ORDINANCE 24-05

TOWNSHIP OF SUSQUEHANNA, DAUPHIN COUNTY, PENNSYLVANIA

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF SUSQUEHANNA TOWNSHIP, TO AMEND THE EXISTING STORMWATER MANAGEMENT ORDINANCE FOUND IN CHAPTER 19, TO PROVIDE FOR THE SEVERABILITY OF THE PROVISIONS THEREOF; AND TO PROVIDE FOR THE EFFECTIVE DATE THEREOF.

WHEREAS, the Board of Commissioners of the Township of Susquehanna, Dauphin County, Pennsylvania, under the powers vested in them by the "First Class Township Code" of Pennsylvania as amended, and Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. §680.1 et seq., as amended, the "Storm Water Management Act," and other laws of the Commonwealth of Pennsylvania, do hereby amend Chapter 19 Stormwater Management of the Code of Ordinances of the Township of Susquehanna Township, Dauphin County, Pennsylvania; and

WHEREAS, the Board of Commissioners has previously adopted regulations relating to stormwater management by adopting Township Ordinance 10-13 on October 14, 2010; and

WHEREAS, the Board of Commissioners has determined that it is in the best interest of the Township and its residents to update and amend the Township's regulations relating to stormwater runoff within the Township; and

WHEREAS, the purpose of this Ordinance is to adopt the substantive regulations contained attached hereto as **Exhibit A** and make a material part of the official regulations of the Township pertaining to stormwater management within the Township, which shall be known as the "Susquehanna Township Stormwater Management Ordinance."

BE IT ENACTED AND ORDAINED by the Board of Commissioners of Susquehanna Township, Dauphin County, Pennsylvania, and it is hereby enacted and ordained by authority of the same.

SECTION 1: The document attached hereto as Exhibit A (and incorporated herein by reference and made a material part hereof), including any and all appendices and attachments thereto, is hereby adopted in full as the Township's comprehensive stormwater management ordinance and shall be known and cited as "Susquehanna Township Stormwater Management Ordinance." All other inconsistent ordinances or parts of ordinances of laws in conflict therewith are hereby repealed.

SECTION 2: In the extent that any word, phrase, portion, or provision of the text hereof is found by any court of competent jurisdiction to be invalid or void on constitutional or another ground, such word, phrase, portion, or provision shall, if possible, be deemed to be repealed and those remaining valid portion of the text shall remain in full force and effect if the same can be accomplished without the structure of the Ordinance having been destroyed by elimination of that word, phrase, portion, or provision found to be invalid or void.

SECTION 3: Unless otherwise specifically stated in this Ordinance, all ordinances, resolutions, regulations, and policies that predate this Ordinance and are in conflict with the provisions of this Ordinance are hereby repealed to the extent of such conflict.

SECTION 4: This Ordinance shall become effective (5) days after its enactment by the Board of Commissioners of the Township of Susquehanna, Dauphin County, Commonwealth of Pennsylvania.

ENACTED AND ORDAINED, into an Ordinance this 12th day of September, 2024, by the Board of Commissioners of the Township of Susquehanna.

ATTEST:

Township of Susquehanna, Manager

BOARD OF COMMISSIONERS OF SUSQUEHANNA TOWNSHIP

President

Attachment:
Exhibit A – Susquehanna Township Stormwater Management Ordinance

EXHIBIT A

STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NO. 24-05

MUNICIPALITY OF

SUSQUEHANNA TOWNSHIP

DAUPHIN COUNTY, PENNSYLVANIA

ADOPTED AT A PUBLIC MEETING HELD ON

September 12, 2024

Chapter 19

Stormwater Management

[HISTORY: Adopted by the Board of Commissioners of Susquehanna Township 10/14/2010 by Ord. 10-13. Amendments noted where applicable.]

Part 1

GENERAL PROVISIONS

§19-101 Short Title.

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

§19-102 Statement of Findings.

The governing body of Susquehanna Township finds that:

A. Inadequate management of accelerated stormwater runoff resulting from development throughout a watershed increases runoff volumes, flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of existing streams and storm sewers, jeopardizes the integrity of existing streams resulting in unhealthy ecosystems and undersized channels, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces groundwater recharge, threatens public health and safety, and increases non-point source pollution to water resources.

B. A comprehensive program for stormwater management (SWM), including reasonable regulation of development and activities causing accelerated runoff, as well as ensuring maintenance to the management devices, is fundamental to the public health, safety, welfare, and the protection of the people of Susquehanna Township and all the people of the Commonwealth, water quality, their resources, and the environment.

C. Inadequate planning and management of stormwater runoff resulting from land development and redevelopment throughout a watershed can also harm surface water resources by changing the natural hydrologic patterns; accelerating stream flows (which increase scour and erosion of streambeds and stream banks thereby elevating sedimentation); destroying aquatic habitat; and elevating aquatic pollutant concentrations and loadings such as sediments, nutrients, heavy metals, and pathogens, impacting the quantity of surface water utilized in groundwater recharge. The lack of groundwater recharge can impact clean, healthy, and freshwater resources.

D. Stormwater is an important resource that provides groundwater recharge for water supplies and returns the base flow to streams. This also protects and maintains surface water quality by allowing the surface water to filter through the soil layers.

E. To enhance the control in stormwater pollution, public education on proper control measures and awareness on the types of pollution is an essential component in successfully addressing stormwater issues.

F. The use of green infrastructure and low impact development (LID) are intended to address the root case of water quality impairment by using systems and practices which use or mimic natural processes

to: 1) infiltrate and recharge, 2) evapotranspiration, and/or 3) harvest and use precipitation near where it falls to earth. Green infrastructure practices and LID contribute to the restoration or maintenance of pre-development hydrology.

G. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES).

H. Non-stormwater discharges to municipal separate storm sewer systems have the potential to contribute to pollution of waters of the Commonwealth.

§19-103 Purpose.

The purpose of this Chapter is to promote health, safety, and welfare within Susquehanna Township, Dauphin County, by minimizing the harms and maximizing the benefits described in §19-102 of this Chapter through provisions intended to:

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

B. Manage accelerated runoff and erosion and sedimentation problems close to their source, by regulating activities that cause these problems.

C. Preserve the natural drainage systems to the maximum extent practicable.

D. Maintain and restore groundwater recharge, to prevent degradation of surface and groundwater quality, and to otherwise protect water resources and mimicking pre-development hydrology.

E. Maintain existing flows and quality of streams and watercourses.

F. Preserve and restore the flood-carrying capacity of streams and prevent scour and erosion of stream banks and streambeds.

G. Manage stormwater impacts close to the runoff source, by utilizing LID practices and increasing the use of natural processes.

H. Provide procedures, performance standards, and design criteria for stormwater planning and management that meet NPDES permit standards and requirements

I. Provide proper operations and maintenance of all temporary and permanent Erosion and Sediment (E&S) Control Measures, stormwater management facilities and Best Management Practices (BMPs) that are constructed and implemented.

§19-104 Statutory Authority.

1. Primary Authority. Susquehanna Township is empowered to regulate these activities by the authority of the Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. §680.1 et seq., as amended, the "Storm Water Management Act," and the First Class Township Code, 53 P.S. § 101 et seq., as amended.

2. Secondary Authority. Susquehanna Township also is empowered to regulate land use activities that affect runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, the Pennsylvania Municipalities Planning Code, as amended.

§ 19-105 Applicability.

1. This Chapter shall apply to all areas of Susquehanna Township, any regulated activity within Susquehanna Township, and all stormwater runoff entering into Susquehanna Township's separate storm sewer system from lands within the boundaries of Susquehanna Township.

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

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

    a. Earth disturbance activities.

    b. Land development.

    c. Subdivision.

    d. Construction of new or additional impervious or semi-pervious surfaces.

    e. Construction of new buildings or additions to existing buildings.

    f. Diversion or piping of any natural or man-made stream channel.

    g. Installation of stormwater management facilities or appurtenances thereto.

    h. Installation of stormwater BMPs.

    i. Other activities, which would cause an increase in stormwater runoff.

4. See **§ 19-302** of this Chapter for exemption criteria.

§ 19-106 Repealer.

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

§ 19-107 Severability.

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

§ 19-108 Compatibility with Other Ordinance Requirements.

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

§ 19-109 Erroneous Permit.

Any permit or authorization issued or approved based on false, misleading, or erroneous information provided by an applicant is void without the necessity of any proceedings for revocation. Any work undertaken or use established pursuant to such permit or other authorization is unlawful. No action shall be taken by a board, agency, or employee of the Township purporting to validate such a violation.

§ 19-110 Waivers and Modifications.

A. If the Township determines that any requirement under this Chapter cannot be achieved for a particular regulated activity, the Township may, after an evaluation of alternatives, approve measures other than those in this Chapter, subject to section 110, paragraphs B and C.

B. Waivers or modifications of the requirements of this Chapter may be approved by the Township Board of Commissioners, upon recommendation by the Township Planning Commission, if enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question, provided that the modifications will not be contrary to the public interest and that the purpose of the Chapter is

preserved. Cost or financial burden shall not be considered a hardship. Modification may be considered if any alternative standard or approach will provide equal or better achievement of the purpose of this Chapter. A request for modification shall be in writing and accompany the Stormwater Management Site Plan submission. The request shall provide the facts on which the request is based, the provision(s) of the Chapter involved and the proposed modification.

C. No waiver of modification of any regulated stormwater activity involving earth disturbance greater than or equal to one acre shall be granted by the Township unless that action is approved in advance by the PADEP or the DCCD.

§ 19-111 Duty of Persons Engaged in the Development of Land.

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

§ 19-112 Township Liability.

The degree of stormwater management sought by the provisions of this Chapter is considered reasonable for regulator purposes. This Chapter shall not create liability on the part of Susquehanna Township, any appointed or elected official of Susquehanna Township, the Dauphin County Conservation District or any officer, engineer, or employee thereof for any erosion, sedimentation or flood damages that result from reliance on this Chapter or any administrative decision lawfully made thereunder.

Part 2

DEFINITIONS

§ 19-201 Word Usage.

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

A. Words used in the present tense include the future tense; the singular number includes the plural; and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.

B. The word "includes" or "including" shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.

C. The word "person" includes an individual, firm, association, organization, partnership, trust, company, corporation, or any other similar entity.

D. The words "shall" and "must" are mandatory; the words "may" and "should" are permissive.

E. The words "used" or "occupied" include the words "intended, designed, maintained, or arranged to be used, occupied or maintained."

§ 19-202 Terms Defined.

These definitions do not necessarily reflect the definitions contained in pertinent regulations or statues and are intended for this Ordinance only. As used in this Chapter, the following terms shall have the meanings indicated:

ACCELERATED EROSION

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

ACT 167

Act of October 4, 1978, P.L. 864 (Act 167), as amended, and known as the "Stormwater Management Act."

AGRICULTURAL ACTIVITIES

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

ALTERATION

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

APPLICANT

A landowner, developer, or other person who has filed an application for approval to engage in any regulated activities at a project site within Susquehanna Township.

BEST MANAGEMENT PRACTICES (BMPs)

Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from regulated activities, to meet state water quality requirements, to promote groundwater recharge, and

to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one of two broad categories or measures: "structural" or "non-structural." In this Ordinance, non-structural 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. Also commonly known as "Stormwater Control Measures".

BMP MANUAL

The Pennsylvania Stormwater Best Management Practices Manual as published by the Department of Environmental Protection, Bureau of Watershed Management, document number 360-0300-002, effective date December 30, 2006, and as revised.

CHANNEL EROSION

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

CISTERN

An underground reservoir or tank used for storing rainwater.

CLEAN WATER ACT (CWA)

The Federal Water Pollution Control Act, as amended, 33 U.S.C.A. §1251-1387.

CLEANING AGENT

Any product, substance, or chemical other than water that is used to clean surfaces of vehicles, asphalt, concrete, pavers, gravel, and buildings.

CODE OFFICIAL

The Code Official of Susquehanna Township, or other person designated by the Board of Commissioners to perform the function of Code Official as herein provided.

CONSERVATION DISTRICT

A conservation district, as defined in Section 3(c) of the Conservation District Law (3 P. S. § 851(c)) that has the authority under a delegation agreement executed with PADEP to administer and enforce all or a portion of the regulations promulgated under 25 Pa. Code 102.The Dauphin County Conservation District (DCCD). The Dauphin County Conservation District has the authority under a delegation agreement executed with the Department of Environmental Protection to administer and enforce all or a portion of the regulations promulgated under 25 Pa. Code Chapter 102.

CONSTRUCTION ACTIVITY

Activities subject to NPDES construction permits resulting in land disturbance of one acre or more, such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

CONTROL STRUCTURE

Pipes, storm sewers, siltation basin, lined channels, head walls, inlets, catch basins, end sections, spillways and any other appurtenances, which are necessary, designed and intended to manage stormwater flow, detention, and/or retention.

COUNTY

Dauphin County, Pennsylvania

CULVERT

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

DAM

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

DESIGNATED USES

Those uses specified in 25 Pa. Code § 93.4(a), 93.9a-93.9z for each waterbody or segment whether or not they are being attained. (25 Pa. Code § 93.1).

DESIGNEE

The agent of Susquehanna Township and/or agent of the governing body involved with the administration, review, or enforcement of any provisions of this Chapter by contract or memorandum of understanding.

DESIGN STORM

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

DETENTION BASIN

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

DETENTION VOLUME

The volume of runoff that is captured and released during or after a storm event into waters of the Commonwealth at a controlled rate.

DEVELOPER

Any landowner, agent of such landowner, or tenant with the permission of such landowner, who makes or causes to be made a subdivision of land or a land development.

DEVELOPMENT SITE (SITE)

The specific tract of land for which a regulated activity is proposed. Also see Project Site.

DISCONNECTED IMPERVIOUS AREA (DIA)

An impervious or impermeable surface that is disconnected from any stormwater drainage or conveyance system and is redirected to pervious area, which allows for infiltration, filtration, and increased time of concentration as specified in Appendix B.

DISTURBED AREA

An unstabilized land area where an earth disturbance activity is occurring or has occurred.

DOWNSLOPE PROPERTY LINE

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

DRAINAGE CONVEYANCE FACILITY

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

DRAINAGE EASEMENT

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

DRAINAGEWAY

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

EARTH DISTURBANCE ACTIVITY

A construction or other human activity which disturbs the surface of the land, including, but not limited to, clearing and grubbing, grading, excavations, embankments, land development, road maintenance activities, and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

EROSION

The natural process by which the surface of the land is worn away by water, wind, or chemical action.

EROSION AND SEDIMENT POLLUTION CONTROL PLAN or EROSION AND SEDIMENT CONTROL PLAN

A plan which is designed to minimize accelerated erosion and sedimentation

EXCEPTIONAL VALUE WATERS

Surface waters of high quality, which satisfies Pa. Code Title 25, Environmental Protection, Chapter 93, Water Quality Standards, § 93.4b(b) (relating to antidegradation).

