

ORDINANCE NO. 2023-01

AN ORDINANCE OF THE TOWNSHIP OF SWATARA, LEBANON COUNTY, PENNSYLVANIA, REPEALING AND REPLACING CHAPTER 17, STORMWATER MANAGEMENT, PROVIDING FOR FINDINGS, PURPOSE, DEFINITIONS, EXEMPTIONS AND MODIFICATIONS, GENERAL REQUIREMENTS, RATE CONTROLS, PERFORMANCE AND DESIGN CRITERIA, CALCULATION METHODOLOGY, GROUNDWATER RECHARGE, WATER QUALITY AND BEST MANAGEMENT PRACTICES, PLAN REQUIREMENTS, PLAN REVIEW AND MODIFICATIONS, OPERATION AND MAINTENANCE REQUIREMENTS, PERFORMANCE GUARENTEES, FEES AND EXPENSES, PROBITIONS, AND ENFORCEMENT AND PENALTIES.

WHEREAS, the Second Class Township Code authorizes the Swatara Township Board of Supervisors to implement regulations for the health, safety, and welfare of its residents; and

WHEREAS, Board of Supervisors enacted a Stormwater Management Ordinance on January 2, 2005, by Ordinance No. 2005-66; and

WHEREAS, Board of Supervisors believes it is in the best interest to amend the Township's Codified Ordinances, Chapter 17, Stormwater Management, to comply with the Pennsylvania Department of Environmental Protection required by the Township's Municipal Separate Storm Sewer System (MS4) Permit; and

NOW, THEREFORE, BE IT ENACTED AND ORDAINED, and it is hereby enacted and ordained by the BOARD OF SUPERVISORS of the Township of Swatara, Lebanon County, Pennsylvania:

1. Chapter 17, Stormwater Management, is hereby repealed and replaced with the following:

STORMWATER MANAGEMENT ORDINANCE

ARTICLE I – GENERAL PROVISIONS

§ 17-101 Short Title.

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

§ 17-102 Statement of Findings.

The governing body of the Township finds that:

- A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases runoff volumes, 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 nonpoint source pollution of water resources.
- B. A comprehensive program of stormwater management (SWM), 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, their resources, and the environment.
- C. Stormwater is an important water resource that provides groundwater recharge for water supplies and supports the base flow of streams.
- D. The use of green infrastructure and low impact development (LID) are intended to address the root cause of water quality impairment by using systems and practices which use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, 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.

§ 17-103 **Purpose.**

The purpose of this Ordinance is to promote health, safety, and welfare within the Township and its watershed by minimizing the harms and maximizing the benefits described in § 17-102 of this Ordinance, through provisions designed to:

- A. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code 93 to protect, maintain, reclaim, and restore the existing and designated uses of the waters of this Commonwealth.
- B. Preserve natural drainage systems.
- C. Manage stormwater runoff close to the source, reduce runoff volumes and mimic predevelopment hydrology.
- D. Provide procedures and performance standards for stormwater planning and management.
- E. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
- F. Prevent scour and erosion of stream banks and streambeds.
- G. Provide proper operation and maintenance of all stormwater best management practices (BMPs) that are implemented within the Township.

§ 17-104 **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.

These definitions do not necessarily reflect the definitions contained in pertinent regulations or statutes, and are intended for this Ordinance only.

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 other person who has filed an application to the Township for approval to engage in any regulated activity at a project site in the Township.

Best Management Practice (BMP) – 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.

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. Also see Return Period.

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 - Impervious cover from which runoff is directed toward pervious areas for management within the landscape to prevent concentration of discharge off site. Land cover shall be considered Disconnected Impervious Area if it achieves all of the following:

1. Discharge as sheet flow over a vegetated area to an existing surface water, stormwater conveyance network, stormwater management structure, downslope property line, or Township road or right-of-way.
2. Discharge to a pervious area with soils not designated as a hydrologic soil group “D” or equivalent.
3. Discharge to a pervious area with an overland flow path meeting the criteria below:
 - a. For New Impervious Areas between 180 and 1,250 square feet, a flow path of at least 75 feet in length and with a slope of 4% or less, or;
 - b. For New Impervious Areas between 1,250 and 3,500 square feet, a flow path of at least 100 feet in length and with a slope of 4% or less, or;

- c. For New Impervious Areas between 3,500 and 7,000 square feet, a flow path of at least 125 feet in length and with a slope of 4% or less, or;
 - d. For New Impervious Areas over 7,000 square feet, a flow path of at least 300 feet in length and with a slope of 2% or less.
4. For rooftops, disconnected impervious area shall occur in units of no greater than 500 square feet to each discharge location.

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; road maintenance; building construction; 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.

Existing Condition – The dominant land cover during the 5-year period immediately preceding a proposed regulated activity.

FEMA – Federal Emergency Management Agency.

Floodplain – Any land area susceptible to inundation by water from any natural source or delineated by applicable FEMA maps and studies as being a special flood hazard area. Also includes areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania DEP Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by DEP).

Floodway – The channel of the watercourse and those portions of the adjoining floodplains that are 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 conducting a timber inventory, preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation, and reforestation.

Green Infrastructure – Systems and practices that use or mimic natural processes to infiltrate, evapotranspire, or reuse stormwater on the site where it is generated.

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 HSGs (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS 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^{1,2}).

Impervious Surface (Impervious Area) – A surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) shall include, but not be limited to: roofs; additional indoor living spaces, patios, garages, storage sheds and similar structures; and any new streets or sidewalks. Decks, parking areas, and driveway areas are not counted as impervious areas if they do not prevent infiltration.

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

Land Development– 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.

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, urban retrofits, and revitalization projects. LID utilizes design techniques that infiltrate, filter, evaporate, and store runoff close to its source. Rather than rely on costly large-scale conveyance and treatment systems, LID addresses stormwater through a variety of small, cost-effective landscape features located on-site.

Municipal Separate Storm Sewer System – The stormwater requirements of the Federal Clean Water Act are administered under the Pennsylvania Department of Environmental Protection's Municipal Separate Storm Sewer (MS4) Program.

Township – Swatara Township, Lebanon County, Pennsylvania.

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

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

Pervious Area – Any area not defined as impervious.

Project Site – The specific area of land where any regulated activities in the Township are planned, conducted, or maintained.

¹ U.S. Department of Agriculture, National Resources Conservation Service (NRCS). *National Engineering Handbook*. Part 630: Hydrology, 1969-2001. Originally published as the *National Engineering Handbook*, Section 4: Hydrology. Available from the NRCS online at: <http://www.nrcs.usda.gov/>.

² U.S. Department of Agriculture, National Resources Conservation Service. 1986. *Technical Release 55: Urban Hydrology for Small Watersheds*, 2nd Edition. Washington, D.C.

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

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.

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

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

Riparian Buffer – A permanent area of trees and shrubs located adjacent to streams, lakes, ponds and wetlands.

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 Title 25 of the Pennsylvania Code 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, 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 Site Plan – The plan prepared by the developer or his representative indicating how stormwater runoff 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.

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

USDA – United States Department of Agriculture.

Waters of this Commonwealth – Any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of conveyance of surface 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 surface water of this Commonwealth.

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

§ 17-104 Statutory Authority.

The Township 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, and/or 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.

§ 17-105 Applicability.

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

§ 17-106 Repealer.

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

§ 17-107 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.

§ 17-108 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.

§ 17-109 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 may be taken by a board, agency or employee of the Township purporting to validate such a violation.

§ 17-110 Exemptions and Modifications.

