

STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NUMBER

#7-2011

Delaware Township,

COUNTY OF MERCER,

COMMONWEALTH OF PENNSYLVANIA

Adopted at a Public Meeting Held on

July 6, 2011

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ARTICLE I - GENERAL PROVISIONS

SECTION 101 – Short Title

This Ordinance shall be known as and may be cited as the "(Delaware Township)" Stormwater Management Ordinance."

SECTION 102 – Statement of Findings

The governing body of Delaware Township finds that:

- A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases non-point source pollution of water resources.
- B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, and welfare and the protection of people of the Commonwealth, and Delaware Township, their resources, and the environment.
- C. Stormwater is an important water resource, which provides groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.
- D. 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).
- E. Public education is necessary for the proper understanding and implementation of stormwater management in the community in which it functions.

SECTION 103 – Purpose

The purpose of this Ordinance is to promote health, safety, and welfare within Delaware Township and its watershed by minimizing the harms and maximizing the benefits described in Section 102 (Statement of Findings) of this Ordinance, through provisions designed 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 this Commonwealth.
- B. Manage the volume, rate and quality of stormwater runoff.
- C. Preserve the natural drainage systems as much as possible.
- D. Manage stormwater runoff as close to the source as possible.
- E. Provide procedures and performance standards for stormwater planning and management.
- F. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
- G. Prevent scour and erosion of stream banks and streambeds from accelerated runoff.
- H. Provide proper operation and maintenance of all permanent SWM BMP's that are implemented and constructed within Delaware Township.
- I. Provide standards to meet NPDES permit requirements.
- J. Integrate stormwater management into the land development site planning process.

SECTION 104 - Statutory Authority

A. Primary Authority:

Delaware 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. Section 680.1, et seq., as amended, the "Stormwater Management Act" and the "(appropriate municipal code)".

B. Secondary Authority:

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

SECTION 105 - Applicability

All regulated activities and all activities that may affect stormwater runoff, including land development and earth disturbing activities, are subject to regulation by this Ordinance.

For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this Ordinance; except that the volume controls in Section 303 and the peak rate controls of Section 304 do not need to be retrofitted to existing impervious areas that are not being altered by proposed regulated activities.

SECTION 106 - Repealer

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

SECTION 107 - Severability

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

SECTION 108 - Compatibility with Other Requirements

Approvals issued and actions taken under this Ordinance do not relieve the Applicant of the responsibility to secure required permits or approvals for activities regulated by any other code, law, regulation, or ordinance.

SECTION 109 – Obligation to Safeguard

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

ARTICLE II - DEFINITIONS

SECTION 201- Definitions

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

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word "includes" or "including" shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.
- C. The words "shall" and "must" are mandatory; the words "may" and "should" are permissive.

Agricultural Activity – Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy 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.

Applicant - A landowner, developer or agent of a property owner who has filed an application for approval to engage in any Regulated Activity at a project site in Delaware Township.

BMP (Best Management Practice) – 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. Permanent stormwater BMPs are commonly grouped into one of two broad categories or measures: "structural" or "nonstructural." In this Ordinance, nonstructural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff.

Structural BMPs include, but are not limited to, a wide variety of practices and devices, from large-scaled 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 permanent stormwater BMPs are permanent appurtenances to the project site.

Channel – A natural or artificial watercourse with a defined bed and banks that conveys continuously or periodically flowing water.

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 DEP to administer and enforce all or a portion of the regulations promulgated under 25 Pa. Code 102.

Design Storm - The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g. a 5-year storm) and duration (e.g. 24-hours), used in the design and evaluation of stormwater management systems.

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

DEP - The Pennsylvania Department of Environmental Protection.

Development Site (Site) - 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 or directed to a pervious area, which allows for infiltration, filtration, and increased time of concentration as specified in Appendix A.

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

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, roadside maintenance, building construction and the moving, depositing, stockpiling, or storing of soil, rock or earth materials.

Easement – A legal right granted by a landowner to a grantee allowing the use of private land for conveyance or treatment of stormwater runoff and access to stormwater practices.