EXISTING CONDITIONS

The initial condition of a project site prior to the proposed construction. If the initial condition of the site is not forested or undeveloped land, the land use shall be considered as "meadow" unless the natural land cover is documented to generate lower curve numbers or rational "C" coefficients, such as forested lands.

EXISTING USES

Those uses actually attained in the waterbody on or after November 28, 1975, whether or not they are included in the Water Quality Standards (25 Pa. Code § 93.1).

FEMA

The Federal Emergency Management Agency.

FLOOD

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

FLOOD FRINGE

The remaining portions of the 100-year floodplain (1% annual flood) outside of the floodway boundary.

FLOODPLAIN

The 100-year floodway and that maximum area of land that is likely to be flooded by a 100-year flood as shown on the floodplain maps provided by FEMA to the Township.

FLOODWAY

The portion of the 100-year floodplain including the watercourse itself and an adjacent land area that must be kept open in order to carry the water of a 100-year flood. At a minimum, a floodway must be large enough to carry the water of the 100-year flood without causing an increase of more than 1 foot in the elevation of the existing 100-year flood.

FOREST MANAGEMENT/TIMBER OPERATIONS

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

FREEBOARD

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

GRADE

A slope, usually on a road, channel or natural ground, specified in percent and shown on plans as specified herein. (To) grade means to finish the surface of a roadbed, top of embankment, or bottom of excavation.

GREEN INFRASTRUCTURE (GI)

a. Systems and practices that use or mimic natural processes to infiltrate, evapotranspire, or reuse stormwater on the site where it is generated.
b. A suite of systems and practices that restore and maintain natural hydrologic processes in order to reduce the volume and water quality impacts of stormwater runoff. GI is a structural approach to stormwater management that focuses on managing stormwater impacts using natural processes such as infiltration, evapotranspiration, and storage and reuse.

GROUNDWATER RECHARGE

Replenishment of existing natural underground water supplies.

HAZARDOUS MATERIALS/SUBSTANCES

Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

HEC-HMS MODEL CALIBRATED (HYDROLOGIC ENGINEERING CENTER-HYDROLOGIC MODELING SYSTEM)

A computer-based hydrologic modeling technique adapted to the watersheds in Dauphin County for the Act 167 Plan. The model has been calibrated by adjusting key model input parameters.

HIGH-QUALITY WATERS

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

HOTSPOT

Land uses or activities with higher potential pollutant loadings, such as auto salvage yards, auto fueling facilities, fleet storage yards, commercial parking lots with high intensity use, road salt areas, commercial nurseries and landscaping, outdoor storage and loading areas of hazardous substances.

HYDROLOGIC SOIL GROUP (HSG)

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

ILLICIT CONNECTION

Defined as either of the following:

a. Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the stormwater system and/or waters of the Commonwealth including but not limited to any conveyances which allow any non-stormwater discharge including, sewage, process wastewater, and wash water to enter the storm drain system and any connections to the stormwater system and/or waters of the Commonwealth from indoor drains and sinks, regardless of whether said drain or connection have been previously allowed, permitted, or approved by an authorized enforcement agency or personnel.
b. Any drain or conveyance connected from a commercial or industrial land use to the stormwater and/or waters of the Commonwealth which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency or personnel.

ILLICIT DISCHARGE

Any discharge to a MS4 that is not composed entirely of stormwater, except non-stormwater discharges as described in the "Discharges Authorized by this Permit" section of the Township's MS4 Permit.

IMPAIRED WATERS

Surface waters that fail to attain one or more of its designated uses under 25 Pa. Code Chapter 93 and is listed in Category 4 and 5 of the Pa Integrated Water Quality Monitoring and Assessment Report.

IMPERVIOUS SURFACE (IMPERVIOUS AREA)

A surface that prevents the percolation 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 proposed to initially be gravel or crushed stone shall be assumed to be impervious surfaces.

INFILTRATION STRUCTURES

A structure designed to direct runoff into the ground (e.g., French drains, seepage pits, seepage trench, etc.)

INLET

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

KARST

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

LAND DEVELOPMENT (DEVELOPMENT)

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 buildings or (2) the division or allocation of land or space between or among two or more existing or prospective occupants by means of or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features.
b. Any subdivision of land
c. Land development does not include development which involves: (1) 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. (2) The addition of an accessory building, including farm building, or a lot or lots subordinate to an existing principal. (3) The addition or conversion of buildings or rides within the confines of an enterprise which would be considered an amusement park. For purposes of this subsection, an "amusement park" is defined as tract or area used principally as a location for permanent amusement structures or rides. This exclusion shall not apply to newly acquired acreage by an amusement park until initial plans for the expanded area have been approved by the proper authorities. (4) Where an addition of no more than 15% of the square footage is being added to an existing building, but in no case of an addition of more than 2,000 square feet, a building permit is required to be obtained from the appropriate officer of the Township but, submission of a land development plan or review by the Planning Commission or approval by the Board of Commissioners is not required but, only when (1) the building is added to the existing structure and is not separated; and (2) there is no change to any street or public way; and (3) there is no interference or substantial change to drainage or the flow of water; and (4) when the appropriate building officer of the Township determines that the same is otherwise in compliance with all zoning and land development requirements.

LIMIT OF DISTURBANCE

A line provided on the SWM Site Plan that indicates the total area to be disturbed during a proposed earth disturbance activity.

LOW IMPACT DEVELOPMENT (LID)

Site design approaches and small-scale stormwater management practices that promote the use of natural systems for infiltration, evapotranspiration, and reuse of rainwater. LID can be applied to new development, redevelopment/additions, urban retrofits, and revitalization projects. LID utilized design techniques that infiltrate, filter, evaporate, and store runoff close to the source. Rather than relying on costly large-scale conveyance and treatment systems, LID addresses stormwater through a variety of small, cost-effective landscape features located on-site.

MANAGED RELEASE CONCEPT (MRC) FOR POST-CONSTRUCTION STORMWATER MANAGEMENT

MRC is a PCSM protocol which, when designed according to standards established by the PADEP, ensures the protection of surface waters and satisfies regulatory requirements under 25 Pa. § 102.8. MRC can be applied to any stormwater best management practice (BMP) by a licensed professional engineer. The use of MRC within a BMP is considered an approved alternative BMP under the Chapter 102 regulations.

MANNING EQUATION (MANNING FORMULA)

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

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains): (i) owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater or other wastes, including special districts under State law such as a sewer district, flood control district, or drainage district, or similar entity, or an Indian Tribal organization, of a designated and approved management agency under Section 208 of the CWEA that discharges to surface waters; (ii) designated or used for collecting or conveying stormwater; (iii) which is not a combined sewer; (iv) and which is not part of a Publicly Owned Treatment Works.

MUNICIPALITY

Any city of the second class A or third class, borough, incorporated town, township of the first or second class, county of the second class through eighth class, home rule municipality, or any similar general purpose unit of government which shall hereafter be created by the General Assembly.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

The federal government's system for issuance of permits under the Clean Water Act, which is delegated to PADEP in Pennsylvania.

NOAA ATLAS 14

The Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, United States Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland (2004).

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 DISCHARGE

Any discharge to the storm drain system and/or waters of the Commonwealth that is not composed entirely of stormwater.

NRCS

USDA Natural Resources Conservation Service (previously SCS).

OPEN CHANNEL

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

OPERATION AND MAINTENANCE (O&M)

A plan that defines the functional, financial, and organizational mechanisms for the ongoing operation and maintenance of a stormwater management system to ensure that it continues to function as it is designed.

OUTFALL

a. The point where water flows from a conduit, stream, or drain.
b. "Point source" as described in 40 CFR 122.2 at the point where Susquehanna Township's storm sewer system discharges to surface waters of the Commonwealth.

OUTLET

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

PADEP

The Pennsylvania Department of Environmental Protection.

PARKING LOT STORAGE

Involves the use of impervious parking areas as temporary impoundments with controlled release rates during rainstorms.

PEAK DISCHARGE

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

PENNDOT

The Pennsylvania Department of Transportation

PERCOLATION

The downward movement, under the influence of gravity, of water under hydrostatic pressure through interstices of the soil or rock.

PERENNIAL STREAM

Body of water flowing in a channel year-round during a typical year. The water table is located above the streambed most of the year. Groundwater is the primary source of water for stream flow. Runoff from precipitation is a supplemental source of water for stream flow.

PERSON

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

PERVIOUS AREA

Any material or structure on or above the ground that permits water to infiltrate into the underlying soil. Naturally pervious surfaces may become less pervious through the process of compaction.

PIPE

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

PLANNING COMMISSION

The Planning Commission of Susquehanna Township.

POINT SOURCE

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

POLLUTANT

Anything which causes or contributes to pollution. Pollutants may include, but are not limited to, paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform, pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

POST-DEVELOPMENT

The conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land. Post-development refers to the phase of a new development or redevelopment project after completion and does not refer to the construction phase of a project.

PREMISES

Any building, lot, parcel of land, or portion of land, whether improved or unimproved, including adjacent sidewalk and parking strips.

PROBABLE MAXIMUM FLOOD (PMF)

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

PROJECT SITE

The specific area of land where any regulated activities in Susquehanna Township are planned, conducted, or maintained.

PUBLIC WATER DRAINAGE NUISAINCE

Any artificial, mechanical, unnatural landscaping, pumping, engineering, or other unnatural condition not authorized by the Township of Susquehanna, which diverts water from lands owned by one party or entity onto adjoining property and which flow of water the adjoining property or properties cannot accommodate, unless the same is down with the continuing permission of the owners of the adjoining lands onto which the water flows.

QUALIFIED PROFESSIONAL

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

RATIONAL FORMULA

A rainfall-runoff relation used to estimate peak flow.

RECHARGE

The replenishment of underground water reserves.

REDEVELOPMENT

Earth disturbance activities on land that has previously been developed.

REGULATED ACTIVITIES

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

REGULATED EARTH DISTURBANCE ACTIVITY

Activity involving earth disturbance subject to regulation under 25 Pa. Code 92, 25 Pa. Code 102, or the Clean Streams Law.

RELEASE RATE

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

RELEASE RATE DISTRICT

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

RETENTION VOLUME/REMOVED RUNOFF

The volume of runoff that is captured and not released directly into the 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 probability of a 25-year storm occurring in any one given year is 0.04 (i.e., a 4% chance).

RIPARIAN BUFFER

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

RISER

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

ROAD MAINTENANCE

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

ROOFTOP DETENTION

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

RUNOFF

Any part of precipitation that flows over the land surface.

RUNOFF CAPTURE VOLUME

The volume of runoff that is captured (retained) and not released into surface waters of the Commonwealth during or after a storm event.

SEDIMENT

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

SEDIMENTATION

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

SEDIMENT BASIN

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

SEDIMENT POLLUTION

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

SEEPAGE PIT/SEEPAGE TRENCH

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

SEPARATE STORM SEWER SYSTEM

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

SHEET FLOW

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

SOIL COVER COMPLEX METHOD

A method of runoff computation developed by the NRCS that is based on relating soil type and land use/cover to a runoff parameter called curve number (CN).

SPILLWAY (EMERGENCY)

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

STATE WATER QUALITY REQUIREMENTS

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

STORAGE INDICATION METHOD

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

STORM DRAIN SYSTEM

Publicly or privately owned facilities by which stormwater is collected and/or conveyed including, but not limited to, any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

STORM FREQUENCY

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

STORM SEWER

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

STORMWATER

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

STORMWATER CONTROL MEASURES

See Best Management Practices (BMPs).

STORMWATER CONTROL FACILITIES

Any structure, device, dam, channel, swale, pit, trench or any other measure taken or method employed to control stormwater runoff.

STORMWATER HOTSPOT

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

STORMWATER MANAGEMENT FACILITIES

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

STORMWATER MANAGEMENT PERMIT

The permit prepared by the applicant or his or her representative providing necessary details, including but not limited to disturbance area, impervious areas, and other items. Stormwater Management Permit will be designated as SWM Permit throughout this Ordinance, and shall be divided into two categories:

1. Minor SWM Permit – Regulated activities that result in: the alteration or development of 1,000-4,999 SF of land in a manner that may affect stormwater runoff; earth disturbances of 5,000 to 43,559 SF; and/or the cumulative increase of 1,000-4,999 SF of impervious area. "Cumulative" shall include incremental and phased development.

2. Major SWM Permit – Regulated activities that result in: the alteration or development of greater than or equal to 5,000 SF of land in a manner that may affect stormwater runoff; earth disturbances of greater than or equal to 43,560 SF; and/or the cumulative increase of greater than or equal to 5,000 SF of impervious area. Regulated activities taking place on sites: 1. with greater than or equal to 5,000 SF of existing impervious area; 2. that are not controlling the runoff from the existing impervious area in a manner consistent with this Ordinance; and 3. whose activities do not qualify for the exemptions listed in Section 302, shall also fall under the category of Major SWM Permit. "Cumulative" shall include incremental and phased development.

STORMWATER MANAGEMENT REPORT

The report prepared by the applicant or his or her representative documenting the necessary design computations and data in order to demonstrate that the maximum practicable measures have been taken to meet the requirements of this Ordinance. Stormwater Management Report will be designated as SWM Report throughout this Ordinance.

STORMWATER MANAGEMENT PLAN

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

STORMWATER MANAGEMENT SITE PLAN (SWM SITE PLAN)

The plan prepared by the property owner, developer, or his representative indicating how stormwater runoff will be managed at the development site in accordance with this Chapter. Stormwater Management Site Plan will be designated as SWM Site Plan throughout this Chapter.

STREAM ENCLOSURE

A bridge, culvert, or other structure in excess of 100 feet in length upstream to downstream which encloses regulated waters of the Commonwealth.

SUBWATERSHED AREA

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

SUBDIVISION

As defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247.

SWALE

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

TIME OPERATIONS

See "forest management."

TIME OF CONCENTRATION (Tc)

The time for surface runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. This time is the combined total of overland flow time and flow time in pipes or channels, if any.

TOWNSHIP

The Township of Susquehanna, Dauphin County, Pennsylvania.

USDA

The United States Department of Agriculture.

WATERCOURSE

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

WATERS OF THE COMMONWEALTH

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

WATERSHED

A region or area drained by a river, watercourse, or other surface water, whether natural or artificial.

WETLAND

Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas. (The term includes but is not limited to wetland areas listed in the State Water Plan, the United States Forest Service Wetlands Inventory of Pennsylvania, the Pennsylvania Coastal Zone Management Plan and a wetland are designed by a river basin commission. This definition is used by the United States Environmental Protection Agency and the United States Army Corps of Engineers.)

Part 3

STORMWATER MANAGEMENT STANDARDS

§ 19-301 General Requirements.