- A. Applicants proposing a regulated activity shall prepare and submit a Stormwater Management Site Plan as required per Article III, unless the proposal is consistent with the exemption criteria described below.
- B. Regulated activities that result in cumulative earth disturbances less than 5,000 SF and less than 180 SF of new impervious area are exempt from the requirement to submit a Stormwater Management Application or a SWM Site Plan.
- C. Applicants proposing a regulated activity meeting the criteria presented below may submit a Stormwater Management Application in lieu of submitting a formal SWM Site Plan as required per Article III below.

Parcel Size	Maximum New Impervious Area*	Minimum Flow Path to Downstream Property Line
Less than 2 acres	1,250 SF	75 Feet
2 acres to less than 5 acres	3,500 SF	100 Feet
5 acres to 15 acres	7,000 SF	125 Feet
More than 15 acres	20,000 SF	300 Feet

* See Section F below.

- D. Applicants eligible for submission of a Stormwater Management Application based on the table presented in §17-110 (C) (above) and demonstrate that new impervious area is consistent with the definition of Disconnected Impervious Area may request a waiver from the requirements of §17-202, §17-203, §17-206 and §17-207 through the Stormwater Management Application process.
- E. Calculation of new impervious area square footage for the purposes of an exemption or waiver shall be cumulative and shall be based on the impervious cover existing on January 20, 2013.
- F. No waiver or modification of any regulated stormwater activity involving earth disturbance greater than or equal to one acre may be granted by the Township unless that action is approved in advance by the Department of Environmental Protection (DEP) or the delegated county conservation district.
- G. Exemptions shall not relieve the applicant from implementing such measures as are necessary to protect health, safety, and property.
- H. The Township may deny or revoke any exemption pursuant to this Section at any time for any project that the Township believes may pose a threat to public health and safety or the environment.
- I. Exemptions or modifications of the requirements of this Ordinance may be approved by the Township 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 Ordinance is preserved. Cost or financial burden shall not be considered a hardship. Modification may be considered if an alternative standard or approach will provide equal or better achievement of the purpose of the Ordinance. A request for modifications 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 Ordinance involved and the proposed modification.

- J. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in § 17-201 (D) through (L).
- K. Agricultural activity is exempt from the Stormwater Management Application and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- L. Forest management and timber operations are exempt from the Stormwater Management Application and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

ARTICLE II – STORMWATER MANAGEMENT STANDARDS

§ 17-201 General Requirements.

- A. For all regulated activities, unless preparation of an SWM Site Plan is specifically exempted in §17-202:
 - 1. Preparation and implementation of an approved SWM Site Plan is required.
 - 2. No regulated activities shall commence until the Township issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
- B. SWM Site Plans approved by the Township, in accordance with § 17-306, shall be on site throughout the duration of the regulated activity.
- C. The Township 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 Program Manual* (E&S Manual ³), No. 363-2134-008, as amended and updated.

- E. 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.
 3. 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 § 17-202 and the peak rate controls of § 17-203 do not need to be retrofitted to existing impervious areas that are not being altered by the proposed regulated activity.
- F. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification to the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this Ordinance.
- G. All regulated activities shall include such measures as necessary to:
1. Protect health, safety, and property.
 2. Meet the water quality goals of this Ordinance by implementing measures to:
 - a. Minimize disturbance to floodplains, wetlands, and wooded areas.
 - b. Maintain or extend riparian buffers.
 - c. Avoid erosive flow conditions in natural flow pathways.
 - d. Minimize thermal impacts to waters of this Commonwealth.
 - e. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.
 3. Incorporate methods described in the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual)⁴. If methods other than green infrastructure and LID methods are proposed to achieve the volume and rate controls required under this Ordinance, the SWM Site Plan must include a detailed justification demonstrating that the use of LID and green infrastructure is not practicable.

³ Pennsylvania Department of Environmental Protection. No. 363-2134-008 (March 31, 2012), as amended and updated. *Erosion and Sediment Pollution Control Program Manual*. Harrisburg, PA.

⁴ Pennsylvania Department of Environmental Protection. No. 363-0300-002 (December 2006), as amended and updated. *Pennsylvania Stormwater Best Management Practices Manual*. Harrisburg, PA.

- H. The design of all facilities over karst shall include an evaluation of measures to minimize adverse effects.
- I. 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.
- J. 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 and not more than 48 hours from the end of the design storm.
- K. The design storm volumes to be used in the analysis of peak rates 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.
- L. 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.

§ 17-202 Volume Controls.

The green infrastructure and low impact development practices provided in the BMP Manual shall be utilized for all regulated activities wherever possible. Water volume controls shall be implemented using the *Design Storm Method* in Subsection A or the *Simplified Method* in Subsection B below. For regulated activity areas equal or less than one 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 modeling purposes:
 - a. Existing (predevelopment) non-forested pervious areas must be considered meadow in good condition.
 - b. Twenty percent of existing impervious area, when present, shall be considered meadow in good condition in the model for existing conditions.

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 or for projects that require design of stormwater storage facilities. For new impervious surfaces the following consecutive step approach shall be used:

1. Stormwater facilities shall capture at least the first two (2) inches of runoff from all new impervious surfaces.
2. 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 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 0.5 inch of the permanently removed runoff should be infiltrated.
4. This method is exempt from the requirements of § 17-203, Rate Controls.

§ 17-203 Rate Controls.

- A. Lebanon County is divided into stormwater management districts to facilitate control of stormwater runoff appropriately for the watershed, instead of individual site-specific design. Therefore, Lebanon County has developed separate standards and design criteria for each studied watershed or subwatershed, as recommended by Act 167, the Pennsylvania Storm Water Management Act, and developed within the individual watershed plans.
- B. For the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storm events, the post-development peak discharge rates will follow the applicable approved release rates included in the most recent version of the Lebanon County Act 167 Stormwater Management Plan.

§ 17-204 Stormwater Management Performance Standards and Design Criteria.

- A. Post-development rates of runoff from any subdivision, land development or regulated activity shall meet the peak release rates of runoff prior to development that are specified within the design criteria and calculation methodology, unless specifically waived or exempted by this Ordinance.
- B. Stormwater management planning and stormwater management facilities shall be designed and constructed in accordance with the following:
- C. General Standards.
1. The design of all stormwater management facilities shall incorporate sound engineering principles and practices.

2. All stormwater runoff flowing over the development site shall be considered in the design of the stormwater management facilities.
3. All developments requiring a formal Land Development Plan shall employ use of a stormwater basin, unless otherwise approved by the Township Engineer.
4. Runoff from impervious areas shall be drained to pervious areas of the development site and the stormwater management control facilities.
5. A concentrated discharge of stormwater runoff from a development site to an adjacent property shall flow directly into a natural watercourse, into an existing storm sewer system or onto adjacent properties in a manner similar to the volume and rate of runoff characteristics of the pre-development flow. Refer to § 17-202 and § 17-203 of these ordinances.
6. A concentrated discharge of stormwater from a development site to an adjacent property shall be within an existing watercourse or storm sewer system and enclosed within an easement. Downstream easements should be established to provide drainage paths for concentrated discharge. Design and construction shall preclude erosion, sedimentation, flooding or similar damage. Stormwater easements are considered part of a BMP and shall be maintained by the Landowner as specified in the Operations and Maintenance Agreement Stormwater Management Best Management Practices. Refer to Article IV and Appendix A of this ordinances. If the easement(s) cross properties owned by others, the Landowner shall provide copies to the Township of the easement agreements between the Landowner and the other property owner(s). The easement agreements must state which property owner will maintain and repair the land and BMP(s) within the easement.
7. Where a development site is traversed by watercourses, drainage easements shall be provided conforming to the line of such watercourses. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations that may adversely affect the flow of stormwater within any portion of the easement. Also, maintenance, including mowing of vegetation within the easement shall be required, except within BMP areas where mowing is not desired. The drainage easement shall adequately contain the anticipated inundation associated with the identified FEMA one-hundred-year floodplain, or be depicted 50 feet from the top of the channel bank for undefined floodplain areas.
8. When it can be shown that, due to topographic conditions, natural drainageways on the site cannot adequately provide for drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainageways. Work within natural drainageways shall be subject to approval by the Pennsylvania DEP through the Chapter 105 permit process or, where deemed appropriate by the Pennsylvania DEP, through the general permit process.
9. Any stormwater management facilities regulated by this chapter that would be located in or adjacent to waters of the Commonwealth or wetlands shall be subject to approval by the Pennsylvania DEP, through the joint permit application process or, where deemed

appropriate by the Pennsylvania DEP, the general permit process. When there is a question whether wetlands may be involved, it is the responsibility of the developer 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 the Pennsylvania DEP.

