 Permit Reports.

C. Penalties

1. Any person violating the provisions of this Ordinance shall be subject to penalties that may range from liens against the property to fines for each violation, recoverable with costs. Each day that the violation continues shall constitute a separate offense and the applicable fines are cumulative.

2. In addition, the municipality may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus, or other appropriate forms of remedy or relief.

§122-95. Inspections.

A. The municipality shall inspect all phases of the installation of the Best Management Practices (BMPs) and/or Stormwater Management (SWM) facilities as deemed appropriate by the municipality, the Montgomery County Conservation District and in conformance with DEP Chapter 102.

B. During any stage of the work, if the municipality determines that the BMPs and/or Stormwater Management facilities are not being installed in accordance with the approved SWM Site Plan, the municipality may revoke or suspend any existing permits or other approvals and issue a cease and desist order until a revised SWM Site Plan is submitted and approved, as specified in this Ordinance and until the deficiencies are corrected.

C. A final inspection of all BMPs and/o Stormwater Management facilities may be conducted by the municipality to confirm compliance with the approved SWM Site Plan prior to the issuance of any Occupancy Permit.

D. The applicant and/or developer shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM Site Plan. The as-built plans and an explanation of any discrepancies shall be submitted to the Township for acknowledgment in conformance with the Township NPDES MS4 Permit Recording Requirements.

E. The as-built submission shall include a certification of completion signed by a Qualified Professional verifying that all SWM BMPs have been constructed according to the approved plans and specifications. If any Qualified Professionals contributed to the construction plans, they must sign and seal the completion certificate.

F. DEP or its designees (e.g., County Conservation Districts) ensure compliance with any Chapter 102 permits issued, including those for Stormwater & Watershed Management. In addition to DEP compliance programs, the Township or its designee may inspect all phases of the construction, operations, maintenance and any other implementation of stormwater BMPs as required by Franconia Township NPDES MS4 Permit.

§122-97. Fees.

The Township may charge a reasonable fee for review of Stormwater and Watershed Management Site Plans, Stormwater Management Facilities, BMP Operations and Maintenance Plans as may be allowed under this Article to defray review costs incurred by the Township. The Applicant shall pay all such fees.

§122-98. Expenses covered by fees.

The fees required by this Ordinance may cover:

A. Administrative/clerical costs.

B. The review of the Stormwater and Watershed Management Site Plan, Stormwater Management Facilities, BMP Operations and Maintenance Plan, along with supporting documentation and reports by the Township Engineer.

C. The site inspections including, but not limited to, pre-construction meetings, inspections during construction of Stormwater BMPs,21 and final inspection upon completion of the Stormwater Management Facilities, Stormwater BMPs and other required improvements and ancillary actions as outlined on the Stormwater and Watershed Management Site Plan including as-built survey plans thereof.

D. Any additional work required to monitor and enforce any provisions of this Ordinance, correct violations, and assure proper completion of stipulated remedial actions.

E. Review of Post Construction Stormwater Management Operation and Maintenance Reports including site inspections.

SECTION II. Repealer.

All other sections of the Franconia Code and resolutions or parts thereof as they are inconsistent with this Ordinance are hereby repealed.

SECTION III. Severability.

The provisions of this Ordinance are severable, and if any section, sentence, clause, part or provision hereof shall be held illegal, invalid or unconstitutional by any court of competent jurisdiction, such decision of the court shall not affect or impair the remaining sections, sentences, clauses, parts or provisions of this Article. It is hereby declared to be the intent of the Board that this Ordinance would have been adopted even if such illegal, invalid or unconstitutional section, sentence, clause, part or provision had not been included herein.

SECTION IV. Failure to Enforce Not a Waiver.

The failure of the Township to enforce any provision of this Ordinance shall not constitute a waiver by the Township of its rights of future enforcement hereunder.

SECTION V. Effective Date.

This Ordinance shall take effect and be in force from and after its approval as required by the law.

ORDAINED and **ENACTED** by the Board of Supervisors of Franconia Township, Montgomery County, Pennsylvania, this 18th day of August, 2014.

FRANCONIA TOWNSHIP
BOARD OF SUPERVISORS

By:_____
Grey R. Godshall, Chairman

Attest:_____
Jamie P. Worman, Secretary