1. For all regulated activities, unless specifically exempted in § 19-302:
   a. Preparation, submission, and implementation of an approved SWM Site Plan and SWM Report is required.
   b. No regulated activities shall commence until Susquehanna Township issues written approval of a SWM Permit, which demonstrates compliance with the requirements of this Chapter.
   c. The SWM Site Plan and Permit approved by Susquehanna Township, shall be on-site throughout the duration of the regulated activities.
2. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this Chapter and to meet all requirements under Title 25 of the Pennsylvania Code (including but not limited to Chapter 102, Erosion and Sediment Control) and the Clean Streams Law. Various BMPs and their design standards are listed in the Erosion and Sediment Pollution Control Program Manual (E&S Manual), NO. 363-2134-008 (April 15, 2000), as amended and updated. No earth disturbance activities within the Township associated with any regulated activities shall commence until the requirements of this Chapter are met.
3. An applicant proposing regulated activities shall implement the appropriate requirements of this chapter according to the following table:

SWM Permit	Altered or developed land (Square footage)	Earth disturbance (Square Footage)	New Impervious Area Since the Date of Adoption of this Chapter (square footage)	Requirements
No Permit Required	0-999	0-4,999	0-999	--
Minor SWM Permit	1,000–4,999	5,000-43,559	1,000–4,999	Volume Controls and SWM Site Plan and Report
Major SWM Permit	>5,000	>43,560	>5,000	Rate Controls, Volume Controls, SWM Site Plan and Report, and Record Drawings

4. For all regulated activities, stormwater BMPs shall be designed, installed, implemented, operated, and maintained to meet the purposes and requirements of this Chapter and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law, conform to the State Water Quality Requirements, meet all requirements under the Storm Water Management Act and any more stringent requirements as determined by Susquehanna Township.
5. Susquehanna Township may, after consultation with PADEP and/or DCCD, approve measures for meeting the State Water Quality Requirements other than those in this Chapter, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law.

6. All regulated activities shall include, to the maximum extent practicable, measures to:
    a. Protect health, safety, and property.
    b. Meet the water quality goals of this Chapter by implementing measures to:
        i. Minimize disturbance to floodplains, wetlands, natural slopes, existing native vegetation and woodlands.
        ii. Create, maintain, or extend riparian buffers and protect existing forested buffers.
        iii. Provide trees and woodlands adjacent to impervious areas whenever feasible.
        iv. Minimize the creation of impervious surfaces and the degradation of waters of the Commonwealth and promote groundwater recharge.
        v. Protect natural systems and processes (drainageways, vegetation, soils, and sensitive areas) and maintain, as much as possible, the natural hydrologic regime.
        vi. Incorporate natural site elements (wetlands, stream corridors, mature forests) as design elements.
        vii. Avoid erosive flow conditions in natural flow pathways.
        viii. Minimize soil disturbance and soil compaction.
        ix. Minimize thermal impacts to waters of the Commonwealth.
        x. Disconnect impervious surfaces by directing runoff to pervious areas where possible and decentralize and manage stormwater at its source.
    c. Applicants are encouraged to incorporate the techniques for low impact development practices described in the Pennsylvania Stormwater Best Management Practices Manual (BMP Manual) to reduce the costs of complying with the requirements of this Chapter and the State Water Quality Requirements. If methods other than green infrastructure and LID methods are proposed to achieve the volume and rate controls required under this Chapter, the SWM Site Plan must include a detailed justification demonstrating that the use of LID and green infrastructure is not practicable.
        i. However, green infrastructure and LID methods must be used to the maximum extent practicable when developing a SWM Site Plan for a project.
        ii. If green infrastructure and LID methods are not feasible then a waiver request for traditional stormwater management practices must be submitted to Susquehanna Township. The following conditions may be used to determine if the project site is not feasible for green infrastructure and LID methods:
            1. Poor soil quality.
            2. Hydrologic soil classification of C or worse.
            3. Failed infiltration tests.
            4. Erroneous grade changes, such as excessive cut or fill or lack of suitable areas.
            5. Proposed project results in lot coverage exceeding 45%.
        iii. All applicable studies and test results listed above shall be presented with waiver for proof of exemption.
7. Impervious Areas.

a. The measurement of impervious areas shall include all of the impervious areas in the total proposed development, even if development is to take place in stages.

b. For development taking place in stages, the entire development plan must be used in determining conformance with this Chapter.

c. For projects that add impervious area to a development parcel, the new impervious area is subject to the requirements of this Chapter, and any existing impervious area that is within the new proposed limit of disturbance is also subject to the requirements of this Chapter.

8. 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. Such stormwater flows shall be subject to the requirements of this Chapter and any applicable local municipal codes. If the diffused flow is to be concentrated and discharged onto adjacent property, it shall be done so in accordance with PADEP guidance documentation.

    a. The applicant must provide an executed easement for newly concentrated flow across adjacent properties.

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

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

11. When it can be shown that, due to topographic conditions, natural drainageways on the site cannot be 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 PADEP under regulations at 25 Pa. Code Chapter 105 through the joint permit application process or, where deemed appropriate by PADEP, through the general permit process.

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

13. Should any stormwater management facility require a dam safety permit under PADEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety which may be required to pass storms larger than the 100-year event.

14. Any stormwater management facilities regulated by this Chapter that will be located on or discharge onto state highway rights-of-way shall be subject to approval by PennDOT.

15. When stormwater management facilities are proposed within 1,000 feet of a downstream municipality, the stormwater analysis shall be submitted to the downstream municipality's engineer for review and comment.

16. Minimization of impervious surfaces and infiltration of runoff through seepage beds, infiltration trenches, etc. are encouraged, where soil conditions and geology permit, to reduce the size or eliminate the need for detention facilities.

17. Infiltration BMPs should be dispersed throughout the site, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Chapter.

18. The design of facilities over karst shall include an evaluation and implementation of measures to minimize adverse effects.

19. Roof drains shall not be connected to streets, sanitary or storm sewers, or roadside ditches in order to promote overland flow and infiltration/percolation of stormwater where it is advantageous to do so. When it is more advantageous to connect directly to streets or storm sewers, then Susquehanna Township shall permit it on a case-by-case basis.

20. Normally dry, open top, storage facilities should completely drain both the volume control and rate control capacities over a period of time not less than 24 hours and not more than 72 hours from the end of the design storm.

21. The design storm volumes to be used in the analysis of peak rate of discharge should be obtained from the latest version of the Precipitation-Frequency Atlas of the United States, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland. (NOAA's Atlas 14[5] can be accessed at: http://hdsc.nws.noaa.gov/hdsc/pfds/.)

22. For all regulated activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Chapter, and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.

§ 19-302 Exemptions/Modifications of Requirements

1. Regulated activities that result in any one or more of (1) the alteration or development of less than 1,000 SF of land in a manner that may affect stormwater runoff; (2) earth disturbances of less than 5,000 SF; or (3) the cumulative increase of impervious area less than 1,000 SF since the first regulated instance under this Ordinance or the preceding versions of the Susquehanna Township stormwater regulations, regardless of whether a permit was properly applied for and received, are exempt from the requirements in Part 6 of this Ordinance.

2. Under no circumstance shall the applicant be exempt from implementing such measures as necessary to:
   a. Meet State Water Quality Standards and Requirements.
   b. Protect health, safety, and property.
   c. Meet special requirements for high quality (HQ) and exceptional value (EV) watersheds.

3. Forest management and timber operations are exempt from rate and volume control requirements and SWM Site Plan preparation requirement of this Chapter, provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

4. Agricultural activities are exempt from the requirements of this Chapter, provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

5. Construction of sidewalks and curbing within public right-of ways.

6. Linear roadway improvement projects that create additional impervious area are not exempt from the requirements of this Chapter. However, the alternative stormwater management strategies may be applied at the joint approval of Susquehanna Township and the Dauphin County Conservation District (if an NPDES permit is required) when site limitations (such as limited right-of-way) and constraints (as shown and provided by the applicant), preclude the ability to meet the enforcement of the stormwater management standards in this Chapter. All strategies must be consistent with PADEP's regulations, including NPDES requirements.

7. Susquehanna Township may, after an applicant has demonstrated compliance with § 19-302.1, § 19-302.2, and § 19-302.3, grant a modification of the requirements of one or more provisions of this Chapter if the literal enforcement will exact undue hardship of peculiar conditions pertaining to the land in question, provided that such modification will not be contrary to the public interest and that the purpose and intent of the Ordinance is observed.

    a. All requests for a modification shall be in writing and shall state in full the grounds and facts of unreasonableness or hardship on which the request is based, the provision or provisions of the Ordinance involved, and the minimum modification necessary.

8. Not eligible for exemption: additions, modifications, or alterations to sites, structures, pipes, swales or other conveyance systems, projects, plans, or any other items that previously required stormwater management, whether in part or in whole (for example: adding a 500 SF patio onto a home built as part of a larger subdivision and land development plan that required stormwater management would not be an exempt regulated activity).

9. Susquehanna Township may deny or revoke any exemption pursuant to this Chapter at any time for any project that the Township determines poses a threat to public health, safety, property or the environment.

§ 19-303 Alternatives.

1. The purpose of this Section is to ensure consistency of stormwater management planning between local ordinances and NPDES permitting (when required) and to ensure that the applicant has a single and clear set of stormwater management standards to which the applicant is subject. Susquehanna Township may accept alternative stormwater management controls, provided that:

    a. The applicant, in consultation with Susquehanna Township, PADEP, and/or DCCD, states that meeting the requirements of the volume controls or rate controls of this Chapter is not possible or creates an undue hardship.
    b. The alternative stormwater management controls, proposed by the applicant, are documented to be acceptable to Susquehanna Township, PADEP, and/or DCCD for NPDES requirements pertaining to post-construction stormwater management requirements.
    c. The alternative stormwater management controls are in compliance with all other sections of this Chapter, including but not limited to § 19-301.4, § 19-302.1, § 19-302.3.

2. The applicant must demonstrate that the following BMPs are being utilized to the maximum extent practicable to receive consideration for the exemptions:
    a. Design around and limit disturbance of floodplains, wetlands, natural slopes over 15%, existing native vegetation, and other sensitive and special value features.
    b. Maintain riparian and forested buffers.
    c. Limit grading and maintain nonerosive flow conditions in natural flow paths.
    d. Maintain existing tree canopies near impervious areas.

e. Minimize soil disturbance and reclaim disturbed areas with topsoil and vegetation.

f. Direct runoff to pervious areas.

3. The applicant must demonstrate that the proposed development/additional impervious area will not adversely impact the following:
    a. Capacities of existing drainageways and storm sewer systems.
    b. Velocities and erosion.
    c. Quality of runoff if direct discharge is proposed.
    d. Existing known problem areas.
    e. Safe conveyance of the additional runoff.
    f. Downstream property owners.

§ 19-304 Volume Controls.

1. The green infrastructure and low impact development practices provided in the BMP Manual and in Appendix B of this Chapter shall be utilized for all regulated activities to the maximum extent practicable.

2. Stormwater runoff volume controls shall be implemented using the design storm method or the simplified method. For regulated activities equal to or less than one acre, this Chapter establishes no preference for either method; therefore, the applicant may select either method on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors.
    a. The Design Storm Method (CG-1 in the BMP Manual) is applicable to any size of regulated activity. This method requires detailed modeling based on site conditions.
        i. Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year, 24-hour duration precipitation.
        ii. For hydrologic modeling purposes:
            1. Existing (predevelopment) non-forested pervious areas must be considered meadow in good condition.
            2. 20% of existing impervious area, when present on the proposed project site, and contained within the new proposed limited of disturbance, shall be considered meadow (good condition) for predevelopment hydrologic calculations for redevelopment.
    b. The simplified method (CG-2 in the BMP Manual) provided below is independent of site conditions and should be used if the design storm method is not followed. This method is not applicable to regulated activities greater than one acre. For new impervious surfaces:
        i. Stormwater facilities shall capture at least the first two inches of runoff from all new impervious surfaces.
        ii. At least the first one inch of runoff from new impervious surfaces shall be permanently removed from the runoff flow, i.e., it shall not be released into surface waters of the Commonwealth. Removal options include reuse, evapotranspiration, and infiltration. The Managed Release Concept may be used to manage volume with approval from Susquehanna Township and its assignees, if it is demonstrated the volume cannot be permanently removed through the preceding options.

iii. Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first 0.5 inch of the permanently removed runoff should be infiltrated. Managed Release Concept may be used as alternative upon approval from Susquehanna Township and its assignees.

iv. This method is exempt from the requirements of § 19-304 Rate Controls.

3. All applicable worksheets from Chapter 8 of the BMP Manual must be used when establishing volume controls.

4. Actual field infiltration tests at the location of the proposed elevation of the stormwater BMPs are required when 5,000 square feet or greater of new impervious surface is added. Infiltration test shall be conducted in accordance with the BMP Manual. Susquehanna Township shall be notified 24 hours prior to infiltration testing as to provide an opportunity for Susquehanna Township to witness the tests.

5. Actual field infiltration tests shall be required when infiltration facilities are proposed within areas of soils having a Hydraulic Soil Group classification of C or worse. Based on site conditions and or projects occurring in close proximity (2-mile radius) to the proposed project location where failures in infiltration facilities have occurred, preliminary field infiltration results shall be provided to Susquehanna Township in conjunction with their SWM Site Plan and Report.

§ 19-305 Rate Controls.

1. Lands contained within Susquehanna Township that have not had release rates established under an approved Act 167 Stormwater Management Plan:

   a. Post-development discharge rates shall not exceed the predevelopment discharge rates for the one-, two-, ten-, twenty-five-, fifty-, and one-hundred-year storms.

2. Lands contained within Susquehanna Township that have had release rates established under an approved watershed-wide Act 167 Stormwater Management Plan [Paxton Creek, Spring Creek (West), and Fishing Creek]:

   a. Post-development discharge rates shall not exceed the predevelopment discharge for the one-, fifty-, and one-hundred-year storms.

   b. For the two-, ten-, and twenty-five, year storms, the post-development peak discharge rates shall be in accordance with the approved release rate map for the individual watershed.

3. For lands contained within a Paxton Creek Watershed Provisional No Detention District:

   a. These watershed areas may discharge post-development peak runoff without detention facilities. However, the applicant must prove that the "local" runoff conveyance facility which transports runoff from the site to the main channel has adequate capacity to safely transport unattenuated increased peak flows for a twenty-five-year storm in accordance with § 19-306. If there is inadequate capacity, the applicant shall either use 100% release rate control or provide increased capacity of downstream drainage facilities to convey increase peak flows consistent with § 19-306. When determining if adequate capacity exists in the local watershed drainage network, the applicant must assume that the entire local watershed is developed per current zoning and that all new development will use the least restrictive runoff controls specified by this Chapter.

4. Off-site areas that drain through a proposed development site are not subject to release rate criteria when determining allowable peak runoff rate; however, on-site drainage facilities shall be designed to safely convey off-site flows through the development site.