10. Any stormwater management facilities regulated by this chapter that would be located within state highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation (PennDOT).
11. Minimization of impervious surfaces and infiltration of runoff through infiltration beds, infiltration trenches, etc., is encouraged for small projects and where soil conditions permit, to reduce the size or eliminate the need for detention facilities.
12. Roof drains shall not be connected to streets, sanitary or storm sewers or roadside ditches so as to promote overland flow and infiltration/percolation of stormwater where advantageous to do so. When it is more advantageous to connect directly to streets or storm sewers, then it shall be permitted on a case-by-case basis, based upon adequate justification to be provided by the applicant and at the discretion of the Board of Supervisors.
13. Stormwater management facilities and discharges shall not be located within sinkhole-prone areas of carbonate geology, including areas containing sinkholes, closed depressions, fractured limestone traces and limestone rock outcrops.
14. Stormwater facilities that are not located within a street right-of-way shall be centered within an adequate easement of no less than 20 feet in width. Easements shall follow property lines where possible.
15. A variety of methods for stormwater detention and retention are available for use. These include surface detention, subsurface detention, use of existing facilities (ponds, etc.) or a combination thereof. Subsurface detention shall be utilized only where the subsurface is stable, the area is not prone to sinkhole formation, and all underground pipes are sealed to prevent leaks.
16. Storage of equivalent stormwater runoff for a portion of a property may be considered in lieu of storage of generated runoff provided that:
 - a. The site is located so that it is physically impossible to detain runoff from the proposed facilities or drainage problems exist upgrade that would impact upon the site or downgrade properties.
 - b. The impact of generated runoff discharging off site is determined by the Township Engineer to be negligible and not detrimental to adjacent properties.
 - c. Implementation of equivalent storage shall be determined applicable and feasible by the Township Engineer.
17. Storm sewer pipes, culverts, manholes, inlets, endwalls, endsections, and other stormwater management facilities shall be designed and constructed in accordance with the requirements of the Pennsylvania Department of Transportation, Design Manual Part 2, Highway Design, Publication 13, including amendments thereto, unless

specifications are otherwise provided herein. Structures and their installation within or directly connected to existing or intended public rights-of-way shall conform to the current PennDOT Pub 72M, Roadway Construction Standards.

18. Headwalls and endwalls shall be used where stormwater runoff enters or leaves the storm sewer horizontally from a natural or man-made channel. PennDOT Type DW headwalls and endwalls shall be utilized. Galvanized metal end sections are also acceptable, but polyethylene flared end sections are prohibited. All headwalls and endwalls and flared end sections with pipes of 12 inches or greater diameter shall be protected from child entry by placing removable stainless-steel bars (and compatible mounting hardware), spaced eight inches apart across the opening.

D. Retention and Detention Basins.

1. Retention and detention basins shall be designed and constructed according to the following minimum standards:
 - a. The maximum water depth to the base of the spillway shall not exceed six (6) feet in residential areas. Depths up to eight (8) feet are permitted in nonresidential projects, provided a minimum of six (6) foot high fencing is provided when depths exceed six (6) feet.
 - b. The minimum top width of dams shall be five (5) feet for impoundments draining five (5) acres or less and eight (8) feet minimum width for impoundments with drainage areas exceeding five acres.
 - c. The side slopes of earth fill dams shall not be less than three (3) horizontal to one (1) vertical on both sides of the embankment. However, any portion of the inside berm of an unfenced basin above a proposed water depth of three (3) feet shall have a side slope of five (5) horizontal to one (1) vertical or flatter.
 - d. A cutoff or key trench of impervious material shall be provided under all basin berms.
 - e. All pipes and culverts through dams shall have properly spaced cutoff collars or anti-seep collars.
 - f. Minimum floor elevations for all structures that would be affected by a basin or open conveyance system where ponding may occur shall be two (2) feet above the 100-year water surface elevation.
 - g. An emergency spillway shall be provided to safely pass the 100-year storm, with one (1) foot of freeboard between the maximum pool elevation and the top of the embankment. The maximum pool elevation shall be established using the weir equation through the emergency spillway while ignoring discharge flows from the principal spillway.
 - h. Except for retention basins, permanent ponds and wetlands, all basins shall have dewatering features such as low flow channels or tile fields. Concrete low flow channels shall be designed to receive drainage from the side slopes as well as the channel and shall be bordered by parallel erosion control matting (on each side) the length of the channel to prevent erosion at the channel edge. All detention basins shall include an outlet structure designed to completely drain the basin within 24 hours following the end of the design rainfall. However, basins containing groundwater recharge and/or water quality storage shall include an outlet structure

designed to fully drain the recharge and/or water quality volume in no less than 24 hours or more than 48 hours.

- i. Basin discharges to proposed or existing conveyance systems shall require evidence of adequate capacity in the receiving facility.
- j. The minimum slope of any detention basin bottom surface shall be 2% positive grade toward the outlet, along all flow paths, except those basins specifically designed to provide infiltration of stormwater in conformance with the water quality standards of this chapter.
- k. Detention basin length or basin flow path length shall be at least two (2) times the basin width to facilitate water treatment and infiltration.
- l. In areas of carbonate geology, retention and detention basins shall:
 - 1. Be placed at least 100 feet from the rim of any sinkhole or closed depression; and
 - 2. Be placed a minimum of 25 feet from rock outcroppings or pinnacles; and
 - 3. Not discharge into a sinkhole; and
 - 4. Be designed and located to prevent groundwater contamination and sinkhole formation, including the use of impermeable liners where deemed necessary to avoid or abate such problems.
- m. Basins shall not be divided by a property line.
- n. Vertical pipes, inlets, and other surface water receiving structures shall be installed with trash racks.

E. Pipes and Conveyance Facilities.

- 1. Pipes, curbs, gutters, manholes, inlets, headwalls, endwalls, streets, and other stormwater conveyance facilities shall be designed and constructed in accordance with the following:
 - a. Pipes.
 - 1. Pipe trenching and backfilling shall be in accordance with the requirements of the Township or Pennsylvania Department of Transportation, Publication 408, and Roadway Construction Drawings, current edition, as applicable, unless the manufacturer's specifications and the Township Engineer authorize alternative procedures.
 - 2. Pipe sizes and type shall be in accordance with the approved drawings. Minimum pipe size for drainage facilities to be dedicated for Township ownership shall be 15 inches in diameter and the type shall be corrugated galvanized metal pipe (CMP), smooth-lined high-density polyethylene pipe (HDPEP), reinforced concrete pipe (RCP) or approved equivalent.
 - 3. Pipes shall be constructed and set to line and grade as shown on approved drawings.
 - 4. All pipes shall be laid on straight runs between drainage structures.
 - 5. Pipes shall be provided with a minimum of six (6) inches of cover between the top of pipe and the bottom of the pavement subgrade elevation. In unpaved areas, one (1) foot of cover is required to the finished grade.