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

Erosion and Sediment Control Plan (E & S Plan) - A plan that is designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.

Existing Pre-Development Condition – The dominant land cover during the five (5) year period immediately preceding a proposed Regulated Activity.

Floodplain - Any land area susceptible to inundation by water from any natural source or delineated by applicable Federal Emergency Management Agency (FEMA) maps and studies as being a special flood hazard area. Also included are those soil groups found in Appendix 13 of the (1993) DER Technical Manual for Sewage Enforcement Officers , Soil Groups, Appendix A (as amended or replaced from time to time by PADEP).

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

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

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 four HSG's (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The Natural Resources Conservation Service

(NRCS) of the US Department of Agriculture defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS ^{3,4}).

Impervious Surface (Impervious Area) - A surface that prevents the infiltration of precipitation into the ground (e.g., building area/footprint, pavement, sidewalks, driveways, etc). Decks, gravel parking areas, gravel driveways, porous concrete, porous asphalt, porous pavers, and green roofs are not counted as impervious areas if they do not prevent infiltration.

Infiltration - The entrance of surface water into the soil, usually at the soil/air interface.

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

MCCD – Mercer County Conservation District

Municipality -Delaware Township, Mercer County, Pennsylvania.

Non-Structural Best Management Practices (BMP) - a combination of design and planning techniques that focus on preserving open space, protecting natural systems, and incorporating existing landscape features such as wetlands and stream corridors into a SWM site plan to manage stormwater at its source.

NPDES (National Pollutant Discharge Elimination System) Stormwater Discharge Permit - A permit issued by the EPA, or by a State under authority delegated pursuant to 33 USC § 1342(b), that authorizes the discharge of pollutants to waters of the State, whether the permit is applicable on an individual, group, or general area-wide basis.

NRCS – USDA Natural Resources Conservation Service (previously SCS).

Optional – These are requirements that are recommended but may be modified or deleted at the discretion of Delaware Township.

Owner - The owner or owners of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee or other person, firm or corporation in control of a piece of land. As used herein, owner also refers to, in the appropriate context: (i) any other person authorized to act as the agent for the owner; (ii) any person who submits a stormwater management concept or design plan for approval or requests issuance of a permit, when required, authorizing land development to commence; and (iii) any person responsible for complying with an approved stormwater management design plan.

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

Permanent Stormwater BMP - A stormwater (BMP) that will be operational after the construction phase of a project and that is designed to become a permanent part of the site for the purposes of managing stormwater runoff.

Pervious Area – Any area not defined as impervious.

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

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

Receiving Stream or Channel - A body of water or conveyance into which stormwater runoff is discharged.

Recharge - The replenishment of underground water reserves.

Redevelopment - A change to previously existing, improved property, including but not limited to the demolition or building of structures, filling, grading, paving, or excavating, but excluding ordinary maintenance activities, remodeling of buildings on the existing footprint, resurfacing of paved areas, and exterior changes or

improvements that do not materially increase or concentrate stormwater runoff or cause additional non-point source pollution.

Regulated Activities – Any earth disturbing 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 a regulation under 25 Pa. Code Chapter 92, 25 Pa. Code Chapter 102, or the Clean Streams Law.

Return Period – The recurrence interval, in years, which a storm event of a given magnitude has the probability of occurrence in any given year, i.e. the probability of a 2-year storm occurring in any one year is 0.5 (a 50% chance), the probability of a 10-year storm occurring in any one year is 0.1 (a 10% chance). The probability of a 25-year storm occurring in any one year is 0.04 (a 4% chance) and the probability of a 100-year storm occurring in any one year is 0.01 (a 1% chance).

Responsible Party - Any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity, or any other legal entity; or their legal representatives, agents, or assigns that is named on a stormwater maintenance agreement as responsible for long-term operation and maintenance of one or more permanent stormwater BMPs.

Riparian Buffer - An area of land at or near a stream bank, wetland, or water body that has intrinsic water quality value due to the ecological and biological processes it performs or is otherwise sensitive to changes which may result in significant degradation to water quality.