5. For proposed development site, which is located within two or more release rate districts, the maximum runoff discharge at any point shall be equal to the release rate for the district in which the discharge point is located. In the event that a portion of the site is located within a provisional no detention area, no runoff from portions of the site located in areas subject to release rate controls may be drained to or through the provisional no detention area.

§ 19-306 Downstream Hydraulic Capacity Analysis.

Any downstream hydraulic capacity analysis conducted in accordance with this Chapter 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 twenty-five-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 PADEP Erosion and Sediment Pollution Control Program Manual.
2. Natural or man-made channels or swales must be able to convey the increased twenty-five-year return period runoff without creating any hazard to persons or property.
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 PADEP Chapter 105 regulations (if applicable) and, at a minimum, pass the increased twenty-five-year return period runoff, except for facilities located within a designed floodplain area which must, at a minimum, conform to FEMA and local floodplain ordinance requirements.

§ 19-307 Riparian Buffers.

1. In order to protect and improve water quality, a Riparian Buffer Easement shall be created and recorded as part of any subdivision, land development, or development of an individual lot, that encompasses a Riparian Buffer.
2. Except as required by Chapter 102, the Riparian Buffer Easement shall be measured to be the greater of the limit of the 100-year floodplain or a minimum of 35 feet from the top of the streambank (on each side).
3. Minimum Management Requirements for Riparian Buffers.
    a. Existing native vegetation shall be protected and maintained within the Riparian Buffer Easement.
    b. Whenever practicable, invasive vegetation shall be actively removed and the Riparian Buffer Easement shall be planted with native trees, shrubs, and other vegetation to create a diverse native plant community appropriate to the intended ecological context of the site.
4. The Riparian Buffer Easement shall be enforceable by Susquehanna Township and shall be recorded in the Dauphin County Recorder of Deeds Office, so that it shall run with the land shall limit the use of the property located therein.
5. Any permitted use within the Riparian Buffer Easement shall be conducted in a manner that will maintain the extent of the existing 100-year floodplain, improve or maintain the stream stability, and preserve and protect the ecological function of the floodplain.
6. The following conditions shall apply when public and/or private recreation trails are permitted within Riparian Buffers:
    a. Trails shall be for non-motorized use only.
    b. Trails shall be designed to have the least impact on native plant species and other sensitive environmental features.

7. Septic drainfields and sewage disposal systems shall not be permitted within the Riparian Buffer Easement and shall comply with setback requirements established in 25 Pa. Code Chapter 73.

Part 4

EROSION AND SEDIMENTATION STANDARDS

§ 19-401 Erosion and Sedimentation Requirements During Earth Disturbance Activities.

1. The applicant shall meet requirements as contained in 25 Pa. Code Chapter 92 and 102 as required and applicable as follows:
    a. The implementation and maintenance of erosion and sediment control BMPs.
    b. Development of written plans.
    c. Submission of plans for approval.
    d. Obtaining erosion and sediment control and NPDES permits.
    e. Maintaining plans and permits on-site.
2. Evidence of any necessary plan or permit approval for earth disturbance activities from PADEP or the Dauphin County Conservation District (DCCD) must be provided to Susquehanna Township.
    a. When 5,000 square feet or more of earth disturbance activities are proposed, an Erosion and Sedimentation Control Plan must be submitted to DCCD and the Township in accordance with 25 Pa. Code § 102.4(b). In addition, a letter of adequacy from DCCD shall be provided to Susquehanna Township for the E&S Control Plan by the applicant.
3. A copy of the approved E&S Control Plan and any other permit, as required by PADEP or the DCCD, shall be available at the project site at all times, if required under Chapter 102.
4. Construction of temporary roadways (e.g., for utility construction, timber harvesting, etc.) shall comply with all applicable standards for erosion and sedimentation control and stream crossing regulations under 25 Pa. Code Chapter 102 and 105. The Erosion and Sedimentation Control Plan shall be submitted to the DCCD for approval and shall address the following, as applicable:
    a. Design of the roadway system, including haul roads, skid roads, landing areas, trails, and storage and staging areas.
    b. Runoff control structures (e.g., diversions, culverts, detention ponds, etc.).
    c. Stream crossing for both perennial and intermittent streams.
        i. Careful consideration shall be taken when interacting or crossing ephemeral streams. Any alterations to the stream channel, shall be restored to existing conditions in order to maintain drainageway/natural flow path.
    d. Access to public roadways, including design of rock construction entrance for mud and debris control.
    e. A remediation plan for restoring the disturbed area through regrading, topsoil placement, reseeding, and other stabilization techniques, as required,
5. Design Criteria for Erosion Control Facilities. All erosion control facilities shall be designed at a minimum to meet the design standards and specifications of the latest revision of the Erosion and Sediment Pollution Control Program Manual, published by PADEP.
6. Construction Standards for Erosion Control Facilities. Construction standards for erosion control facilities shall be in accordance with the approved plans and accompanying specifications. The construction standards for erosion control facilities outlined in the latest revision of the E&S Pollution

Control Program Manual published PADEP shall be considered the minimal acceptable standard. Controls shall be installed at initial stages of earthmoving and otherwise as outlined in the staging of earthmoving activities section of the soil erosion and sediment control plan.

7. Additional erosion and sedimentation control design standards and criteria that must be applied where infiltration BMPs are proposed to include the following:

    a. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase, as to maintain their maximum infiltration capacity.

    b. Infiltration BMPs shall be protected from receiving sediment-laden runoff.

    c. The source of protection for infiltration BMPs shall be identified (i.e., orange construction fence surrounding the perimeter of the BMP).

8. Maintenance is an essential part of the functionality of an erosion control system. Maintenance during development of a project shall be the responsibility of the developer and/or landowner and shall include, but not be limited to:

    a. Maintenance during development of a project shall be the responsibility of the developer and/or landowner and shall usually include, but not be limited to:

        i. Removal of silt and debris from basins, traps, inlet protection, silt fencing, or other structures or measures when capacity of those structures is reached.

        ii. Periodic maintenance of temporary control facilities such as replacement of straw bale dikes, straw filters, or similar structures.

        iii. Establishment or reestablishment of vegetation by seeding and mulching or sodding of scoured areas or areas where vegetation has not successfully been established.

        iv. Installation of necessary controls to correct unforeseen problems caused by storm events within design frequencies.

        v. The contractor or developer shall be responsible for removal of all temporary measures and installation of permanent measures upon completion of the project.

    b. Prior to the dedication of facilities to the Township the following procedures shall be completed for approval of dedication:

        i. Site is 70% uniformly stabilized with perennial vegetation as identified and outlined on the approved plans.

        ii. All infrastructure has been flushed or vacuumed, as applicable.

        iii. All infrastructure has been televised by the selected contractor of the developer or property owner. Televising video shall be provided to the Township to review prior to approval or acceptance of the infrastructure. Any deficiencies or defects discovered in the video shall be rectified prior to approval or acceptance of the infrastructure.

        iv. Removal of all erosion and sediment control devices, i.e. inlet filter bags, compost filter sock, rock construction entrance, etc.

        v. All proposed erosion and sediment control facilities must be converted to final stormwater management facilities and be inspected by Township and or its assignees.

        vi. Stormwater management facilities must pass inspection. The facilities also must be 90% uniformly vegetated with identified plant selection located on the approved SWM Site Plan.

c. After dedication of facilities to the Township, except in cases where agreements to the contrary have been previously executed, maintenance shall be the responsibility of the Township and shall include:

i. Mowing to maintain adequate stands of grass and to control weeds. Chemical weed control may be used if State and local regulations are met. Selection of seed mixtures should reflect the type of maintenance desired by the Township.

ii. Removal of silt from all permanent structures which trap silt or sediment is essential to keep this material from building up in grassed waterways and reducing their capacity.

iii. It shall be the responsibility of the Township to inspect all permanent facilities and to see that corrective action is taken where necessary.

§ 19-402 Total Maximum Daily Load (TMDL) Requirements.

1. Agricultural activities contributing to a watershed within Susquehanna Township containing an established nonpoint source (agricultural) TMDL, shall be conducted in compliance with Chapter 102 (Erosion and Sediment Pollution Control), Chapter 91, §91.36 (General Provisions related to Manure Management), and Act 38 (Nutrient Management).

2. This Section shall apply to agricultural activities conducted in watersheds where TMDLs are established in the future.

Part 5
DESIGN CRITERIA

§ 19-501 Design Criteria for Stormwater Management and Drainage Facilities.

1. General Design Guidelines.

   a. Stormwater shall not be transferred from one watershed to another, unless ((1) the watersheds are sub-watersheds of a common watershed which join together within the perimeter of the property; (2) the effect of the transfer does not alter the peak rate discharge onto adjacent lands; or (3) easements from the affected landowner(s) are provided.

   b. Consideration shall be given to the relationship of the subject property to the drainage pattern of the watershed. A concentrated discharge of stormwater to an adjacent property shall be within an existing watercourse or confined in an easement or returned to a predevelopment flow type condition.

   c. Stormwater BMPs and recharge facilities are encouraged (e.g., rooftop storage, drywells, cisterns, recreation area ponding, diversion structures, porous pavements, holding tanks, infiltration systems, stream channel storage, inline storage in storm sewers, and grading patterns). They shall be located, designed and constructed in accordance with the latest technical guidance published by PADEP, provided they are accompanied by detailed engineering plans and performance capabilities and supporting site specific soils, geology, runoff and groundwater and infiltration rate data to verify proposed designs. Additional guidance from other sources may be accepted at the discretion of the Municipal Engineer (a preapplication meeting is suggested).

   d. All existing and natural watercourses, channels, drainage systems and areas of surface water concentration shall be maintained in their existing condition unless an alteration is approved by the appropriate regulatory agency.

   e. No outlet structure from a stormwater management facility, or swale, shall discharge directly onto a municipal or state-owned roadway.

   f. The invert of all stormwater management facilities and underground infiltration/storage facilities shall be located a minimum of two feet above the seasonal high groundwater table or other soil limiting zone. The invert of stormwater facilities may be lowered if adequate subsurface drainage, which does not alter the existing water table level, is provided.

   g. Any stormwater management facility may be required to be fenced with a minimum four-foot-high fence of material acceptable to Susquehanna Township. Gates with a minimum opening of 10 feet shall be provided for access.

      i. Nothing shall be placed within the fence area of the facility to avoid impact to its functionality.

   h. Stormwater management facilities excavated to carbonate rock must either be fitted with an impervious clay liner or over-excavated four feet and refilled with a suitable material mix. Suitable backfill material is subject to the approval of the Municipal Engineer.

   i. The type, location, and number of landscaping and planting specification shall be provided for all stormwater management facilities and be specified for each type of facility.

   j. Erosion and sedimentation control measures must be applied surrounding infiltration structures during installation to prevent the infiltrative surfaces from becoming clogged.

Additional erosion and sedimentation control design standards and criteria must be applied where infiltration BMPs are proposed shall include the following:

i. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase, so as to maintain their maximum infiltration capacity.

2. Soils Evaluation.
   a. A detailed soils evaluation of the project site shall be performed to determine the suitability of recharge facilities. The evaluation shall be performed by a qualified professional, and at a minimum, address soil permeability, depth of bedrock, susceptibility to sinkhole formation, and subgrade stability, hydrologic soil groups and natural and man-made features.
   b. Soil percolation or infiltration rates must be based on actual field tests and may not be assumed from data contained within the Dauphin County Soils Survey.
   c. Caution shall be exercised where infiltration is proposed in geologically susceptible areas such as strip mine or limestone areas. Extreme caution shall also be exercised where salt or chloride would be pollutant since soils do little to filter this pollutant and it may contaminate the groundwater. It is also extremely important that the design professional evaluate the possibility of groundwater contamination from the proposed infiltration/recharge facility and recommend a hydrogeologic justification study be performed if necessary. Whenever a basin will be located in an area underlain by limestone, a geological evaluation of the proposed location shall be conducted to determine susceptibility to sinkhole formations. The design of all facilities over limestone formations shall include measures to prevent groundwater contamination and, where necessary, sinkhole formation.
   d. The Township may require the installation of an impermeable liner in detention basins. A detailed hydrogeologic investigation may be required by the Township. The Township may require the developer to provide safeguards against groundwater contamination for uses which may cause groundwater contamination, should there be a mishap or spill.
   e. It shall be the developer's responsibility to verify if the site is underlain by limestone. The following note shall be attached to all Drainage Plans and signed and sealed by the developer's engineer/surveyor/landscape architect/geologist: "I, _____, certify that the proposed detention basin (circle one) is/is not underlain by limestone."
   f. Where pervious pavement is permitted for parking lots, recreational facilities, non-dedicated streets, or other areas, pavement construction specifications shall be noted on the plan.
   g. Recharge/infiltration facilities may be used in conjunction with other innovative or traditional BMPs, stormwater control facilities, and nonstructural stormwater management alternatives.
   h. All recharge/infiltration facilities shall be designed to completely drain within 72 hours from the end of the storm.
   i. Infiltration structures shall be designed for required storm volume based on field-determined capacity at the elevation of the proposed infiltration surface.