6. Backfilling shall be to four (4) feet above the top of the proposed pipe elevation or to subgrade, whichever is less, before excavating for the pipe. Additionally, hauling shall not be permitted over pipe with less than four (4) feet of cover.
 7. All pipe outlets shall be discharged to natural or man-made waterways and shall be provided with reinforced concrete headwalls or pipe end sections. Pipe outlets shall also be provided with an erosion-resistant material or energy dissipators to calm the anticipated velocity and discharge of stormwater.
 8. Underdrains, pavement base drains, or combination storm sewer and underdrains shall be provided at low points, cut sections, poorly drained areas and other areas which, in the opinion of the Township Engineer, are required to provide adequate subsurface drainage to protect the integrity of the street.
 9. All storm sewers which cross a street shall be perpendicular to the street center line or within 30° of perpendicular. Vertical and horizontal isolation conflicts with other utilities shall be avoided. Storm sewers within a street shall not cross underneath a curb, especially at curb radii locations.
- b. Inlets and Manholes.
1. Inlet tops shall be precast concrete top units conforming to the Commonwealth of Pennsylvania Department of Transportation Standards For Road Construction RC-Series drawings providing an eight-inch curb reveal from the gutter grade point. Yard inlets and other nondedicated inlets may be designed with alternative components, subject to Township Engineer approval.
 2. All inlets over four (4) feet in depth shall be provided with steps for accessibility.
 3. Inlets shall be placed along the curb line, gutter line, or edge of paving.
 4. All inlets in paved areas shall have bicycle-safe grates.
 5. All inlets shall be constructed with inlet sump areas.
 6. Inlets and manholes shall not be spaced more than 400 feet apart. Manholes are required at all points of horizontal or vertical deflection. Design calculations are required to document the capacity and spacing. Inlets shall be analyzed for collection efficiency, and bypass flows from upstream structures shall be accounted for in inlet spacing design.
- c. Channels.
1. All channels shall be lined with adequate channel lining material, regardless of the designed velocity or shear stress.
 2. Maximum permitted channel velocities are:
 - a. Three (3) feet per second where only sparse vegetation can be established.
 - b. Four (4) feet per second under normal conditions where vegetation is to be established by seeding or sodding.
 - c. Velocities may not exceed four feet per second for newly constructed grass channels, unless appropriately designed and approved by the Lebanon County Conservation District.
 - d. For lined water-carrying channels, the following velocities are permitted:
 - i. Minimum six (6) inch rock riprap: up to 6 fps
 - ii. Minimum nine (9) inch rock riprap: up to 8 fps.

- iii. Asphalt: up to 7 fps
 - iv. Durable bedrock: up to 8 fps
 - v. Twelve-inch riprap: up to 9 fps
 - vi. Concrete or steel: up to 12 fps
 - e. The normal maximum velocity of open channel flows shall not exceed 10 fps.
- d. Streets.
1. All streets shall be so designed to provide for the discharge of surface water from the rights-of-way.
 2. The slope of the crown on proposed streets shall be 1/4 of an inch per foot. Slope of the center line grade shall be at least 0.75%. On curbed streets, the right-of-way beyond the street shall be sloped toward the street at 1/4 of an inch per foot.
 3. Adequate facilities shall be provided at low points along streets and where necessary to intercept runoff.
 4. Pipes and basin outlets shall not discharge directly onto or be conveyed onto a public street.
 5. The maximum allowable spread of water on proposed streets shall be 1/2 of a through travel lane or three inches less than the curb depth, whichever is less.
 6. Driveway intersections with streets shall be designed so that street flows are not diverted onto driveways.
 7. Water flows across street intersections shall not exceed one inch in depth.

§ 17-205 Calculation Methodology.

A. Stormwater runoff calculations for all development sites and regulated activities shall be calculated in accordance with the following computation methodologies:

B. Calculation Methods.

Method (a)	Applicability
TR-55, USDA Soil Conservation Service	Acceptable for all watersheds; preferred for watersheds > 10 acres
Modified Rational Method	Acceptable for small watersheds and residential underground absorption systems; recommended for watersheds < 10 acres
TR-20, USDA Soil Conservation Service	Acceptable for all watersheds, especially where a full hydrologic computer model is desired
HEC-1, U.S. Army Corps of Engineers	Acceptable for all watersheds, especially where a full hydrologic computer model is desired

Note: Selection of the method of calculation by the design professional shall be based upon the limitations and suitability of each method for the development site. The Township Engineer should be consulted for method alternatives and applicability.

C. Storm Event Criteria.

1. All runoff calculations shall be completed in accordance with the standard guidelines for the selected method of calculation. Established 24-hour rainfall depths for the various storm events are:

Design Storm Frequency (years)	Rainfall (inches)
1	2.5
2	3.0
5	4.0
10	4.8
25	5.3
50	6.0
100	6.7

2. The use of site-specific rainfall depths for the various design storm frequencies as published by the National Oceanic and Atmospheric Administration (NOAA)⁵ is an acceptable substitute to the rainfall depths indicated in Subsection 5C(1).
3. Calculations shall be completed in accordance with a rainfall duration of 24 hours. Modified Rational Method calculations require use of the applicable Pennsylvania DOT Rainfall Intensity Duration Frequency Chart.

D. Stormwater Runoff Control Criteria.

1. Stormwater management shall be accomplished by controlling post-development runoff rates to pre-development runoff rates for the storm events listed as follows:

Post-development Design Storm (years)	Pre-development Design Storm (years)
2	1
5	2
10	5
25	25
50	50
100	100

E. Assumptions and Criteria.

1. Runoff calculations shall include a hydrologic and hydraulic analysis indicating volume and velocities of flow and the grades, sizes, and capacities of water-carrying structures,

⁵ U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrometeorological Design Studies Center. 2004-2006. *Precipitation-Frequency Atlas of the United States, Atlas 14*, Volume 2, Version 3.0, Silver Spring, Maryland.

sediment basins, retention and detention structures and sufficient design information to construct such facilities. Runoff calculations shall also indicate both pre-development and post-development rates for peak discharge of stormwater runoff from the development site.

2. All pre-development calculations, unless in woodland, shall be based upon the assumption of grass or pasture cover in good hydrologic condition. Wooded areas shall utilize forest/woodland cover coefficients. Where the site contains an existing impervious surface, up to 50% of the impervious area may be considered as an existing pre-development condition. Runoff coefficients and curve numbers shall be selected from the approved methodology standards.
3. Runoff calculations for the pre- and post- development comparison shall evaluate all stormwater events listed within the stormwater runoff control criteria (§ 17-205 (C)(1)). Soil hydrologic group classifications are provided by the United States Department of Agriculture, Natural Resource Conservation Service⁶.
4. Design of stormwater facilities shall be verified by routing the storm event hydrographs through the facilities using the Storage Indication, Modified Puls, or Level Pool Reservoir Routing Modified Att Kin Method as applicable.
5. Times of concentration shall be based upon the following:
 - a. The maximum length of overland sheet flow shall be 100 feet.
 - b. Travel time for shallow concentrated flows shall utilize the SCS Methodology for design.
 - c. Overland flows which are concentrated within field depressions, swales, gutters, curbs or pipe collection systems shall be designed using Manning's Equation for time of concentration criteria between these design points.
6. Storm sewer pipes, culverts, gutters, inlets, outlets and swales shall be designed and constructed in accordance with the standards of the Pennsylvania DOT Design Manual, Part 2, Highway Design (latest edition), including the following requirements:

Facility	Minimum Post-development Peak Discharge Requirement
Pipes, gutters and swales	Ten-year storm
Culverts and cross drains	Twenty-five year storm
Bridges and stream crossings	One-hundred-year storm

7. Swales shall be designed utilizing Manning's Equation to insure adequate capacity, control of velocity and swale stability. Calculations shall use maximum swale velocity and full flow capacity for design purposes. Vegetated swales shall have a minimum

⁶ U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey. Internet address: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

longitudinal slope of 1% and maximum side slopes of three to one, unless specifically designed as a BMP structure.