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

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

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

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

Stormwater Management Facility - Any structure, natural or man-made, that are designed to reduce all of the following: stormwater runoff pollutant loads, discharge volumes, peak flow discharge rates and detrimental changes in stream temperature that affect water quality and habitat.

Stormwater Management Plan - The plan for managing storm water runoff adopted by the County of Mercer as required by the Act of October 4, 1978, P.L. 864, (Act 167), as amended, and known as the "Stormwater Management Act".

Stormwater Management (SWM) BMP's- Is abbreviated as SWM BMPs throughout this Ordinance.

Stormwater Management (SWM) Site Plan - The plan prepared by the Developer or his representative indicating how stormwater runoff associated with industrial, commercial, institutional, residential or other land uses will be managed at the development site in accordance with this Ordinance. Stormwater Management Site Plan will be designated as SWM Site Plan throughout this Ordinance.

Stream – A body of water with a current, confined within a bed and stream banks, less than sixty (60) feet in width, that is subject to inundation from overflow or flood water. A stream may be referred to as a branch, brook, creek or run.

Structural Best Management Practices (BMP) – a constructed facility or measure that helps to protect receiving water quality and control stormwater runoff rate and volume.

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

Watercourse - A permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

Waters of this 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 this Commonwealth.

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

Wetland - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, fens, and similar areas.

ARTICLE III - STORMWATER MANAGEMENT STANDARDS

SECTION 301 - General Requirements

- A. For all regulated activities, unless preparation of a SWM Site Plan is specifically exempted in Section 302 (Exemptions):
 - 1. Design and implementation of an approved SWM Site Plan is required.
 - 2. No regulated activities shall commence until the Municipality issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
- B. SWM Site Plan approved by the Municipality, in accordance with Section 407 (Authorization to Construct and the Term of Validity), shall be on site throughout the duration of the Regulated Activity.
- C. The Municipality may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law.
- D. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code and the

Clean Streams Law. Various BMPs and their design standards are listed in the Erosion and Sediment Pollution Control Manual (E&S Manual), No. 363-2134-008 (April 15, 2000), as amended and updated.

E. For all regulated activities, implementation of the volume controls in Section 303 (Volume Controls) is required.

F. Impervious areas:

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

G. Stormwater flow onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without a written agreement from the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this Ordinance.

H. All regulated activities shall include such measures, to the maximum extent practicable, to:

1. Protect health, safety, and property and the public welfare.
2. Meet the water quality goals of this Ordinance by implementing measures to:
 - a. Minimize disturbance to floodplains, wetlands, and wooded areas.
 - b. Maintain or extend riparian buffers.
 - c. Maintain natural drainage patterns.
 - d. Avoid erosive flow conditions in natural flow pathways.
 - e. Minimize the creation of impervious surfaces.

- f. Minimize thermal impacts to waters of this Commonwealth.
 - g. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.
3. Incorporate the techniques for Low Impact Development Practices.
- I. Discharge roof drains and sump pumps to infiltration or vegetative BMPs or satisfy the criteria for DIAs..
 - J. Infiltration BMPs should be spread out, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Ordinance.
 - K. Stormwater 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.
 - L. The design storm volumes to be used in the analysis of peak rates of discharge will be the 24-hour values as shown in the following table:

STORM FREQUENCY	24-Hour depth in INCHES
2 - year	2.45
10 - year	3.44
25 - year	4.07
100 - year	5.13

Or the 24-hour values obtained from the Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, Version 3.0, U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Weather service, Hydrometeorological Design Studies Center, Silver Spring, Maryland. NOAA's Atlas 14 can be accessed at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>