3. Stormwater management facilities (with a depth of water equal to or greater than three feet measured from the lowest point inside a facility to the crest of the emergency spillway).

   a. Any stormwater management facility designed to store runoff and requiring a berm or earthen embankment shall be designed to provide an emergency spillway to handle peak rate or stormwater runoff up to and including the 100-year post-development flow, with a blocked primary outlet structure. The height of embankment must be set as to provide a minimum one-foot of freeboard through the spillway, above the maximum water surface elevation, computed when the spillway functions for the 100-year post-development inflow, with a blocked outlet structure. The primary outflow structure must be designed to pass all design

storms (up to and including the 100-year event) without discharge through the emergency spillway. The maximum water depth within any stormwater management facility shall be no greater than eight feet when functioning through the primary outlet structure.

b. Emergency spillways shall be armored to prevent erosion during the 100-year post-development flow, with blocked primary outlet structure. Synthetic liners or riprap must be used, and calculations sufficient to support proposed armor must be provided. An earthen plug must be used to accurately control the spillway invert if riprap is the proposed armoring material. Emergency spillway armor must extend up the sides of the spillway and continue at full width to a minimum 10 feet past the toe of slope.

c. A stormwater management facility berm cross section must be at least five feet wide at the top and eight feet wide through the emergency spillway. For all embankments, the side slope shall be no steeper than 3:1 on the inside of the facility and 2:1 on the outside of the facility. For cut slopes, the side slopes shall be no steeper than 2:1.

d. A cutoff and key trench of impervious material shall be provided under all embankments four feet or greater in height.

e. Soils used for the construction of stormwater management facilities shall have low-erodibility factors ("K" factors) (refer to E&S Manual) and be identified on the SWM Site Plan.

f. Trash racks must be provided to prevent clogging of primary outflow structure stages for all orifices equivalent to 12 inches or smaller in diameter.

g. Anti-seep collars must be provided on all outflow culverts in accordance with the methodology contained in the latest edition of the E&S Manual. An increase in seepage length of 15% must be used in accordance with the requirements for permanent anti-seep collars.

h. Conventional, non-BMP stormwater management facilities (i.e., dry detention basins) must empty over a period of time not less than 24 hours and not more than 72 hours from the end of the facility's inflow hydrograph. Infiltration tests performed at the facility locations and proposed basin bottom depths, in accordance with the BMP Manual, must support time-to-empty calculations if infiltration is a factor is the sizing of the stormwater management facility.

i. Impervious low-flow channels are not permitted within stormwater management facilities to promote water quality and groundwater recharge for frequent storm events. Facilities designed as water quality/infiltration BMPs may have a bottom slope of zero. Minimal maintenance, saturation tolerant vegetation must be provided in basins designed as water quality/infiltration BMPs. Conventional, non-BMP stormwater management facilities must have a minimum slope of 1% extending radially out from the primary outlet structure. Water storage below the lowest outlet structure stage (i.e., dead storage) is permitted in stormwater management facilities designed as water quality/infiltration BMPs.

j. Stormwater management facilities bottom elevations must be greater than adjacent floodplain elevations (FEMA or HEC-RAS analysis). If no floodplain is defined, bottom elevations must be higher than existing ground elevations 50 feet from top of stream bank in the facilities' vicinity.

k. Basin outflow culverts discharging into floodplains must account for tailwater. Tailwater corresponding to the 100-year floodplain elevation may be used for all design storms, or the applicant is assumed to be 50 feet from top of stream bank in areas where a floodplain is not designated, or where no other evidence is provided.

l. Exceptions to these requirements may be made at the discretion of Susquehanna Township for BMPs that retain or detain water, but are of a much smaller scale than traditional stormwater management facilities.

m. Any stormwater facility located on or discharging to State highway rights-of-way or State-owned stormwater management facilities shall be subject to approval by PennDOT. The existing points of concentrated drainage that discharge onto adjacent property shall not be altered without permission of the adjacent property owner(s) and shall be subject to any applicable discharge criteria specified in this Chapter.

n. . 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,

4. Storm Sewer Facilities.

a. Storm sewers must be able to convey post-development runoff from a 10-year design storm without surcharging inlets where appropriate. When connecting to an existing storm sewer system, the applicant must demonstrate that the proposed system will not exacerbate any existing stormwater problems and that adequate downstream capacity exists. Refer to § 19-306.

b. In proposed curbed roadway sections, the maximum encroachment of water on the roadway pavement shall not exceed half of a through travel lane or one inch less than the depth of curb during the 10-year design storm of five-minute duration. Gutter depth shall be verified by inlet capture/capacity calculations that account for road slope and opening area. The maximum distance between inlets in curbed roadway sections shall be no more than 600 feet, however access to underground pipes shall be provided every 300 feet.

c. At all roadway low points, swales and easements shall be provided behind the curb or swale and through adjacent properties to channelize and direct any overflow of stormwater runoff away from dwellings and structures.

d. Inlets, manholes, pipes, and culverts shall be constructed in accordance with the specifications set forth in PennDOT's Publication 408, latest edition, and as detailed in the PennDOT's Publication 72M, Standards for Roadway Construction (RC), latest edition, or as approved by the Municipal Engineer. All material and construction details (inlets, manholes, pipe trenches, etc.) must be show on the SWM Site Plan, and a note added that all construction must be in accordance with PennDOT's Publication 408 and PennDOT's Publication 72M, latest edition. A note shall be added to the plan stating that all frames, concrete top units, and grade adjustment rings shall be set in a bed of full mortar according to Publication 408.

e. At a minimum, pipe capacities shall be computed using both the Manning Equation for full flow capacity and the Inlet Control Nomographs in Hydraulic Design Series 5 by the Federal Highway Administration, dated September 1985. For inlets, the maximum headwater elevation must be less than the top of grate. Outlet control calculations shall be required for special circumstances such as high tailwater conditions, long runs or pipe, excessive bends, and other losses, etc. Alternate methods of headwater computation may be accepted at the discretion of the Municipal Engineer.

f. Pavement base drain shall be provided at all low points in cut areas, toe of slope areas, and other areas as dictated by proven engineering principles and design judgement. All base drain shall be in accordance with PennDOT Publication 408.

g. In certain instances, primarily within the provisional no detention districts, local drainage conditions may dictate more stringent levels of runoff control than those based upon protection of the entire watershed. In these instances, if the developer could prove that it would be feasible to provide capacity improvements to relieve the capacity deficiency in the

local drainage network, then the capacity improvements could be provided by the developer in lieu of runoff controls on the development site. Any capacity improvements would be designed based upon development of all areas tributary to the proposed improvement and the capacity criteria specified in § 937.08. In addition, all new development upstream of a proposed capacity improvement shall be assumed to implement the applicable runoff controls consistent with this Chapter, except that all new development within the entire subarea(s) within which the proposed development site is located shall be assumed to implement the developer's proposed discharge control, if any.

h. Storm drainage facilities and appurtenances shall be so designed and constructed as to minimize the erosion at discharge points and in watercourse channels. Adequate erosion protection shall be provided along all open channels and at all points of discharge.

i. Pipe Design.

   i. A minimum pipe size of 15 inches in diameter shall be used in all roadway systems (public or private) proposed for construction. Pipes shall be designed to provide a minimum velocity of 2 ½ feet per second when flowing full, but in all cases, the slope shall be no less than 0.5%. Arch pipe of equivalent cross-sectional area may be substituted in lieu of circular pipe where cover or utility conflict conditions exist.

   ii. All storm drainage piping (equal to or greater than 12 inches) discharging to the ground surface shall be provided with either reinforced concrete headwalls and end sections or plastic and metal pipe end sections compatible with the pipe size involved in accordance with PennDOT Publication 408 and Publication 72M.

   iii. Accessible drainage structures shall be located on continuous storm sewer system at all vertical dislocations, at all locations where a transition in storm sewer pipe sizing is required, at all vertical and horizontal angle points exceeding 5°, and at all points of convergence of two or more storm sewer pipes.

   iv. Pipe sizes, lengths, and slopes shall be shown on the approved drawings.

j. Inlets.

   i. Standard Type "C" inlets with eight-inch hoods shall be used along vertical concrete curbs roadway networks. Type "C" inlets with ten-inch hoods that provide a two-inch sump condition may be used with approval of the Municipal Engineer when roadway longitudinal slopes are 1.0% or less.

   ii. For inlets containing a change in pipe size, the elevation for the crow of the pipes shall be the same or the smaller pipe's crown shall be at a higher elevation.

   iii. All inlets shall provide a minimum two-inch drop between the lowest inlet pipe invert elevation and the outlet pipe invert elevation.

   iv. On curbed sections, a double inlet shall be placed at the low point of sag vertical curves, or an inlet shall be placed at the low point and on each side of the low point at a distance not to exceed 100 feet, or at an elevation not to exceed 0.2 feet above the low point.

   v. Inlets shall be placed so drainage cannot cross intersections or street center lines.

   vi. All inlets in paved areas shall have heavy-duty bicycle-safe grating consistent with PennDOT Publication 72M. A note to this effect shall be added to the SWM Site Plan or inlet details therein.

vii. Inlets must be sized to accept the specified pipe sizes without knocking out any of the inlet corners. All pipes entering or exiting inlets shall be cut flush with the inlet wall. A note to this effect shall be added to the SWM Site Plan or inlet details therein.

viii. Inlets shall have weep holes covered with geotextile fabric placed at appropriate elevations to completely drain the subgrade prior to placing the base and surface course on roadways.

ix. Inlets, junction boxes, or manholes greater than five feet in depth shall be equipped with ladder rungs and shall be detailed on the SWM Site Plan.

x. Inlets shall not have a sump condition in the bottom (unless designed as a water quality BMP). Pipes shall be flush with the bottom of the box or concrete channels shall be poured.

xi. The maximum allowable spread of water on streets is ½ of a travel lane. Computations should be provided which demonstrate compliance with this spread requirement.

k. Manholes.

i. Manholes shall be constructed in accordance with the specifications as set forth in the PennDOT, Publication 408, as amended and as detailed on the Roadway Construction Standard drawings (RC-39).

ii. Manholes shall be pre-cast concrete units.

l. Roof Leaders, Foundation Drains, Springs and Sump Pumps.

i. In order to promote overland flow and infiltration/percolation of stormwater where it is advantageous to do so, roof drains, foundation drains, sump pumps, etc., shall not be connected to streets, sanitary sewers, or storm sewers. When it is more advantageous to connect directly to streets or storm sewers, the Township shall permit it on a case-by-case basis.

ii. Stormwater, groundwater, and/or spring runoff drains shall not discharge water directly over a sidewalk.

iii. Stabilized outlets shall be provided for footer drains, flood drains, and downspouts.

iv. All underground or surface springs encountered during or after construction of roadways or buildings shall be adequately conveyed over land to a natural drainageway, to the maximum extent feasible. The Township may permit alternatives on a case-by-case basis. The Township Public Works Director or Township Engineer shall be contacted when a spring is encountered. The Director or Engineer may make a site investigation and make written recommendations to the developer for correcting the problem. Such recommendations shall be binding on the developer unless the Board of Commissioners, upon the request of the developer, agree to permit an alternative solution.

v. Subbase drains shall be provided at all low points in cut areas, toe of slope areas and other areas as dedicated by proven engineering principles and design judgement. Subbase drains shall be designed and constructed in accordance with PennDOT Design Criteria and Publication 408 Specifications.

vi. All land development projects shall be designed and constructed in order to provide proper drainage of stormwater runoff with minimal impact on adjoining properties, unless an area specifically designed for stormwater detention is provided.

m. Outlets.

i. Outlet protection shall be provided at all surface drainage points with storm drainage piping (equal to or greater than 12 inches) in order to minimize erosion consistent with the E&S Manual.

ii. Outlet structures shall include appropriate and adequately sized riprap dissipators to ensure velocity control is managed at the discharge point.

iii. Outlet structures shall discharge a minimum of 20 feet away from the proposed stream or next conveyance system.

5. Swale Conveyance Facilities.

a. Swales must be able to convey post-development runoff from a 10-year design storm with six inches of freeboard to top of the swale.

b. Swales shall have side slopes no steeper than 3:1.

c. All swales shall be designed, labeled on the SWM Site Plan, and details provided to adequately construct and maintain the design dimension of the swales.

d. Swales shall be designed for stability using velocity or shear criteria. Velocity criteria may be used for channels with less than 10% slope. Shear criteria may be used for all swales. Documentation must be provided to support velocity and/or shear limitations used in calculations.

e. Where swale bends occur, the computed velocities or shear stresses shall be multiplied by the following factor for the purpose of designing swale erosion protection:

1.75	When swale bend is 30° to 60°
2.00	When swale bend is 60° to 90°
2.50	When swale bend is 90° or greater

f. Swales must be designed for both temporary and permanent conditions in accordance with the latest E&S Manual.

§ 19-502 Calculation Methodology.

1. All calculations shall be consistent with the guidelines set forth in the BMP Manual. Stormwater runoff from all development sites shall be calculated using either the Rational Method or a Soil Cover Complex Methodology. Methods shall be selected by a qualified professional based on the individual limitations and suitability of each method for a particular site.

2. Rainfall Values.

a. Rational Method. The PennDOT, Intensity-Duration-Frequency Curves, Publication 584, Chapter 7A, latest edition, shall be used in conjunction with the appropriate time of concentration and return period.

b. Soil Cover Complex Method. The Soil Conservation Service Type II, 24-hour rainfall distribution shall be used in conjunction with rainfall depths from NOAA Atlas 14 or consistent with the following table:

Return Interval (Year)	24-Hour Rainfall Total (Inches)
1	2.40
2	2.90

10	4.36
25	5.43
50	6.38
100	7.48

3. Peak Flow Rates.
    a. Rational Method: May be used for drainage areas up to 20 acres. Extreme caution should be used by the qualified professional if the watershed has more than one main drainage channel, if the watershed is divided so that hydrologic properties are significantly different in one versus the other, if the time of concentration exceeds 60 minutes, or if the stormwater runoff volume is an important factor. The combination of Rational Method hydrographs based on timing shall be prohibited.
        i. The use of the Modified Rational Method to design stormwater management facilities must be approved by the Municipal Engineer.
    b. Soil Cover Complex Method: May be used for drainage areas greater than 20 acres. This method is recommended for design of stormwater management facilities where stormwater runoff volume must be taken into consideration.
    c. For comparison of peak flow rates, flows shall be rounded to a tenth of a cubic foot per second (cfs).
4. Runoff Coefficients.
    a. Rational Method: Use Table C-1 (Appendix C).
    b. Soil Cover Complex Method: Use Table C-2 (Appendix C).
    c. For the purposes of predevelopment peak flow rate and volume determination, existing nonforested pervious areas condition shall be considered as meadow (good condition).
    d. For the purposes of predevelopment peak flow rate and volume determination, 20% of existing impervious area, when present on the project site, and contained within the new proposed limit of disturbance, shall be considered meadow (good condition) for predevelopment hydrologic calculations for redevelopment.
        i. This does not apply when dealing in the circumstance of cumulative impervious area added to the property since the adoption of the Stormwater Management Ordinance (10/10/2010). Any impervious area added to the property after the adoption date and which did not reach the stormwater management volume control criteria (1,000 square feet of IA) must include the management of stormwater into the project, for all impervious area added over such time.
5. Design Storm.
    a. All drainage facilities (inlets, pipes, and swales) shall be designed to safely convey 10-year storm.
    b. All stormwater management facilities shall be verified by routing the proposed one-, two-, ten-, twenty-five-, fifty-, and one-hundred-year hydrographs through the facility using the storage indication (Modified Puls) method. The design storm hydrographs shall be computed using a calculation method that produces a full hydrograph.
    c. The stormwater management and drainage system shall be designed to safely convey the post-development 100-year storm event to stormwater detention facilities, for the purpose of meeting peak rate control.

d. All structures (culvert or bridges) proposed to convey stormwater runoff under a municipal road shall be designed to pass the 50-year design storm with a minimum one-foot of freeboard measured below the lowest point along the top of the roadway.

e. All design within state or federal rights-of-way or that falls under the design criteria of any higher authority must meet the requirements of that agency in addition to meeting the minimum requirements of this Chapter.