8. Swales shall be constructed as one continuous feature early in the construction phasing and in accordance with the design plans to ensure consistent flow along the entire swale path.
- F. Calculation Process.
1. A general procedure recommended for site evaluation and stormwater design is as follows:
 - a. Evaluate factors influencing stormwater runoff, with a goal of limiting earth disturbance, minimizing grading, and reducing or dispersing impervious surfaces.
 - b. Satisfy the groundwater recharge requirements. (Refer to § 17-206).
 - c. Meet water quality (BMP) standards, preferably with BMPs near the source of the runoff. (Refer to § 17-207).
 - d. Calculate and satisfy peak runoff objective, considering all measures other than detention basins.
 - e. Size detention basins accordingly.
 - f. Demonstrate compliance with pre-development hydrograph requirements.

§ 17-206 Groundwater Recharge.

- A. General Requirements.
1. Design for stormwater management shall include measures to retain and infiltrate rainfall on site to replenish the groundwater. Recharge of the groundwater will ensure that base stream flow levels are maintained, well water supplies remain available and dependent plants and animals have adequate access to water resources.
 2. Stormwater management design shall provide for groundwater recharge to compensate for the reduction in percolation that occurs when the ground surface is covered with buildings, paving and other impervious surfaces. Developed areas shall maintain groundwater recharge consistent with pre-development conditions.
 3. A geological evaluation of the site is required to determine the suitability for groundwater recharge facilities. Factors such as carbonate geology, high water table, impermeable soils and bedrock may affect or prevent the design of recharge facilities. Liners and other appropriate design features may be required to avoid sinkholes and groundwater contamination. Where it is demonstrated by the developer that groundwater recharge design is not feasible for a site, upon recommendation of the Township Engineer, and agreement by the Board of Supervisors, the site may be exempted from recharge requirements.
- B. Recharge Volume.
1. The required volume of water runoff to be retained for groundwater recharge shall be determined using the following formula:

$$Re = \frac{(S)(R)(A)}{12}$$

Where:

Re = Recharge Volume (acre-feet)

S = Soil specific recharge factor (inches), based on hydrologic soil group:

HSG A = 0.38

HSG B = 0.25

HSG C = 0.13

HSG D = 0.06

R = Volumetric runoff coefficient of $0.05 + 0.009(I)$,
where I = percent impervious area of the site.

A = Site area contributing to facilities (acres)

2. The recharge facilities shall be capable of completely infiltrating the required recharge volume of water within 48 hours after the end of the design storm.

C. Recharge Systems.

1. Groundwater recharge systems may be a component of, or may be used in conjunction with, other innovative or traditional water quality (BMP) facilities, stormwater control facilities and nonstructural stormwater management alternatives. The water quality (BMP) systems enumerated within § 17-207, may be used to provide varying amounts of recharge, except for structural devices such as water quality inlets and sand filter chambers.
2. The designed groundwater recharge systems must infiltrate the minimum water quantity required within the recharge volume calculations. The determination of the volume of recharge that will occur on the site should consider slope, soil type, vegetative cover, precipitation and evapotranspiration, as well as the design features of the recharge system.
3. Further design guidance may be obtained within the water quality section of this chapter and the list of reference manuals at the end of that section.

§ 17-207 Water Quality and Best Management Practices.

- A. Stormwater management design shall address water quality needs, in addition to water quantity control, to minimize the adverse effects of development. An important component of a stormwater management site plan is the best management practices (BMP) design which must ensure that water quality degradation does not occur as a result of regulated activity.
- B. Goals and Objectives.

1. Preserve existing natural features, especially those which store, infiltrate or filter water runoff.
2. Infiltrate rainfall to recharge the groundwater table.
3. Use physical (structural) and biological or vegetative (nonstructural) filtration of water runoff to reduce pollutants and remove sediment.
4. Moderate water runoff velocities to minimize erosion and damage to downstream aquatic habitat.
5. Integrate BMPs into the site layout to perform a water quality function and complement the developed use of the site.
6. Enhance site aesthetics through the use of a variety of BMP techniques and components.
7. Maximize collection and treatment of small storm event (first flush) stormwater runoff which contains the highest concentration of pollutants.
8. Utilize a system of BMP facilities and groundwater recharge devices throughout the site.

C. General Standards.

1. Water quality shall be maintained through the requirement for BMP design components for all subdivisions, land developments and regulated activities within Swatara Township, except where other provisions of this chapter provide for plan or stormwater design exemptions. Revision or expansion projects requiring stormwater design shall include measures to retrofit the site with BMPs to maintain or improve the water quality of the stormwater discharges.
2. The required water quality volume, specified elsewhere herein, shall be detained and treated within BMPs for each site to be developed.
3. Site designs shall minimize earth disturbance and the generation of stormwater runoff while maximizing pervious areas for treatment of stormwater.
4. All BMPs shall be sized to capture the required water quality volume, designed according to the BMP criteria within this chapter, constructed properly and maintained regularly.
5. Stormwater runoff which is directly discharged to wetlands, streams, ponds, high-quality or exceptional value watersheds or which originates from land uses or activities with higher potential for pollutant loadings (such as auto salvage yards, vehicle service areas, loading/unloading areas, truck centers, etc.) may require the use of additional or specific structural BMPs for pollution prevention and maintenance of water temperatures and quality.

6. Place BMPs near the source of stormwater runoff and treat runoff from impervious surfaces before mixing with runoff from less contaminated sources.
7. Use native vegetation and water-tolerant plants. Trees and shrubs shall not be planted on stormwater facility embankments or in other areas where roots may endanger pipes, headwalls, endwalls, spillway structures or other structural facilities.
8. All impervious area runoff shall be directed to BMPs.
9. BMP categories used within these regulations are:
 - a. Ponds;
 - b. Wetlands;
 - c. Infiltration systems;
 - d. Filtering systems; and
 - e. Open channels.
10. The Design Criteria subsection listed hereafter provides specific descriptions of the BMPs within the above-listed categories. Where effectiveness can be demonstrated, alternative BMP designs and concepts may be utilized.
11. Site designs shall include measures to reduce stormwater velocities and collect sediment near the source of the water runoff so that BMPs can be effective in treating water quality and maintenance can be reduced. Recommended facilities are forebays, energy dissipators, outlet stabilization structures, inlet protection devices, level spreaders, and flow splitters.
12. "A" type soils (very permeable) may require installation of a clay, bentonite or poly liner where water retention is designed, such as with ponds and wetlands.
13. Carbonate geology (limestone) areas require careful evaluation for appropriate BMP design. Facility depths should be minimized and liners may be required.
14. Forebays and micropools are recommended for ponds and required for wetlands. Forebays and micropools should each contain approximately 10% of the required water volume. Forebays should be at least ten (10) feet long and be baffled from the main basin with a berm of riprap, or similar material, to a depth of one (1) foot below the water quality volume level, to insure an indirect flow path. Additionally, when forebays are used, a minimum of 90% of the discharge into the facility shall be directed into the forebays.
15. All ponds and wetlands shall be surrounded by a riparian buffer strip of a minimum 25 feet in width. Streams shall be bordered by a riparian buffer strip, a minimum of 25 feet or the width of the floodplain, whichever is greater.
16. Planting of wetland plants is required within created wetlands and encouraged in ponds and other applicable BMPs. Fringe wetland plants may be used on aquatic benches or within shallow pools, while emergent wetlands vegetation should be planted alongside slopes and facility edges.