- M. For all regulated activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.
- N. Various BMP's and their design standards are listed in the BMP Manual.
- O. Offsite areas which 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.
- P. Any stormwater management facility designed to store stormwater runoff and not eligible for a waiver from permit requirements pursuant to 25 Pa Code §105.12 requiring a berm or earthen embankment shall be designed to provide an emergency spillway to handle flow up to and including the 100-year post-development conditions. The height of embankment must be a minimum 1-foot above the maximum pool elevation computed when the facility functions for the 100-year post-development inflow.
- Q. Any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures), and any work involving wetlands pursuant to 25 Pa Code Chapter 105 regulations, as amended or replaced, shall be designed, permitted, and constructed in accordance with Chapter 105.
- R. Any drainage conveyance facility and/or channel that does not fall under Chapter 105 Regulations, must be able to convey, without damage to the drainage structure or roadway, runoff from the 25-year design storm. Conveyance facilities discharging to or exiting from stormwater management facilities shall be designed to convey the design flow to or from that structure.
- S. Storm sewers must be able to convey post-development runoff from a 10-year storm event without surcharging inlets, where appropriate.

T. Adequate erosion protection shall be provided along all open channels, and at all points of discharge.

U. The design of all stormwater management facilities shall incorporate sound engineering principles and practices and shall not result in the creation or continuation of adverse hydrologic or adverse hydraulic conditions within the watershed.

SECTION 302 – Exemptions

A. Regulated activities that create impervious areas smaller than 2,500 square feet are exempt from the Peak Rate Control and Stormwater Management Site Plan requirements of this Ordinance unless the municipality disqualifies the project for an exemption pursuant to Section 302.G.

B. Regulated activities that create impervious areas of 2,500 square feet to 5,000 square feet require a Small Project Application to be submitted to Delaware Township and volume controls must be installed to meet the requirements of the BMP manual, or meet the requirements for the Disconnected Impervious Area (DIA) Credits in Section 401 (Small Project Application).

C. Agricultural activity is exempt from this rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code 102.

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

E. Oil and gas operations are exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code, Chapter 102.

F. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Section 301 (General Requirements), Items D. through U.

- G. Delaware Township may deny or revoke any exemption pursuant to this Section at any time for any project that Delaware Township believes may pose a threat to public health, safety, property or the environment.

SECTION 303 – Volume Controls

The Low Impact Development practices, like those provided in the BMP Manual shall be utilized for all regulated activities to the maximum extent practicable. Water volume controls shall be implemented using the *Design Storm Method* in Subsection A or the *Simplified Method* in Subsection B. For regulated activity areas equal or less than 1 acre that do not require hydrologic routing to design the stormwater facilities, this Ordinance establishes no preference for either methodology; therefore, the applicant may select either methodology 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.
1. Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year 24-hour duration precipitation.
 2. For hydrologic modeling purposes:
 - a. Existing pre-development non-forested pervious areas must be considered meadow or its equivalent in good condition.
 - b. Existing (pre-development) impervious areas, when present, must consider twenty (20) percent of the impervious area as meadow in good condition.
- B. The *Simplified Method* (CG-2 in the BMP Manual) 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 (1) acre or for projects that require design of stormwater storage facilities. For new impervious surfaces:

1. Stormwater facilities shall capture at least the first two inches (2") of runoff from all new impervious surfaces.
2. At least the first one inch (1") of runoff from new impervious surfaces shall be permanently removed from the runoff flow, i.e., it shall not be release into the surface waters of this Commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.
3. Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first one-half inch (0.5") of the permanently removed runoff should be infiltrated.
4. This method is exempt from the requirements of Section 304 (Rate Controls).

SECTION 304 – Rate Controls

Post-development peak discharge rates shall not exceed the pre-development peak discharge rates for the, 2-year, 10-year, 25-year, and 100-year storm events.

SECTION 305 – Calculation Methodology

Stormwater runoff from all development sites shall be calculated using either the Rational Method (stormwater conveyance systems only) or a soil cover complex methodology as follows:

- A. Major and minor conveyance systems up to 20 acres may be designed using the Rational Method. The Rational Method may also be used in sizing the minor conveyance systems for larger sites. Any stormwater runoff calculations involving drainage areas greater than 20 acres, including on-site and off-site areas, shall use a generally accepted runoff hydrograph technique that is based on the NRCS Soil Cover Complex method. Runoff hydrograph methods must be used for major drainage system designs for all systems with greater than 20 acres of drainage area and for design of all stormwater storage facilities.
- B. All calculations consistent with this Ordinance using the Soil Cover Complex method shall use the appropriate design

rainfall depths for the various return period storms presented Section 301 (General Requirements), Item L. If a hydrologic computer model is used for stormwater runoff calculations, the duration of rainfall shall be 24 hours. The SCS Rainfall Type II curve shall be used for the rainfall distribution.