6. Time of Concentration

a. Time of concentration shall be computed using the NRCS Segmental Method as described in TR-55 (SCS 1986 or most current update). The length of sheet flow shall be limited to 100 feet. The Manning's "n" Roughness Coefficient for TR-55 sheet flow can be found in Table C-4 (Appendix C). Time of concentration for channel and pipe flow shall be computed using Manning' equation.

b. For sites with insignificant channelized flow and less than 20% imperviousness coverage, the time of concentration may be computed using the NRCS equation for lag time:

Time of Concentration = Tc = [(T_{lag} / 0.6) * 60] (minutes)
$$T_{lag} = L^{0.8} \frac{(S+1)^{0.7}}{1900\sqrt{Y}}$$
Where:
T_{lag} = Lag times (hours) L = Hydraulic length of watershed (feet) Y = Average overland slope of watershed (percent) S = Maximum retention in watershed as defined by: S = [(1000 / CN) – 10] CN = NRCS Curve Number for watershed as defined by NRCS Loss Method

c. Additionally, the following provisions shall apply to calculations for time of concentration:

i. The post-development time of concentration shall never be greater that the predevelopment time of concentration for any watershed or subwatershed.

ii. The minimum time of concentration for any watershed shall be five minutes.

iii. The designer may choose to assume a five-minute time of concentration for post-development watershed or subwatershed without providing any computations.

iv. The designer must provide computations for all predevelopment time of concentration paths. A five-minute time of concentration cannot be assumed for predevelopment.

v. Undetained fringe areas (areas that are not tributary to a stormwater facility but where a reasonable effort has been made to convey runoff from all new impervious coverage to best management practices) may be assumed to represent the predevelopment conditions for purpose of time of concentration calculations.

7. Drainage areas tributary to sinkholes or closed depressions in areas underlain by limestone or carbonate geologic features shall be excluded from the modeled point of analysis defining predevelopment flows. If left undisturbed during construction activities, areas draining to closed depressions may also be removed from peak runoff rates in post-development analysis. New, additional contributing runoff shall not be directed to existing sinkholes or closed depressions.

8. Where uniform flow is anticipated, the Manning's equation shall be used for hydraulic computations and to determine the capacity of open channels, pipes, and storm sewers. The Manning's equation should not be used for analysis of pipes under pressure flow or for analysis of culverts. Manning's "n"

values shall be obtained from Table C-3 (Appendix C). Inlet control shall be checked at all inlet boxes to ensure the headwater depth during the 10-year design event is contained below the top of grate for each inlet box.

9. Susquehanna Township 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.

10. Susquehanna Township has the authority to require that computed existing runoff rates be reconciled with field observations, conditions, and site history. If the designer can substantiate, through actual physical calibration, that more appropriate runoff and time of concentration values should be utilized at a particular site, then appropriate variations may be made upon review and approval of Susquehanna Township.

§ 19-506 Subdivision and Land Development.

All elements stated above in this Chapter are applicable to this section, as well as the following.

1. Stormwater Management Districts.

    a. The Township is hereby divided into stormwater management districts in accordance with the Paxton Creek Stormwater Management Plan, the Paxton Creek Release Rate Map, the Spring Creek Stormwater Management Plan and the Spring Creek Release Rate Map. The official release rate district maps are available for inspection at the Township office and by written request. All areas within the districts are subject to the specified release rate. The two-, ten-, and twenty-five-year design storms are all subject to the specified release rates.

    b. Specific Watershed Requirements:

        i. Paxton Creek Watershed

            1. Specified Release Rate Districts. For all districts in this category, the future runoff must be controlled to the specified release rate. That is, the post-development runoff rate must be less than or equal to the predevelopment rate multiplied by the specified release rate for that district.

            2. Provisional No Detention District. These watershed areas may discharge post-development peak runoff without detention facilities. However, the developer must prove that the "local" runoff conveyance facilities which transport runoff from the site to the main channel have adequate capacity to safely transport unattenuated increased peak flows for a 25-year storm in accordance with § 19-306. If there is inadequate capacity, the developer shall either use 100% release rate control or provide increased capacity of downstream drainage facilities to convey increase peak flows consistent with § 19-306. When determining if adequate capacity exists in the local watershed drainage network, the developer must assume that the entire local watershed is developed per current zoning and that all new development will use the least restrictive runoff controls specified by this Chapter.

        ii. Spring Creek Watershed

            1. Specified Release Rate Districts. For all districts in this category, the future runoff must be controlled to the specified release rate. That is, the post-development runoff rate must be less than or equal to the predevelopment rate multiplied by the specified release rate for that district.

        iii. Areas Not Within the Paxton Creek or Spring Creek Watershed. For all areas within the Township but outside the Paxton Creek or Spring Creek Watersheds, the future

peak rate of runoff for the two-, ten-, and twenty-five-year design storms must be controlled to the existing rate.

iv. The exact location of any given development site, or activity regulated by this Chapter relative to the release rate district boundaries shall be determined by mapping the release rate district boundaries using two-foot topographic contour mapping provided as part of the Drainage Plan.

v. For the proposed development site located entirely within one release rate district, the total runoff from the site shall meet the required release rate criteria. For sites with multiple discharge points, any individual point may be designed to a 100% release rate, provided that the total runoff from the site is controlled to the applicable release rate for that district.

vi. For a proposed development site which is located within two or more release rate districts, the maximum runoff discharged at any point shall be equal to the release rate for the district in which the discharge point is located. In the event that a portion of the site is located in a provisional no detention area, no runoff from portions of the site located in areas subject to release rate controls may be drained to or through the provisional no detention area.

vii. Each development site shall be considered separately and shall conform to the criteria of the district in which it is located. In no case may the release rate for an area be exceeded as credit for a reduction below the criteria or any other restrictions on a separate site.

viii. Regional detention facilities will be permitted, provided that adequate conveyance is available or provided from the site to the facility. The acceptability and discharge characteristics of the facility will be determined on a case-by-case basis, by the Township Engineer, using the calibrated model developed for the Paxton Creek Act 167 Plan or Spring Creek Act 167 Plan, as applicable.

2. Stormwater Management District Implementation Provisions.

   a. 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. However, on-site drainage facilities shall be designed to safely convey off-site flows through the development site.

   b. Regional Detention Alternatives. For certain areas within the watershed, it may be more cost-effective 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 is the responsibility of prospective developer(s). The design of any regional control basins must incorporate reasonable development of the entire upstream watershed. The peak outflow of a regional basin 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 Paxton Creek Stormwater Management Plan.

   c. Capacity improvements may be provided as necessary to permit direct discharge in a provisional no detention district, to implement any regional or subregional detention alternatives.

3. Design Standards for Stormwater Management and Conveyance Facilities.

a. The existing points of natural drainage discharge onto adjacent property shall not be altered without the written approval of the affected landowners.

b. Stormwater runoff or natural drainage water shall not be diverted so as to overload existing drainage systems, or create flooding or the need for additional drainage structures on other private properties or public lands, without approved provisions being made by the applicant for properly handling such conditions.

c. Where a watercourse runs across or through a subdivision, a drainage easement, which conforms with the line of such watercourse shall be provided.

d. Storm drainage facilities, as required, shall be placed in front of the curb line when located in a street right-of-way. When located in undedicated land, they shall be placed within an easement, as approved by the Township, who may require additional width of easement as circumstances warrant.

e. Retention/Detention Basin Criteria:

    i. Where a stormwater detention basin is proposed, the plan shall include a proposal to prevent such basin from becoming a safety hazard or public nuisance and for regular perpetual maintenance of the basin to insure its continuous effectiveness.

    ii. All controls designed to meet the requirements of this Chapter shall meet the applicable release rate criteria for the two-, ten-, and twenty-five-year return period storms.

    iii. Any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures) and any work involving wetlands as directed in PADEP Chapter 105 regulations (as amended or replaced from time to time by PADEP) shall be designed in accordance with Chapter 105 and will require a permit from PADEP. Any water obstruction that does not fall under Chapter 105 regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the twenty-five-year design storm with a minimum one-foot of freeboard measured below the lowest point along the top of the roadway.

    iv. The design of all stormwater management facilities shall incorporate sound engineering principles and practices. The Township shall reserve the right to disapprove any design that would result in the occupancy or continuation of an adverse hydrologic or hydraulic condition within the watershed.

    v. Basins which are not designed to release all stormwater shall be specifically identified as retention basins or permanent pond basins. All other basins shall have provisions for dewatering, particularly the bottom, and shall not create swampy and/or unmaintainable conditions. Sod-lined or stone low flow channels may be used to dewater the bottom of the basin. The minimum slope of any surface on the bottom of the pond shall be 1.5%.

    vi. Retention basins and/or detention basins which are designed with earth fill embankments shall incorporate the following standards:

        1. The minimum top width of embankments up to eight feet in height shall be equal to 2/3 of the embankment height, but in no case shall the tope width be less than five feet.

        2. The side slopes of the earth fill shall not be less than 3H:1V.

3. A cut off trench and key trench of impervious material shall be provided under all embankments exceeding four feet in height.

4. All pipes and culverts through embankments shall be fitted with properly spaced and sized cut off collars.

5. No outlet structure from a detention basin or swale shall discharge directly onto a Township or State road, but may discharge into a culvert under a Township or State road.

6. All facilities shall have access roads and easements where necessary.

vii. General Requirements for Stormwater Collection.

1. The design criteria for storm sewers and man-made channels (i.e., swales) shall be the ten-year frequency storm, unless more restrictive frequencies are required by Chapter 105 of PADEP regulations, with intensities based on the times of concentration for PennDOT Intensity Duration Frequency (IDF) curves, and runoff coefficients based on land use for each drainage area. A minimum time of concentration of five minutes shall be used. Computation methods shall be based on the Rational Method or Soil Cover Complex Method. The Township, pursuant of recommendations of the Township Engineer, may require a design storm of higher intensity be used when on-site or surrounding conditions, such as history of flooding downstream or the capacity of the receiving stream or stormwater system indicate such a variation to be necessary.

Part 6

SWM SITE PLAN AND REPORT REQUIREMENTS

§ 19-601 General Requirements.

For any of the activities regulated by this Chapter and not eligible for the exemptions provided in § 19-302, the final approval of subdivision and/or land development plans, the issuance of any building or occupancy permit, or the commencement of any land disturbance activity, may not proceed until the applicant has received written approval of a SWM Site Plan and SWM permit issuance from Susquehanna Township.

§ 19-602 SWM Site Plan and Report Contents.

1. The SWM Site Plan and SWM Site Report shall consist of all applicable calculations, maps, and plans. All SWM Site Plan materials shall be submitted to Susquehanna Township in a digital format that is clear, concise, legible, neat, and well-organized; otherwise the SWM Site Plan shall be rejected.
2. In the circumstance of a Subdivision and Land Development plan submitted to Susquehanna Township, the designer shall use the criteria incorporated into this Ordinance as parameters for stormwater management and shall be followed in preparing the SWM Site Plan.
    a. The SWM Site Plan shall include (but is not limited to):
        i. Plans no larger than 24 inch by 36 inch sheets and in a form that meets the requirements for recording at the Dauphin County Recorder of Deeds.
        ii. The name of the development; name and location address of the property site; name, address, and telephone number of the applicant/owner of the property.
        iii. The name, address, telephone number, email address, and engineering seal of the individual preparing the SWM Site Plan.
        iv. The date of submission and dates of all revision.
        v. General statement of the scope of the project
        vi. The location of the project relative to highways, municipalities or other identifiable landmarks, (i.e., watershed area or areas in which the proposed project is located).
        vii. A graphical and written scale on all drawings and maps.
        viii. A north arrow on all drawings and maps.
        ix. A location map at a minimum scale of one inch equals 1,000 feet.
        x. Bearings and distance description on the entire tract perimeter. Include necessary descriptions of all existing and proposed easements and Right of Ways
        xi. Existing and final contours at intervals of two feet. In areas of steep slopes (greater than 15%), five-foot contour intervals may be used.
        xii. Existing waterbodies within the project area, including streams, lakes, ponds, field delineated wetlands, or other bodies of water, sinkholes, flood hazard boundaries (FEMA delineated floodplains and floodways), areas of natural vegetation to be preserved, the total extent of the upstream area draining through the site, and overland drainage paths.
        xiii. The location of all existing and proposed utilities, on-lot wastewater facilities, water supply wells, sanitary sewers, and waterlines on and within 50 feet of property lines.

xiv. A key map showing all existing man-made features beyond the property boundary that may be affected by the project.

xv. Soil names and boundaries with identification of the Hydraulic Soil Group classification.

xvi. The location of all soil test pits.

xvii. The proposed limit of disturbance line and associated proposed disturbed acres.

xviii. Proposed structures, roads, paved areas, buildings, and roof drain and sump pump discharge, including plans and profiles of roads and paved areas and flood elevations of buildings.

xix. Horizontal alignment, vertical profiles, and cross sections of all open channels, pipes, swales, and other BMPs.

xx. The location and clear identification of the nature of permanent stormwater BMPs.

xxi. The latitude and longitude coordinates for all permanent stormwater management facilities must also be submitted, at the central location of the facility.

xxii. Overland drainage paths.

xxiii. The location of all erosion and sedimentation control facilities.

xxiv. A minimum 20 foot wide delineated and described access easement around all stormwater management faculties that would provide ingress to and egress from a public right-of-way. In lieu of providing an easement to the public right-of-way, a note may be added to the plan granting Susquehanna Township or its assignees access to all easements via nearest public right-of-way.

xxv. Construction details for all drainage and stormwater BMPs.

xxvi. Construction details of any improvements made to sinkholes.

xxvii. Operation and Maintenance (O&M) Plan for all existing and proposed physical stormwater management facilities. This plan shall address short-term and long-term ownership, operations, and maintenance responsibilities.

xxviii. A justification must be included in the SWM Site Plan if BMPs other than green infrastructure methods and LID practices are proposed to achieve the volume, rate, and water quality controls under this Ordinance.

xxix. Notes and Statements.

1. A statement, signed by the Landowner, acknowledging that the stormwater BMPs are fixtures that cannot be altered or removed without prior approval by Susquehanna Township.
2. A statement referencing the Operation and Maintenance (O&M) Agreement and stating that the O&M Agreement is part of the SWM Site Plan.
3. A statement identifying that all inspection and maintenance reports and tasks completed for O&M shall be submitted to Susquehanna Township by June 1st of each year.

4. The following note shall be placed on the recorded plan: "Nothing shall be planted or placed within the easement which would adversely affect the function of the easement, of conflict with any conditions associated with such easement."
5. A note identifying the party responsible for assuring the continued functionality and required maintenance of any easement.
6. A note indicating that record drawings will be provided for all stormwater management facilities prior to the release of financial security.
7. The following signature block for the qualified professional preparing the SWM Site Plan:

"I, _____, hereby certify that the Stormwater Management Site Plan meets all design standards and criteria of Susquehanna Township's Stormwater Management Ordinance."

8. The following signature block for the qualified professional preparing the SWM Site Plan as applicable:

"I, _____, hereby certify that there (are/are not) wetlands on the subject property, the proposed project (will/will not) impact off-site wetlands, and permits (are/are not) required from the state or federal government.