17. Infiltration, filtering or other BMP systems which are designed to treat the water quality volume from small storms shall be preceded by a flow splitter or equivalent bypass device to route larger water volumes around the system.
18. All underground stone and sand BMP systems shall be lined with geotextile fabric on the sides, bottom and top, have a level (flat) bottom, be underlain by a minimum of two (2) feet of soil or sand above the seasonal high-water table and be placed a minimum of ten (10) feet horizontally from building foundation walls.
19. Infiltration systems with stone shall utilize AASHTO #1 (No. 4) stone and assume a maximum of 40% voids area
20. Grass swales should be designed with a flat channel bottom at least two (2) feet in width, with a longitudinal slope of 1% to 2%. If grass swale slopes exceed 4%, check dams or similar water velocity modifiers should be used.

D. Water Quality Volume.

1. The required volume of water runoff to be treated to maintain water quality shall be calculated using the following formula:

$$WQ = \frac{(P)(R)(A)}{12}$$

Where:

WQ= Water quality volume (acre-feet)

P = 24-hour rainfall amount for 75% of the annual rainfall volume, which, for Swatara Township, is 1.2 (inches)

R = Volumetric runoff coefficient of $0.05 + 0.009 (I)$, where I = percent impervious area of the site (whole number).

A = Site area contributing to facilities (acres)

2. The water quality facilities shall be capable of collecting, treating and draining the required water quality volume in no less than 24 hours or more than 48 hours after the end of the design storm, unless the BMP facility is specifically designed for long-term water storage.
3. The volume of water runoff that is infiltrated into groundwater recharge facilities may be subtracted from the volume of water runoff that must be captured and treated within water quality (BMP) facilities.

E. Design Criteria.

1. The following site factors should be considered in selecting and designing the appropriate BMPs:
 - a. Total contributing area.

- b. Permeability and infiltration rate of the site soils.
 - c. Slope and depth to bedrock.
 - d. Seasonal high water table.
 - e. Proximity to building foundations and well heads.
 - f. Erodibility of soils.
 - g. Land availability and configuration of the topography.
2. The following factors should be evaluated when determining the suitability of BMPs for a development site:
- a. Peak discharge and required volume control.
 - b. Stream bank erosion.
 - c. Efficiency of the BMPs to mitigate potential water quality problems.
 - d. The volume of runoff that will be effectively treated.
 - e. The nature of the pollutant being removed.
 - f. Maintenance requirements.
 - g. Creation/protection of aquatic and wildlife habitat.
 - h. Recreational value.
 - i. Enhancement of aesthetic and property value.
3. Ponds (basins) are enhancements to conventional detention basins, usually containing a pool of water to perform the BMP function of capturing pollutants to improve the water quality of the discharge. Specific pond types and guidelines are:
- a. Wet Retention Pond. A permanent pool of standing water, normally containing a perimeter aquatic bench of six (6) inches to 18 inches in depth, where pollutants are removed through sedimentation and plant absorption.
 - b. Extended Detention Pond. A basin designed to temporarily hold stormwater for an extended period of time to facilitate physical settling of pollutants. These facilities may be normally dry, contain a shallow marsh, have a small wetpool, and often contain a combination of these features. Extended detention ponds usually include a vegetated forebay that is baffled from the main basin with a riprap mound, a small-sized outlet for the water quality storm discharge, a primary outlet for large storm events and a benched basin for varying water depths.
 - c. Multiple Pond. A pond system containing a series of two (2) or more pools or cells to create a longer pollutant removal pathway.
4. Wetlands may be constructed to contain an environment of shallow marsh where pollutants can be removed through a combination of settling, absorption, retention, plant uptake and biological decomposition. Wetland designs are best suited for larger watersheds and must be accompanied by a landscaping plan which specifies plant species, planting arrangement, bed preparation and operation/maintenance requirements. Additionally, wetlands shall be planted with three or more plant species for diversity and survival, plus at least 50% of the wetland area must be planted and maintained in plant cover. Specific wetland types and guidelines are:
- a. Shallow Wetlands. These systems are configured with several varying levels of marsh areas, containing a meandering water pathway from the forebay to a micropool at the outlet. Water depths usually range from six inches to 18 inches.
 - b. Pocket Wetlands. Wetlands for small locations where a seasonal high-water table is needed to help sustain the water elevations.

5. Infiltration systems are designed to capture stormwater runoff and infiltrate it into the ground. These systems are best adapted for small drainage areas and effectively reduce runoff volume, remove many pollutants, recharge the groundwater and contribute to maintaining stream baseflows. Since infiltration systems rely on infiltration of the stormwater runoff, system design shall be based on field-conducted infiltration tests on each soil series present on the development site and at every proposed infiltration basin location. The minimum number of infiltration tests required is one test per every ten (10) acres, evenly dispersed over the entire project site, excluding any required infiltration basin tests. A minimum of two (2) infiltration tests shall be required at each proposed infiltration basin location. Infiltration tests shall be conducted at the proposed finished grade elevation.

6. Filtering systems are effective for filtering sediment and other pollutants from runoff by passing it through sand, soil, sand/soil mix, vegetation, a structural filter or any combination thereof. Filtered runoff is then infiltrated or drained to other on-site facilities. These systems may be integrated into landscaped areas and parking islands where plantings will add aesthetic enhancements. Specific filtering system types and guidelines are:
 - a. Sand Filter. An underground chamber or bed with sand designed to filter pollutants as water drains through it, with an underdrain system for discharge of the filtered water to a stormwater conveyance system.
 - b. Bioretention System. These designs utilize a mixture of sand and permeable soil underneath a planted, landscaped depression to collect and treat surface water runoff. Bioretention areas are especially advantageous for parking lot islands and snow storage locations.
 - c. Riparian Buffer Strip. Along streams, wetlands and ponds, an area of land which is vegetated with a combination of trees, shrubs and herbaceous plants. This land strip is designed to protect the water resource by filtering pollutants, improving the habitat and cooling the waterways by shading. The riparian buffer strip shall include the 100 year floodplain, or be a minimum of 25 feet wide from the edge of the normal water level, whichever is greater.
 - d. Vegetated Filter Strip. These BMPs are characterized by grass or low-growing vegetation on a uniformly sloped area which is designed to intercept sheet flow water runoff between an impervious surface and the stormwater conveyance facilities. Vegetated filter strips reduce water velocities and trap sediment and pollutants. They require good vegetation and soil permeability and should be avoided on steep slopes. They are best used along small parking lots, should be a minimum of 20 feet wide in the direction of water flow, and normally are designed equal in size to the impervious area draining to the filter strip.
 - e. Vegetated Swale. A broad, shallow, low-gradient swale with a dense stand of medium height vegetation which is designed to trap pollutants and promote infiltration.
 - f. Water Quality Inlet.
 - g. Underground boxlike structure, such as an oil/grit separator, which is used to remove sediment and hydrocarbons from water runoff originating from parking lots and heavy traffic areas with the potential for petroleum discharges. These facilities

are used close to the source of the runoff and currently include other products such as Stormceptor and Vortechincs.

7. Open channels convey, filter and percolate stormwater runoff. They are often used as an alternative to, or component of, a storm sewer system. Specific open channel types and guidelines are:
 - a. Grass Swale. Grass swales filter pollutants as stormwater runoff is drained to other areas. These facilities are best combined with other BMPs and may include check dams or minor depression storage to reduce water velocity and encourage infiltration. An underbedding of mixed sand and soil with a pipe or stone underdrain will improve the use for infiltration and groundwater recharge.
 - b. Lined Channel. Riprap, concrete or other erosion-resistant material may be used to line a channel to prevent scouring and degradation of a water-carrying channel.
- F. Additional Information and Requirements.
1. The information, guidelines and requirements of this section of this chapter are intended to provide guidance in the design, construction, operation, and maintenance of BMPs to protect water quality. It is recognized that BMP technology is relatively new and, therefore subject to continuing modifications and improvements. As such, these regulations provide for considerable design flexibility, provided the design is consistent with the standards listed in this chapter.