- C. For the purposes of existing pre-development runoff rate determination, undeveloped non-forested pervious areas including disturbed areas must be considered meadow in good condition, or its equivalent in good condition. Those areas that have existing impervious areas within the planned development area may be included in the determination of the predevelopment flow rate.
- D. All calculations using the Rational Method shall use rainfall intensities from the Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, Version 3.0, U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland. NOAA's Atlas 14 can be accessed at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
- E. Times-of-concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watersheds, NRCS, TR-55. Travel time for channel and pipe flow shall be computed using velocities determined using Manning's equation.

ARTICLE IV – STORMWATER MANAGEMENT SITE PLAN REQUIREMENTS

SECTION 401 – Small Project Application (< 5000 Sq. Ft. of Impervious Area)

This section applies to eligible projects with Total Impervious Surface Area from 1,000 square feet to less than 5,000 square feet.

If the Total Impervious Surface Area is 2,500 square feet to 5,000 square feet your project requires a Small Project Application to be submitted to the Municipality and volume controls must be installed to meet the requirements of the surface area of BMP's required.

For areas where runoff from impervious areas can be directed to pervious areas that allow for infiltration, filtration, and increased time of concentration Disconnected Impervious Area (DIA) Credits may be used. To qualify as DIA the concentrated discharge must meet the following criteria:

For Rooftop Areas:

1. area draining to a downspout must be 500 square feet or less,
2. discharge must be to an area with a positive slope of 5% (one foot of fall per twenty feet of length, 20:1) or less, and
3. be a minimum distance of 75-feet from a watercourse or down slope property line.

For Paved Areas (driveways):

1. runoff draining to a point must be 1,000 square feet of less,
2. discharge must be to a gravel strip or spreading device, and the
3. flow length of the pervious surface must be greater than or equal to the contributing length.

SECTION 402 – SWM Plan (> 5000 Sq. Ft. of Impervious Area)

The following items shall be included in the SWM Site Plan:

- A. Appropriate sections from the municipal's Subdivision and Land Development Ordinance, and other applicable local ordinances, shall be followed in preparing the SWM Site Plans. In instances where Delaware Township lacks Subdivision and Land Development regulations, the content of SWM Site Plans shall follow the county's Subdivision and Land Development Ordinance.
- B. The developer shall not receive approval of any SWM Site Plan that is deficient in meeting the requirements of this Ordinance. When a SWM Site Plan is found to be deficient, Delaware Township at its sole discretion and in accordance with this Article, may either disapprove the submission, require a resubmission, or in the case of minor deficiencies, Delaware Township may accept submission of modifications.
- C. Provisions for permanent access or maintenance easements for all physical SWM BMPS, such as ponds and infiltration structures, as necessary to implement the operation and maintenance procedures discussed in Item E.14 below.
- D. The following signature block for Delaware Township:

"The Stormwater Management Site Plan shown hereon complies with all design standards and criteria of Delaware Townships Stormwater Management Ordinance No. 07-2011-01."

Date

Signature

- E. The SWM Site Plan shall be black and white and provide the following information, at a minimum:
 - 1. Proposed name or identifying title of the project
 - 2. Name and address of the landowner and/or developer of the project
 - 3. Plan date, date of the latest revision, north arrow, graphic and written scale