6. The following signature block for the qualified professional preparing the SWM Site Plan as applicable:

"I, _____, hereby certify that this property (is/is not) within a FEMA determined floodplain, floodway, or flood hazard area. If the property is within a FEMA determined floodplain, floodway, or flood hazard area, the determined zone is _____ and the there (is/is not) a defined Base Flood Elevation. An elevation certificate shall be provided as applicable.

b. The SWM Site Report shall include (but is not limited to):
   i. The name of the development; name and location address of the property site.
   ii. The name, address, email address, and engineering seal of the individual preparing the SWM Site Report.
   iii. Project description narrative, including expected project time schedule.
   iv. General statement of the scope of the project
   v. Location map showing the project site and its location relative to release rate districts.
   vi. Drainage area maps for all watersheds and inlets depicting the time of concentration paths.
   vii. A detailed description of the existing site conditions. A detailed site evaluation shall be completed for projects proposed in areas of brownfields, carbonate geology or karst topography, and other environmentally sensitive areas.

viii. Complete hydrologic, hydraulic, and structural computations, calculations, assumptions, and criteria for the design of all stormwater BMPs.

ix. Description of, justification, and actual field results for infiltration testing with response to the type of test and test location for the design of infiltration BMPs located within a Hydraulic Soil Group C or worse

x. Calculations showing the total drainage area and impervious area loading rates to each BMP.

xi. The effect of the project (in terms of runoff volumes, water quality, and peak flows) on surrounding properties and aquatic features and on any existing municipal stormwater collection system that may receive runoff from the project site.

xii. Description of the proposed changes to the land surface and vegetative cover, including the type and amount of impervious area to be added.

xiii. All applicable worksheets form Chapter 8 of the BMP Manual when establishing volume controls.

xiv. Identification of short-term and long-term ownership, operation, and maintenance responsibilities as well as schedules and costs for inspection and maintenance activities for each permanent stormwater or drainage BMP, including provisions for permanent access or maintenance easements.

c. Supplemental information to be added prior to recording of the SWM Site Plan, as applicable:

i. Signed and executed Operations and Maintenance Agreement (Appendix A).

ii. Signed and executed easements, as required for all on-site and off-site work.

iii. An Erosion and Sedimentation Control Plan and approval letter from Dauphin County Conservation District.

iv. A NPDES Permit.

v. Permits from PADEP and ACOE.

vi. A geologic assessment.

vii. A wetland delineation report.

viii. A highway occupancy permit from PennDOT when utilization of a PennDOT storm drainage system is proposed or when proposed facilities would encroach onto a PennDOT right-of-way.

§ 19-603 SWM Site Plan and Report Submission.

1. During review period, one hard copy and digital copy of the SWM Site Plan and Report for the regulated activity shall be submitted to Susquehanna Township and may be distributed as follows:

   a. One physical copy for Susquehanna Township accompanied by the requisite municipal review fee, SWM permit application, as specified in the Susquehanna Township Fee Schedule, as amended.

   b. One digital copy for the Municipal Engineer(s).

2. Additional copies shall be submitted as requested by Susquehanna Township, Tri-County Regional Planning Commission, Dauphin County Conservation District, or PADEP.

3. For final approval, submittal of documentation shall be as follows for Susquehanna Township authorization:

a. Three original copies of the O&M Agreements, each signed and notarized.

b. Three original copies of the SWM Site Plan, each signed in signature blocks, and sealed by the qualified professional preparing the plan.

c. Three original copies of the SWM Site Report, each signed and sealed by the qualified professional preparing the report.

d. Three original copies of the Easement Exhibit.

e. Electronic submission of SWM Site Plan and Report and Easement Agreement.

f. CADD File and Shapefile of SWM Site Plan.

§ 19-604 SWM Site Plan and Report Review.

1. Susquehanna Township shall require receipt of a complete SWM Site Plan and Report as specified in this Chapter. Susquehanna Township shall review the SWM Site Plan and Report for consistency with the purposes, requirements, and intent of this Chapter. Any discrepancies found with the information submitted with the SWM Site Plan and Report shall be provided as Review Comments to all applicable parties. No SWM Site Plan and Report shall be approved until all Review Comments have been addressed or rectified to the satisfaction of the Township.

2. Susquehanna Township shall not approve any SWM Site Plan and Report that is deficient in meeting the requirements of this Chapter. At its sole discretion and in accordance with this Part, when a SWM Site Plan and Report is found to be deficient, Susquehanna Township may disapprove the submission and require a resubmission, or in the case of minor deficiencies, Susquehanna Township may accept submission of modifications.

3. Susquehanna Township shall notify the applicant in writing within 45 calendar days whether the SWM Site Plan and Report is approved or disapproved if the SWM Site Plan and Report is not part of a Subdivision or Land Development Plan. If the SWM Site Plan and Report involves a Subdivision or Land Development Plan, the timing shall follow the Subdivision and Land Development process according to the Municipalities Planning Code.

    a. If a plan is determined to be incomplete, it shall be returned to the applicant within 10 business days of such determination with a list or description of the elements necessary for completion.

    b. If a plan is disapproved, the written notification shall include reasons for disapproval and a list of descriptions of the plan's deficiencies.

4. The Township shall not issue a building permit for any regulated activity if the SWM Site Plan and report has been found to be inconsistent with this Chapter. All required permits from PADEP must be obtained prior to issuance of a building permit.

§ 19-605 Modification or Revision of Plans.

A modification to a submitted SWM Site Plan and Report for a development site that involves a change in stormwater management facilities or techniques, or that involves the relocation or redesign of stormwater management facilities, or that is necessary because soil or other conditions are not as stated on the SWM Site Plan as determined by Susquehanna Township, shall require a resubmission of the modified SWM Site Plan in accordance with this Chapter.

1. All requests for modifications from an applicant shall be in writing and shall accompany and be a part of the application for approval of the modifications to the SWM Site Plan and Report. The request shall state in full the grounds and facts of why a modification is necessary.

§ 19-606 Resubmission of Disapproved SWM Site Plan and Report.

A disapproved SWM Site Plan and Report may be resubmitted with the revisions addressing Susquehanna Township's concerns documented in writing, to Susquehanna Township in accordance with this Chapter. The applicable municipal review fee must accompany a resubmission of a disapproved SWM Site Plan and Report.

§ 19-607 Authorization to Construct and Term of Validity.

Susquehanna Township's approval of a SWM Site Plan and Report authorizes the regulated activities contained in the SWM Site Plan for a maximum term of validity of five years following the date of approval. Susquehanna Township may specify a term of validity shorter than five years in the approval for any specific SWM Site Plan. Terms of validity shall commence on the date Susquehanna Township signs the approval for a SWM Site Plan. If stormwater management facilities included in the approved SWM Site Plan have not been constructed, or if a record drawing of these facilities has not been approved within this time, then Susquehanna Township may consider the SWM Site Plan disapproved and may revoke any and all permits or approvals.

§ 19-608 Record Drawings, Completion Certificate, and Final Inspection.

1. The applicant shall be responsible for providing record drawings of all stormwater BMPs included in the approved SWM Site Plan. The record drawings and an explanation of any discrepancies with the approved SWM Site Plan shall be submitted to Susquehanna Township.
2. The record drawings shall include a certification of completion signed by a qualified professional verifying that all permanent stormwater BMPs have been constructed according to the approved SWM Site Plan and Report.
3. After receipt of the record drawings and certification of completion, Susquehanna Township may conduct a final inspection. Once the final inspection has occurred and has been approved, a written request for release of financial security may occur.

Part 7

§ 19-701 Easements.

1. Easements shall be established to accommodate the existence of drainageways.
2. Easements shall be established for all on-site stormwater management or drainage facilities, including but not limited to detention facilities (above or below ground), infiltration facilities, all stormwater BMPs, drainage swales, and drainage facilities (inlets, manholes, pipes, etc.).
3. Easements shall be required for all areas used for off-site stormwater control.
4. All easements shall be a minimum of 20 feet wide.
    a. Measured from edge of facility or top of bank for infiltration systems and above ground facilities outward.
    b. Measured across the facility for drainage conveyance or open channels. The system should have easement clearance of 10 feet on both sides measured from the centerline.
5. Easements shall provide ingress to and egress from a public right-of-way. In lieu of providing an easement to the public right-of-way, a note may be added to the plan granting Susquehanna Township or its assignees access to all easements via the nearest public right-of-way.
6. Easements shall be centered on side and/or rear lot lines to the maximum extent feasible.
7. The following note shall be placed on the recorded plan: "Nothing shall be planted or placed within the easement which would adversely affect the function of the easement, or conflict with any conditions associated with such easement."
8. A note shall be placed on the SWM Site Plan identifying the party responsible for assuring the continued functionality and required maintenance of any easement.

Part 8

MAINTENANCE RESPONSIBILITES

§ 19-801 Financial Guarantee.

1. The applicant shall provide a financial guarantee to Susquehanna Township for the timely installation and proper construction of all stormwater management controls as required by the approved SWM Site Plan and this Chapter, equal to 110% of the full construction cost of the required controls in accordance with the Municipalities Planning Code.

2. At the completion of the project and as a prerequisite for the release of the financial guarantee, the applicant shall:

    a. Provide a certification of completion from an engineer, architect, surveyor, or other qualified professional verifying that all permanent facilities have been constructed according to the SWM Site Plan and Report and approved revisions thereto.

    b. Provide a set of record drawings.

    c. Completed all required inspections throughout the project schedule.

    d. Request a final inspection from Susquehanna Township to certify compliance with this Chapter, after receipt of the certification of completion and record drawings by Susquehanna Township.

§ 19-802 Maintenance Responsibilities.

1. The SWM Site Plan and Report for the project site shall describe the future operation and maintenance responsibilities. The operation and maintenance description shall outline required routine maintenance actions and schedules necessary to ensure proper operation of the stormwater control facilities. The operation and maintenance responsibilities shall include at minimum the requirements from the BMP Manual for the specified facility(ies).

2. The SWM Site Plan and Report for the project site shall establish responsibilities for the continuing operation and maintenance of all proposed stormwater control facilities, consistent with the following principles:

    a. If a development consists of structures or lots that are to be separately owned and in which streets, sewers, and other public improvements are to be dedicated to Susquehanna Township, stormwater control facilities/BMPs may also be dedicated to and maintained by Susquehanna Township.

    b. If a development site is to be maintained in a single ownership or if streets, sewers, and other public improvements are to be privately-owned and maintained, then the ownership and maintenance of stormwater control facilities/BMPs shall be the responsibility of the owner or private management entity.

    c. Facilities, areas, or structures used as stormwater BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or easements that run with the land.

    d. The SWM Site Plan and O&M Agreement shall be recorded as a restrictive deed covenant that runs with the land.

    e. Susquehanna Township may take enforcement actions against an applicant for failure to satisfy any provision of this Chapter.

3. Susquehanna Township, upon recommendation of the Municipal Engineer, shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan and Report. Susquehanna Township may require a dedication of such facilities as part of the requirements for approval of the SWM Site Plan. Such a requirement is not an indication that Susquehanna Township will accept the facilities. Susquehanna Township reserves the right to accept or reject the ownership and operating responsibilities for any portion of the stormwater management controls.

4. If Susquehanna Township accepts ownership of stormwater BMPs, Susquehanna Township may, at its discretion, require a fee from the applicant to Susquehanna Township to offset the future cost of inspections, operations, and maintenance.

5. If shall be unlawful to alter to remove any permanent stormwater BMP required by an approved SWM Site Plan, or to allow the property to remain in a condition, which does not conform to an approved SWM Site Plan, unless Susquehanna township grants an exception in writing.

§ 19-803 Maintenance Agreement for Privately Owned Stormwater Facilities.

1. Prior to final approval of the SWM Site Plan and Report, the applicant shall sign the Operation and Maintenance (O&M) Agreement (Appendix A) covering all stormwater control facilities that are to be privately owned.

2. Other items may be included in the Operation and Maintenance (O&M) Agreement where determined necessary to guarantee the satisfactory operation and maintenance of all BMP facilities. The Operation and Maintenance (O&M) Agreement shall be subject to the review and approval of Susquehanna Township and the Municipal Solicitor.

3. The owner is responsible for operation and maintenance of the stormwater BMPs. If the owner fails to adhere to the Operation and Maintenance (O&M) Agreement, Susquehanna Township may perform the services required and charge the owner appropriate fees. Nonpayment of fees may result in a lien against the property.

Part 9

INSPECTIONS

§ 19-901 Schedule of Inspections.

1. PADEP or its designees normally ensure compliance with any permits issued, including those for stormwater management. In addition to PADEP compliance programs, Susquehanna Township or its municipal assignee may inspect all phases of the installation of temporary or permanent stormwater management facilities.

2. During any stage of earth disturbance activities, if Susquehanna Township determines that the temporary or permanent stormwater management facilities are not being installed in accordance with the approved SWM Site Plan, Susquehanna Township shall revoke any existing permits or approvals until a revised SWM Site Plan is submitted and approved as specified in this Chapter.

3. Stormwater BMPs shall be inspected by the landowner or the landowner's designee according to the inspection schedule described in the SWM Site Plan for each BMP. Inspections shall be completed according to the following frequency, or otherwise specified on the SWM Site Plan, to ensure the BMPs, facilities and/or structures continue to function as intended:

    i. Annually for the first five years.

    ii. Once every three years thereafter.

iii. During or immediately after the cessation of a 10-year or greater storm.

b. The frequency of inspections and recommended maintenance procedures found within the BMP Manual shall be preferred protocol to the ensure ongoing functionality of the facility.

4. If such inspections are not conducted or inspection reports not submitted as scheduled, Susquehanna Township, or its assignee, may conduct such inspections and charge the owner appropriate fees. Nonpayment of fees may result in a lien against the property.

   a. Prior to conducting such inspections, Susquehanna Township shall inform the owner of its intent to conduct such inspections. The owner shall be given 10 business days to conduct required inspections and submit the required inspection reports to Susquehanna Township.

   b. Failure to conduct required inspections, may result in withholdings of financial guarantee.

5. The following are the required inspections to be scheduled by the applicant, property owner, contractor, or developer with Susquehanna Township to ensure full release of financial security:

   a. Erosion and Sediment Control

      i. Day earth disturbance is to commence; by end of workday E&S Control Measures must be installed according to the approved Plan and inspected.

      ii. 1-month post installation for maintenance.

   b. Stormwater Management Facility

      i. Base depth is reached for stormwater management facility.

      ii. Placement of fill, amended soils, or rock.

      iii. Day facility is to be covered or bottom elevation is reached and vegetation is to be placed within the facility.

   c. Site Closure

      i. To occur when the entire site is 70% uniformly vegetated with perennial vegetation. Establishment of vegetation within stormwater management facility area, must be 90% uniformly vegetated with identified vegetation from approved plan.