ARTICLE III – STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

§ 17-301 Plan Requirements.

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

- A. Appropriate sections from the Subdivision and Land Development Ordinance, and other applicable local ordinances, shall be followed in preparing the SWM Site Plans.
- B. The Township shall not approve any SWM Site Plan that is deficient in meeting the requirements of this Ordinance. At its sole discretion and in accordance with this Article, when a SWM Site Plan is found to be deficient, the Township may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the 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 (O&M) Plan discussed in paragraph E.9 below.
- D. The following signature block for the Township:

“(Municipal official or designee), on this date (Signature Date), has reviewed and hereby certifies that the SWM Site Plan meets all design standards and criteria of the Municipal Ordinance No. (number assigned to ordinance).”

- E. The SWM Site Plan shall provide the following information:
1. The overall stormwater management concept for the project.
 2. 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.
 3. Stormwater runoff design computations and documentation as specified in this Ordinance, or as otherwise necessary to demonstrate that the maximum practicable measures have been taken to meet the requirements of this Ordinance, including the recommendations and general requirements in § 17-201.
 4. Expected project time schedule.
 5. A soil erosion and sediment control plan, where applicable, as prepared for and submitted to the approval authority.
 6. 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 stormwater conveyance system that may be affected by the project.
 7. Plan and profile drawings of all SWM BMPs, including drainage structures, pipes, open channels, and swales.
 8. SWM Site Plan shall show the locations of existing and proposed on-lot wastewater facilities and water supply wells.
 9. The SWM Site Plan shall include an O&M Plan for all existing and proposed physical stormwater management facilities. This plan shall address long-term ownership and responsibilities for O&M as well as schedules and costs for O&M activities.
- F. Applicants eligible to submit a Stormwater Management Application shall follow the instructions in that application for submitting documentation for Township review.

§ 17-302 Plan Submission.

SWM Site Plans associated with a land development plan shall be submitted to the Township consistent with the Subdivision and Land Development Ordinance. SWM Site Plans not associated with a land development plan shall be submitted to the Township engineer along with a Stormwater Management Application.

§ 17-303 Plan Review.

- A. SWM Site Plans and Stormwater Management Applications shall be reviewed by the Township for consistency with the provisions of this Ordinance.

- B. The Township shall notify the applicant in writing within 45 days whether the SWM Site Plan is approved or disapproved. If the SWM Site Plan involves a Subdivision and Land Development Plan, the notification shall occur within the time period allowed by the Municipalities Planning Code. If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the Township.
- C. If the Township disapproves the SWM Site Plan, the Township will state the reasons for the disapproval in writing. The Township also may approve the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing.

§ 17-304 Modification of Plans.

A modification to a submitted SWM Site Plan or Stormwater Management Application that involves a change in SWM BMPs or techniques, or that involves the relocation or redesign of SWM BMPs, or that is necessary because soil or other conditions as determined by the Township shall require a resubmission of the modified SWM Site Plan or Stormwater Management Application in accordance with this Article.

§ 17-305 Resubmission of Disapproved SWM Site Plans.

A disapproved SWM Site Plan or Stormwater Management Application may be resubmitted, with the revisions addressing the Township's concerns, to the Township in accordance with this Article. The applicable review fee must accompany a resubmission.

§ 17-306 Authorization to Construct and Term of Validity.

The Township's approval of an SWM Site Plan or Stormwater Management Application authorizes the regulated activities contained in the SWM Site Plan for a maximum term of validity of five (5) years following the date of approval. The Township may specify a term of validity shorter than five (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 an SWM Site Plan. If an approved SWM Site Plan is not completed according to § 17-307 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 the Township shall be resubmitted in accordance with § 17-305 of this Ordinance.

§ 17-307 As-Built Plans, Completion Certificate, and Final Inspection.

- A. The applicant shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM Site Plan. The as-built plans shall include results of infiltration testing performed at finished grade elevation in accordance with the PA Stormwater BMP Manual (Appendix C). The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to the 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. The latitude and longitude coordinates for all permanent SWM BMPs must also be submitted, at the central location of the BMPs. If any licensed qualified professionals contributed to the construction plans, then a licensed qualified professional must sign the completion certificate.
- C. After receipt of the completion certification by the Township, the Township may conduct a final inspection.

ARTICLE IV – OPERATION AND MAINTENANCE

§ 17-401 Responsibilities of Developers and Landowners.

- A. The Township shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan or Stormwater Management Application. 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. The Township reserves the right to accept or reject the ownership and operating responsibility for any portion of the stormwater management controls.
- B. Facilities, areas, or structures used as SWM BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or conservation easements that run with the land.
- C. The Operations and Maintenance (O&M) Plan shall be recorded as a restrictive deed covenant that runs with the land.
- D. The Township may take enforcement actions against an owner for any failure to satisfy the provisions of this Article.

§ 17-402 Operation and Maintenance Agreements.

- A. Prior to final approval of the SWM Site Plan or Stormwater Management Application, the property owner shall sign and record an O&M Agreement (see Appendix A) 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 Agreement.

2. The owner shall convey to the 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 person or company responsible for maintenance activities; in the event of a change, new information shall be submitted by the owner to the Township within ten (10) working days of the change.
- B. The owner is responsible for operation and maintenance of the SWM BMPs. If the owner fails to adhere to the O&M Agreement, the Township may perform the services required and charge the owner appropriate fees. Nonpayment of fees may result in a lien against the property.

§ 17-403 Performance Guarantee.

For SWM Site Plans that involve subdivision and land development, the applicant shall provide a financial guarantee to the Township for the timely installation and proper construction of all stormwater management controls as required by the approved SWM Site Plan and this Ordinance in accordance with the provisions of Sections 509, 510, and 511 of the Pennsylvania Municipalities Planning Code.

ARTICLE V – FEES AND EXPENSES

§ 17-501 General.

- A. Each application shall be accompanied by the required review fee as established from time to time by resolution of the Board of Supervisors. Fees shall be payable at the time of application and application processing, approval and recording shall not be completed until all required fees are paid.
- B. There shall be no refund or credit of fees or a portion of any fee should the applicant withdraw the plan during the review process or fail to receive approval.
- C. The fee schedule shall be established by adoption of a resolution of the Swatara Township Board of Supervisors setting forth the fees.
- D. Recording Fee. The applicant shall be responsible for recording the approved O&M Agreement with the Lebanon County Recorder of Deeds office and for the payment of any fees associated with such recording.

ARTICLE VI – PROHIBITIONS

§ 17-601 Prohibited Discharges and Connections.

- A. Any drain or conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter a

Municipal Separate Storm Sewer System (MS4) or to enter the surface waters of this Commonwealth is prohibited.

- B. No person shall allow, or cause to allow, discharges into a MS4, or discharges into waters of this Commonwealth, which are not composed entirely of stormwater, except (1) as provided in paragraph C below and (2) discharges authorized under a state or federal permit.
- C. The following discharges are authorized unless they are determined to be significant contributors to pollution of a MS4 or to the waters of this Commonwealth:
1. Discharges or flows from firefighting activities.
 2. 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).
 3. Non-contaminated irrigation water, water from lawn maintenance, landscape drainage and flows from riparian habitats and wetlands.
 4. Diverted stream flows and springs.
 5. Non-contaminated pumped ground water and water from foundation and footing drains and crawl space pumps.
 6. Non-contaminated HVAC condensation and water from geothermal systems.
 7. Residential (i.e., not commercial) vehicle wash water where cleaning agents are not utilized.
 8. Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.
- D. In the event that the Township or DEP determines that any of the discharges identified in Subsection C significantly contribute pollutants to a MS4 or to the waters of this Commonwealth, the Township or DEP will notify the responsible person(s) to cease the discharge.