4. Project location map overlaid on the title sheet showing the project and the nearest intersecting street
5. Tract boundaries showing bearings, distances, and curve data
6. Existing and proposed contours at a vertical interval of one (1) foot, unless steeper slopes do not permit the visual representation at this scale
7. Existing and proposed natural and/or artificial objects thereon
8. Existing subsurface objects as required by Pa One Call, as well as proposed subsurface objects
9. A determination of site conditions in accordance with the BMP Manual. A detailed site evaluation shall be completed for projects proposed in areas of carbonate geology or karst topography, and other environmentally sensitive areas, such as brownfields.
10. A report containing stormwater runoff design calculations, assumptions, criteria, methodology and documentation used in the design to demonstrate that the maximum practicable measures have been taken to meet the requirements of this Ordinance, including the recommendations and general requirements in Section 301 (General Requirements).
11. A soil erosion and sediment control plan, where applicable, as prepared for and submitted to the approval authority.
12. Plan and profile drawings of all SWM BMPs, including drainage structures and pipes.
13. A plan showing the locations of existing and proposed on-lot wastewater facilities and water supply wells.
14. Operation and maintenance procedures for all

existing and proposed physical stormwater management facilities that shall address long-term ownership and responsibilities for O&M.

SECTION 403 – Plan Submission (To Be Determined)

- A. 4 copies of the SWM Site Plan shall be submitted as follows:
1. 1 copy(s) to Delaware Township
 2. 1 copy(s) to the municipal engineer (when applicable)
 3. 1 copy(s) to the County Conservation District (when applicable)
 4. 1 copy(s) to the County Planning Commission (when applicable)
- B. Additional copies shall be submitted as requested by Delaware Township or other regulatory authorities.

SECTION 404 – Plan Review

- A. The SWM Site Plan shall be reviewed by a qualified professional for Delaware Township for consistency with the provisions of this Ordinance. After review, the qualified professional shall provide a written recommendation for Delaware Township to approve or disapprove the SWM Site Plan. If it is recommended to disapprove the SWM Site Plan, the qualified professional shall state the reasons for the disapproval in writing. The qualified professional also may recommend approval of the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing. The SWM Site Plan review and recommendations shall be completed within the time allowed by the Municipalities Planning Code for reviewing subdivision plans.
- B. Delaware Township shall notify the applicant in writing within 30 days whether the SWM Site Plan is approved or disapproved. If the SWM Site Plan involves a Subdivision and Land Development Plan, the notification period is 60 days. If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be notified by

Delaware Township. If Delaware Township disapproves the SWM Site Plan, Delaware Township shall cite the reasons for disapproval in writing.

SECTION 405 – Modification of Plans

A modification to a submitted SWM Site Plan that involves a change in SWM BMPs or techniques, or that involves the relocation or redesign of SWM BMPs, or that is necessary because Delaware Township has determined that other conditions are not as stated on the SWM Site Plan, then Delaware Township shall require a resubmission of the modified SWM Site Plan in accordance with this Article.

SECTION 406 – Resubmission of Disapproved SWM Site Plans

A disapproved SWM Site Plan may be resubmitted, with the revisions addressing Delaware township's concerns, to the township in accordance with this Article. The applicable review fee must accompany a resubmission of a disapproved SWM Site Plan.

SECTION 407 – Authorization to Construction and Term of Validity

The township's approval of an SWM Site Plan authorizes the regulated activities contained in the SWM Site Plan for a maximum term of validity of 5 years following the date of approval. Delaware Township may specify a term of validity shorter than 5 years in the approval for any specific SWM Site Plan. Terms of validity shall commence on the date the township signs the approval for a SWM Site Plan. If an approved SWM Site Plan is not completed according to Section 408 (As-Built Plans, Completion Certificate, and Final inspection) within the term of validity, then the township may consider the SWM Site Plan disapproved and may revoke any and all permits. SWM Site Plans that are considered disapproved by Delaware Township shall be resubmitted in accordance with Section 405 (Resubmission of Disapproved SWM Plans) of this Ordinance.

SECTION 408 – As-Built Plans, Completion Certificate, and Final Inspection

- A. The developer shall be responsible for providing as-built plans of all SWM BMPs including in the approved SMW Site Plan. The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to Delaware Township.
- B. The as-built submission shall include a certification of completion signed by a qualified professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications.
- C. After receipt of the completion certification by Delaware Township, the township may conduct a final inspection.