§ 19-902 Right of Entry.

1. Upon presentation of proper credentials, duly authorized representatives of Susquehanna Township may enter at reasonable times, upon any property within Susquehanna Township, to inspect the implementation, condition, or operations and maintenance of the stormwater BMPs in regard to any aspect governed by this Chapter.

2. Stormwater BMP owners and operators shall allow persons working on behalf of Susquehanna Township ready access to all parts of the premises for the purposes of determining compliance with this Chapter.

3. Persons working on behalf of Susquehanna Township shall have the right to temporarily locate on any stormwater BMP in Susquehanna Township such devices, as are necessary, to conduct monitoring and/or sampling of the discharges from such stormwater BMP.

4. Unreasonable delay in allowing Susquehanna Township access to a stormwater BMP is a violation of this Chapter.

Part 10
PROHIBITIONS

§ 19-1001 Ultimate Responsibility.

The standards set forth herein and promulgated by this Chapter are minimum standards; therefore, this Chapter does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

§ 19-1002 Prohibited Discharges.

1. Any drain (including indoor drains and sinks), or conveyance whether on the surface or underground, that allows any nonstormwater discharge, including sewage, process wastewater, and washwater, to enter Susquehanna Township's separate storm sewer system or waters of the Commonwealth is prohibited.

2. Any drain or conveyance connected from a commercial or industrial land use to Susquehanna Township's separate storm sewer system, which has not been documented in plans, maps, or equivalent records, and approved by Susquehanna Township is prohibited.

3. No person shall allow, or cause to allow, discharges into Susquehanna Township's separate storm sewer system or into surface waters of the Commonwealth that are not composed entirely of stormwater, except:

    a. As provided in § 19-1101.4 below; and

    b. Discharges allowed under a state or federal permit.

4. The following discharges are authorized unless they are determined to be significant contributors to pollution to the waters of the Commonwealth:

    a. Discharges or flows from firefighting activities
    b. Discharges from potable water sources including water line flushing and fire hydrant flushing, if such discharges do not contain detectable concentrations of Total Residual Chlorine (TRC)
    c. Non-contaminated irrigation water, water from lawn maintenance, landscape drainage, and flows from riparian habitats and wetlands
    d. Non-contaminated HVAC condensation and water from geothermal systems
    e. Springs and diverted stream flows
    f. Non-contaminated water from crawl space pumps
    g. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used
    h. Uncontaminated water from foundation or from footing drains
    i. Groundwater infiltration to storm drains
    j. Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC
    k. Uncontaminated groundwater
    l. Water from individual residential car washing, where cleaning agents are not used.
    m. Routine external building washdown (which does not use detergents or other compounds)
    n. Discharges specified in writing by Susquehanna Township as being necessary to protect public health and safety.
    o. Dye testing is an allowable discharge but requires a verbal notification to Susquehanna Township 48 hours prior to the time of the test.

p. The prohibition shall not apply to any nonstormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of PADEP; provided, that the discharge is in full compliance with all requirements of this permit, waiver, or order and other applicable laws and regulations; and, provided, that written approval has been granted for any discharge to the storm sewer system and/or waters of the Commonwealth.

5. The following discharges are unauthorized which are known sources to contribute pollutants to the waters of the Commonwealth. This list does not limit those discharges which also contribute pollution but are not identified.

    a. Untreated washwater from gas stations, auto repair garages, or other types of automotive service facilities are cleaned.
    b. Areas where repair of machinery and equipment, including motor vehicles, which are visibly leaking oil, fluid or antifreeze.
    c. Swimming pool filter backwash. Discharge from swimming pool of any kind.
    d. Untreated melt water or runoff from uncovered salt sheds, salt bins, or salt storage.
    e. Placement of machinery/equipment that is to be repaired or maintained shall be such that leaks, spills, and other maintenance-related pollutants are appropriately contained.
    f. Disposal of hazardous waste into trash containers used for municipal trash disposal
    g. Untreated washwater from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations.
    h. Untreated runoff from storage areas of materials containing grease, oil, or other hazardous substances, and uncovered receptacles containing hazardous materials.
    i. Untreated runoff from washing of toxic materials from paved or unpaved areas.
    j. Washing out of concrete trucks in an unregulated or unpermitted area.
    k. Improper storage of pesticides, fungicides, herbicides, fuels, chemicals, and batteries, where they may be exposed to the elements.
    l. Improper care and clean up of animal waste.

6. In the event that Susquehanna Township or PADEP determines that any of the discharges identified in § 19-1101.4 significantly contribute pollutants to the regulated MS4 or to the waters of the Commonwealth, or is so notified by PADEP, Susquehanna Township will notify the responsible person(s) to cease the discharge.

7. Upon notice provided by Susquehanna Township or PADEP under § 19-1101.4, the discharger will have reasonable time, as determined by Susquehanna Township or PADEP, to cease the discharge, consistent with the degree of pollution caused by the discharge.

8. Nothing in this Section shall affect a discharger's responsibilities under Commonwealth Law.

§ 19-1003 Prohibited Activities.

1. Littering.

    a. No person shall throw, deposit, place, leave, maintain, keep or permit to be thrown, deposited, placed, left or maintained or kept, any refuse, rubbish, garbage, or any other discarded or abandoned objects, or articles, or accumulates, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin conduit or drainage structure, business place, or upon any public or private plot of land, so that the same might be or become a pollutant, except in containers, recycling bags, or other lawfully established waste disposal facilities. It is illegal to dump, discard, abandon, or otherwise deposit any refuse where the natural flow of stormwater might carry the same to any such surface water channel or structure, or in any pond, lake, stream, or any other body of water.

2. Blowing Debris.

    a. No person shall use or operate any mechanical device to blow leaves, dirt, grass, or other debris in or upon any street, alley, sidewalk, stormwater inlet, stream, highway, or other public right-of-way.

3. Disposal of Landscape Debris.

    a. No person shall intentionally dispose of leaves, dirt, or other landscape debris into any storm drain system, open channel, or surface water.

4. Disposal of Building Material

    a. All building material either produced from within Susquehanna Township, being transported to or through Susquehanna Township, and or deposited within Susquehanna Township at an unregulated or unpermitted location not authorized or permitted to received refuse building material shall be prohibited. Any agency or persons allowing this activity to occur either by act of dumping or acceptance of dumping shall be responsible for its immediate clean up and removal to an authorized and permitted site.

5. Disposal of Animal waste.

    a. All animal owners and keepers are required to immediately and properly dispose of their animal's solid waste deposited on any property, public or private, not owned or possessed by that person.

§ 19-1004 Roof Drains, Foundation Drains, Springs and Sump Pumps

1. In order to promote overland flow and infiltration/percolation of stormwater where it is advantageous to do so, roof drains, foundation drains, sump pumps, etc., shall not be connected to streets, sanitary sewers, or storm sewers. When it is more advantageous to connect directly to streets or storm sewers, the Township shall permit it on a case-by-case basis.

2. Roof drains and sump pumps shall discharge to infiltration areas, vegetative BMPs, or pervious areas to the maximum extent practicable.

3. Roof drains and sump pumps to be directed or connected to a stormwater management facility or BMP shall be approved under the following conditions:

    a. Roof drains and sump pumps shall daylight a minimum of 25 feet away from the top of bank of the proposed stormwater management facility or BMP.

    b. Roof drains and sump pumps to daylight closer than the minimum 25 feet from the top of the bank of the proposed stormwater management facility or BMP shall have a dissipation device installed to prevent high velocity and erosive conditions to the surrounding area.

    c. Roof drains and sump pumps shall not daylight on a slope greater than 3H:1V where the discharge location is above 25% of the slope measured from the bottom elevation. Roof drains shall not discharge water directly over a sidewalk.

    d. Roof drains and sump pumps proposed to connect to subsurface stormwater management facilities or BMPs are permitted so long as a cleanout device is installed for ongoing operation and maintenance.

4. Stabilized outlets shall be provided for footer drains, flood drains, and downspouts.

5. All underground or surface springs encountered during or after construction of roadways or buildings shall be collected and discharged over land toward a stream or drainage way. When it is more advantageous to connect directly to streets or storm sewers, the Township shall permit it on a case-by-

case basis. The Township Engineer or their designee shall be contacted when a spring is encountered. The Engineer or designee may make a site investigation and make written recommendations to the developer for correcting the problem. Such recommendations shall be binding on the developer unless the Board of Commissioners, upon the request of the developer, agree to permit an alternative solution.

6. Subbase drains shall be provided at all low points in cut areas, toe of slope areas and other areas as dictated by proven engineering principles and design judgment. Subbase drains shall be designed and constructed in accordance with the PennDOT Design Criteria and Publication 408 Specifications. All drains shall be connected to a storm drainage system.

7. All regulated activities shall be designed and constructed in order to provide proper drainage of stormwater runoff with minimal impact on adjoining properties, unless an area specifically designed for stormwater detention is provided.

§ 19-1005 Public Water Drainage.

1. Public Water Drainage Nuisance.

    a. No person or entity, either personally, through an agent or in association with others, shall create or maintain a public water drainage nuisance of whatsoever kind within the limits of Susquehanna Township, and the owner or occupant of any premises on which a public water drainage nuisance is found to exist, upon notice from the Code Official, shall abate the same within the time specified.

§ 19-1006 Prohibition of Illicit Connections.

The construction, use, maintenance, or continued existence of illicit connections to the storm drain system is prohibited.

1. This prohibition expressly includes, but is not limited to, illicit connections made in the past, regardless of whether the connection is permissible under law or practices applicable or prevailing at the time of connection.

2. A person is considered to be in violation of this Chapter if the person connects a system conveying sewage, sump pump, floor drains, roof drains, and swimming pools to the storm sewer system, or allows such a connection to continue.

§ 19-1007 Alteration of BMPs.

1. No person shall modify, remove, fill, landscape, or alter any existing stormwater BMP, facilities, areas, or structures unless it is part of an approved maintenance program, without the written approval of Susquehanna Township.

2. No person shall place any structure, fill, landscaping, or vegetation into a stormwater BMP, facilities, areas, structures, or within a drainage easement which would limit or alter the functioning of the BMP without the written approval of Susquehanna Township.

Part 11

ENFORCEMENT AND PENALTIES

§ 19-1101 Notification.

1. In the event that a person fails to comply with the requirements of this Chapter or an approved SWM Site Plan, or fails to conform to the requirements of any permit or approval issued hereunder, Susquehanna Township shall provide written notification, via certified mail, of the violation to the landowner indicated on the O&M Agreement. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violation(s).
2. Failure to comply within the time specified shall subject such person to the penalties provisions of this Chapter.

§ 19-1102 Enforcement.

1. Susquehanna Township is hereby authorized and directed to enforce all the provisions of this Chapter. The approved SWM Site Plan shall be on file at the project site throughout the duration of the construction activity. Susquehanna Township or its assignee may make periodic inspections during construction.
2. Adherence to approved SWM Site Plan.
    a. It shall be unlawful for any person, firm, or corporation to undertake any regulated activity on any property except as provided for by an approved SWM Site Plan and pursuant to the requirements of this Chapter.
    b. It shall be unlawful to alter or remove any control structure required by the SWM Site Plan pursuant to this Chapter.
    c. It shall be unlaw to allow a property to remain in a condition that does not conform to an approved SWM Site Plan.

§ 19-1103 Public Nuisance.

1. A violation of any provision of this Chapter is hereby deemed a public nuisance.
2. Each day that a violation continues shall constitute a separate violation.

§ 19-1104 Suspension and Revocation.

1. Any approval or permit issued by Susquehanna Township may be suspended or revoked for:
    a. Noncompliance with or failure to implement any provision of the approved SWM Site Plan or Operation and Maintenance (O&M) Agreement.
    b. A violation of any provision of this Chapter or any other applicable law, ordinance, rule, or regulation relating to the regulated activity.
    c. The creation of any condition or the commission of any act, during the regulated activity which constitutes or creates a hazard or nuisance, pollution, or which endangers the life or property of others.
2. A suspended approval or permit may be reinstated by Susquehanna Township when:
    a. Susquehanna Township or its designee has inspected and approved the corrections to the violation(s) that caused the suspension.
    b. Susquehanna Township is satisfied that the violation(s) has been corrected.
3. An approval that has been revoked by Susquehanna Township cannot be reinstated. The applicant may apply for a new approval under the provisions of this Chapter.

4. If a violation causes no immediate danger to life, public health, or property, at its sole discretion, Susquehanna Township may provide a limited time period for the owner to correct the violation. In these cases, Susquehanna Township will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the allowed time period, Susquehanna Township may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

§ 19-1105 Penalties.

1. Anyone violating the provisions of this Chapter shall be guilty of a summary offense and, upon conviction, shall be subject to a fine of not more than $500 for each violation, recoverable with costs. Each day that the violation continues shall be a separate offense and penalties shall be cumulative.

2. In addition, Susquehanna Township, through its Solicitor, may institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Chapter. 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.

§ 19-1106 Appeals.

1. Any person aggrieved by any action of Susquehanna Township or its assignees, relevant to the provisions of this Chapter, may appeal to Susquehanna Township within 30 days of that action as outlined in the Municipalities Planning Code.

2. Any person aggrieved by any decision of Susquehanna Township, relevant to the provisions of this Chapter, may appeal to the Dauphin County Court of Common Pleas within 30 days of Susquehanna Township's decision.

Part 12

FEES AND AGREEMENTS

§ 19-1201 General.

The fees required by this Chapter are the municipal review fee. The municipal review fee shall be established by Susquehanna Township by resolution of Susquehanna Township Board of Commissioners to defray review costs incurred by Susquehanna Township and their consultants. The applicant shall pay all fees.

§ 19-1202 Expenses Covered by Fees.

1. Administrative and clerical costs.
2. Review of the SWM Site Plan and Report by Susquehanna Township, Engineer, and Solicitor.
3. Preconstruction meetings.
4. Inspection of stormwater management facilities/BMPs and drainage improvements during construction.
5. Final inspection upon completion of the stormwater management facilities/BMPs and drainage improvements presented in the SWM Site Plan.
6. Any additional work required to enforce any permit provisions regulated by this Chapter, correct violations, and assure proper completion of stipulated remedial actions.

§ 19-1203 Recording of Approved SWM Site Plan and Related Agreements.

1. The owner of any land upon which permanent BMPs will be placed, constructed, or implemented, as described in the SWM Site Plan, shall record the following documents in the Officer of the Recorder of Deeds of Dauphin County, within 30 days of approval of the SWM Site Plan by Susquehanna Township.
    a. The SWM Site Plan.
    b. Operations and Maintenance (O&M) Agreement (Appendix A).
    c. Easements under § 19-701.
2. Susquehanna Township may suspend or revoke any approvals granted for the project site upon discovery of the failure of the owner to comply with this Section.