§ 17-602 Roof Drains and Sump Pumps.

Roof drains and sump pumps shall discharge to infiltration or vegetative BMPs wherever feasible.

§ 17-603 Alteration of SWM BMPs.

No person shall modify, remove, fill, landscape, or alter any SWM BMPs, facilities, areas, or structures that were installed as a requirement of this Ordinance without the written approval of the Township.

ARTICLE VII – ENFORCEMENT AND PENALTIES

§ 17-701 Right-of-Entry.

Upon presentation of proper credentials, the Township or its designated agent may enter at reasonable times upon any property within the Township to inspect the condition of the stormwater structures and facilities in regard to any aspect regulated by this Ordinance.

§ 17-702 Inspection.

The landowner or the owner's designee (including the Township for dedicated and owned facilities) shall inspect SWM BMPs, facilities and/or structures installed under this Ordinance according to the following frequencies, at a minimum, to ensure the BMPs, facilities and/or structures continue to function as intended:

1. Annually for the first five (5) years.
2. Once every three (3) years thereafter.
3. During or immediately after the cessation of a 25-year or greater storm.

Inspections should be conducted during or immediately following precipitation events. A written inspection report shall be created to document each inspection. The inspection report shall contain the date and time of the inspection, the individual(s) who completed the inspection, the location of the BMP, facility or structure inspected, observations on performance, and recommendations for improving performance, if applicable. Inspection reports shall be submitted to the Township within 30 days following completion of the inspection.

§ 17-703 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 § 17-202.
- B. It shall be unlawful to violate § 17-603 of this Ordinance.
- C. Inspections regarding compliance with the SWM Site Plan are a responsibility of the Township.
- D. Any applicant who has been granted an exemption or waiver and is subsequently found to be developed contrary to the plan exemption or waiver criteria shall be subject to mandatory submission of the required plan.

§ 17-704 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 provision 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 the Township when:
 - 1. The Township has inspected and approved the corrections to the violations that caused 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.

§ 17-705 Penalties.

- A. Any person who violates any provision of this Part shall be subject to civil enforcement and a fine not to exceed \$600 per violation and/or criminal enforcement, as a summary offense, with a criminal fine not to exceed \$1,000 per violation and imprisonment not to exceed 30 days. The Board of Supervisors may also seek attorneys' fees in connection with any enforcement proceeding. Each day that a violation of this Part continues to exist shall constitute a separate offense. Such civil enforcement, criminal enforcement, and fines shall be in accordance with the provisions of 53 P.S. § 66601, as amended.
- B. The Board of Supervisors may direct that removal, repair, or remedial action be taken for any violation, and the Board of Supervisors may cause the same to be done and collect the cost thereof, together with a penalty of 10% of such cost, and attorneys' fees, and may pursue collection in the manner of municipal claims, or other action of assumpsit, or an

action in equity, to compel the violator(s) to comply with the terms of the notice of violation, or seek any other relief as a court of competent jurisdiction is empowered to afford.

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

§ 17-706 Appeals.

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

Property Tax Identification No. _____

Township use:

APPENDIX A

**OPERATION AND MAINTENANCE (O&M) AGREEMENT
STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (SWM BMPs)**

THIS AGREEMENT, made and entered into this day of _____, 20____, by and between _____ (hereinafter the "Landowner"), and Swatara Township, Lebanon County, Pennsylvania (hereinafter "Township");

WITNESSETH

WHEREAS, the Landowner is the owner of certain real property as recorded by deed in the land records of Lebanon County, Pennsylvania, Deed Book _____ at Page _____, and with an _____ address _____ of _____

_____ (hereinafter "Property").

WHEREAS, the Landowner is proceeding to build and develop the Property; and

WHEREAS, the SWM BMP Operation and Maintenance (O&M) Plan approved by the Township (hereinafter referred to as the "O&M Plan") for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by the Township, provides for management of stormwater within the confines of the Property through the use of BMPs; and

WHEREAS, the Township, and the Landowner, his successors and assigns, agree that the health, safety, and welfare of the residents of the Township and the protection and maintenance of water quality require that on-site SWM BMPs be constructed and maintained on the Property; and

WHEREAS, the Township requires, through the implementation of the SWM Site Plan, that SWM BMPs as required by said SWM Site Plan and the Municipal Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, successors, and assigns.

NOW, THEREFORE, in consideration of the foregoing promises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The Landowner shall construct the BMPs in accordance with the plans and specifications identified in the approved SWM Site Plan or Stormwater Management Application.

2. The Landowner shall operate and maintain the BMPs as shown on the SWM Site Plan or Stormwater Management Application in good working order in accordance with the specific operation and maintenance requirements noted on the approved O&M Plan.
3. The Landowner hereby grants permission to the Township, its authorized agents and employees, to enter upon the property, at reasonable times and upon presentation of proper credentials, to inspect the BMPs whenever necessary. Whenever possible, the Township shall notify the Landowner prior to entering the property.
4. In the event the Landowner fails to operate and maintain the BMPs per paragraph 2, the Township or its representatives may enter upon the Property and take whatever action is deemed necessary to maintain said BMP(s). It is expressly understood and agreed that the Township is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Township.
5. In the event the Township, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the Township for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the Township.
6. The intent and purpose of this Agreement is to ensure the proper maintenance of the on-site BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.
7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the Township from all damages, accidents, casualties, occurrences, or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMP(s) by the Landowner or Township.
8. The Township intends to inspect the BMPs at a minimum of once every three years to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorder of Deeds of Lebanon County, Pennsylvania, and shall constitute a covenant running with the Property and/or equitable servitude, and shall be binding on the Landowner, his administrators, executors, assigns, heirs, and any other successors in interests, in perpetuity.

ATTEST:

WITNESS the following signatures and seals:

(SEAL)

For the Township:

For the Landowner:

ATTEST:

Commonwealth of Pennsylvania :
: ss:
County of Lebanon :

I, _____, a Notary Public in and for the county and state aforesaid, whose commission expires on the ____ day of _____, 20____, do hereby certify that _____ whose name(s) is/are signed to the foregoing Agreement bearing date of the ____ day of _____, 20____, has acknowledged the same before me in my said county and state.

GIVEN UNDER MY HAND THIS ____ day of _____, 20____.

NOTARY PUBLIC

(SEAL)

Commonwealth of Pennsylvania :
: ss:
County of Lebanon :

I, _____, a Notary Public in and for the county and state aforesaid, whose commission expires on the ____ day of _____, 20____, do hereby certify that _____ whose name(s) is/are signed to the foregoing Agreement bearing date of the ____ day of _____, 20____, has acknowledged the same before me in my said county and state.

GIVEN UNDER MY HAND THIS ____ day of _____, 20____.


NOTARY PUBLIC

(SEAL)

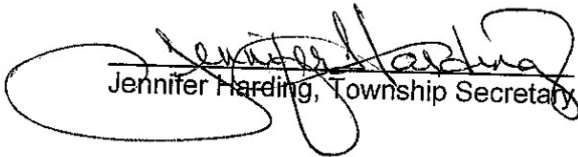
2. This Ordinance shall become effective five (5) days after enactment by the Board of Supervisors.

ORDAINED AND ENACTED, this 9th day of March, 2023.

SWATARA TOWNSHIP


Richard Kreitzer, Chairman

[Township seal]
Attest:


Jennifer Harding, Township Secretary