ARTICLE VI – OPERATION AND MAINTENANCE

SECTION 601 – Responsibilities of Developers and Landowners

- A. Delaware Township shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan. The 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 the township will accept the facilities. Delaware Township reserves the right to accept or reject the ownership and operating responsibility for any portion of the stormwater management facilities.
- B. Facilities, areas, or structures used as SWM BMP's shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or conservation easements that run with the land.
- C. The O&M Plan shall be recorded as a restrictive deed covenant that runs with the land. The Municipality itself is exempt from the requirement to sign and record an O&M agreement.
- D. The responsible party named in the stormwater maintenance agreement shall maintain in good condition and promptly repair and restore all structural and non-structural permanent stormwater BMP's and all necessary access routes and appurtenances.
- E. The township may take enforcement actions against an owner for any failure to satisfy the provisions of this Article.

SECTION 602 – Operation and Maintenance Agreements

- A. Prior to final approval of the SWM Site Plan, The Property owner shall sign and record an Operation and Maintenance (O & M) Agreement (Appendix B) covering all stormwater control facilities which are to be privately owned.
 - 1. The owner, successor and assigns shall maintain all facilities in accordance with the approved maintenance schedule in the O & M Plan.

2. The owner shall convey to Delaware Township conservation easements to assure access for periodic inspections by the township and maintenance as necessary.
 3. The owner shall keep on file with the township the name, address, and telephone number of the entity responsible for maintenance activities; in the event of a change, new information shall be submitted by the owner to the municipality within ten (10) days of the change.
- B. The owner is responsible for O&M of the SWM BMPs. If the owner fails to adhere to the O&M Agreement, Delaware Township may perform the services required and charge the owner appropriate fees. Nonpayment of fees may result in a lien against the property.

ARTICLE VII – FEES AND EXPENSES

SECTION 701 – General

Delaware Township may charge to the applicant, all reasonable costs incurred in their review.

The review fee may include, but not limited to, costs for the following:

- A. Administrative and/or clerical processing.
- B. Review of the SWM Site Plan and associated documents by any duly authorized representatives of the township.
- C. Attendance at public and/or municipal meetings relating to the enforcement of this ordinance.
- D. Inspection of stormwater management facilities.

ARTICLE VIII – PROHIBITIONS

SECTION 801 – Prohibited Discharges and Connections

- A. Any drain or conveyance, whether on the surface or subsurface, that allows a non-stormwater discharge including sewage, process waste water, and waste water to enter the waters of this Commonwealth is prohibited.
- B. No persons shall allow, or cause to allow, discharges into surface waters of this Commonwealth which are not composed entirely of stormwater, except (1) as provided in Subsection A below and (2) discharges allowed under a state or federal permit.

SECTION 802 – Authorized Discharges

- A. The following discharges are authorized unless they are determined to be significant contributors to pollution to the waters of this Commonwealth:
 - 1. Discharges from fire fighting activities
 - 2. Flows from riparian habitats and wetlands
 - 3. Potable water sources including waterline and fire hydrant flushing
 - 4. Uncontaminated water from foundations or from footing drains
 - 5. Irrigation drainage
 - 6. Lawn watering
 - 7. Air conditioning condensate
 - 8. De-Chlorinated swimming pool discharges
 - 9. Springs
 - 10. Uncontaminated groundwater
 - 11. Water from crawl space pumps

12. Water from individual residential car washing
 13. 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
 14. Routine external building wash down (which does not use detergents or other compounds)
 15. Discharge from diverted stream flows
- B. In the event that Delaware Township or DEP determines that any of the discharges identified in Subsection A significantly contribute to pollution of the waters of this Commonwealth, the township or DEP will notify the responsible person(s) to cease the discharge.

SECTION 803 – Alteration of SWM BMPs

No person shall modify, remove, fill, landscape, or alter any SWM BMPs, facilities, areas, or structures without the written approval of Delaware Township.

ARTICLE IX – ENFORCEMENT AND PENALTIES

SECTION 901 – Right-of-Entry

Upon presentation of proper credentials, duly authorized representatives of Delaware Township may enter at reasonable times upon any property within the township to inspect the condition of the stormwater structure and facilities in regard to any aspect regulated by this Ordinance.

SECTION 902 – Inspection

SWM BMPs should be inspected by the landowner, or the owner's designee (including the township for dedicated and owned facilities), according to the following list of minimum frequencies:

- A. Annually for the first 5 years.
- B. Once every 3 years thereafter.

All inspections shall be documented in writing and shall document any maintenance and repair needs.

SECTION 903 - Violations

- A. When Delaware Township determines that an activity is not being carried out in accordance with the requirements of this Ordinance, it shall issue a written notice of violation to the owner of the property. The notice of violation shall contain:
 - 1. The name and address of the owner or applicant.
 - 2. The address when available or a description of the building, structure or land upon which the violation is occurring.
 - 3. A statement specifying the nature of the violation and a time schedule for the completion of such remedial action.
 - 4. A statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed.

5. A statement that the determination of violation may be appealed to Delaware Township by filing a written notice of appeal within fifteen (15) days of service of notice of violation.
- B. Persons receiving a notice of violation will be required to halt all construction activities. This "stop work order" will be in effect until the township confirms that the development activity is in compliance and the violation has been satisfactorily addressed. Failure to address a notice of violation in a timely manner can result in civil, criminal, or monetary penalties in accordance with the enforcement measures authorized in this ordinance.

SECTION 904 – Enforcement

- A. It shall be unlawful for a person to undertake any regulated activity except as provided in an approved SWM Site Plan, unless specifically exempted in Section 302 (Exemptions).
- B. It shall be unlawful to violate Section 803 (Alterations of SWM BMP's) of this Ordinance.
- C. Inspections regarding compliance with the SWM Site Plan are a responsibility of Delaware Township.

SECTION 905 – Suspension and Revocation

- A. Any approval or permit issued by the township pursuant to this Ordinance may be suspended or revoked for:
 1. Non-compliance with or failure to implement any provisions of the approved SWM Site Plan or O&M Agreement.
 2. A violation of any provision of this ordinance or any other applicable law, ordinance, rule, or regulation relating to the regulated activity.
 3. The creation of any condition or the commission of any act during the regulated activity which constitutes or creates a hazard, nuisance, pollution, or endangers the life or property of others.
- B. A suspended approval may be reinstated by Delaware Township when:

1. The township has inspected and approved the corrections to the violations that cause the suspension.
 2. The township is satisfied that the violation has been corrected.
- C. An approval that has been revoked by the township cannot be reinstated. The applicant may apply for a new approval under the provisions of this Ordinance.
 - D. If a violation causes no immediate danger to life, public health, or property, at its sole discretion, the township may provide a limited time period for the owner to correct the violation. In these cases, the 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, the township may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

SECTION 906 – Penalties

- A. Anyone violating the provisions of this Ordinance shall be guilty of a summary offense, and upon conviction, shall be subject to a fine of not more than \$300.00 for each violation, recoverable with costs. Each day that the violation continues shall be a separate offense and penalties shall be cumulative.
- B. In addition, Delaware Township may institute injunctive, mandamus, or any other appropriate action or proceeding of law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus, or other appropriate forms of remedy or relief.

SECTION 907 – Appeals

- A. Any person aggrieved by any action of Delaware Township or its designee, relevant to the provisions of this Ordinance, may appeal to the township within 30 days of that action.

**STORMWATER MANAGEMENT ORDINANCE
ORDINANCE #7-2011**

B. Any person aggrieved by any decision of the township, relevant to the provisions of this Ordinance, may appeal to the County Court of Common Pleas in the county where the activity has taken place within 30 days of Delaware Township decision.

ENACTED AND ORDAINED INTO AN ORDINANCE THIS 6th DAY OF July, 2011.

Board of Supervisors Delaware Township

BY: Daniel K. Micsky
Daniel K. Micsky, Chairman

Carl R. Hoover, Sr.
Carl R. Hoover, Sr., Vice Chairman

William E. Anthony
William E. Anthony

DELAWARE TOWNSHIP, COUNTY OF MERCER, ADOPTED AT A PUBLIC MEETING HELD
ON JULY 6, 2011.

ATTEST:
Melissa L. Osborne
Secretary