

**BOROUGH OF MYERSTOWN
STORMWATER MANAGEMENT ORDINANCE**

ORDINANCE NO. _____

BOROUGH OF MYERSTOWN

LEBANON COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on

_____, 202

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ARTICLE I – GENERAL PROVISIONS

Section 101. Short Title

This Ordinance shall be known and may be cited as the “Borough of Myerstown Stormwater Management Ordinance.”

Section 102. Statement of Findings

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

Section 103. Purpose

The purpose of this Ordinance is to promote health, safety, and welfare within the municipality and its watershed by minimizing the harms and maximizing the benefits described in Section 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 municipality.
- H. Provide standards to meet NPDES permit requirements.

- I. Coordinate land development in accordance with the Zoning Ordinance, Subdivision and Land Development Ordinance, County and Municipal Comprehensive Plans, Watershed Plans, and other plans of the Municipalities and County.

Section 104. Statutory Authority

- A. The municipality 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.
- B. Secondary Authority:
The Borough of Myerstown is also 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
- C. All activities related to proper operation and maintenance of approved stormwater management BMPs and all activities that may contribute non-stormwater discharges to a regulated small MS4 are subject to regulation by this Ordinance.

Section 105. Applicability

- A. 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.
- B. When a building and/or zoning permit is required for any Regulated Activity on an existing parcel or approved lot created by a subdivision and/or improved as a land development project, issuance of the permit shall be conditioned upon adherence to the terms of this Ordinance.

Section 106. Repealer

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provision(s) or regulation of the municipality inconsistent with any of the provisions of this Ordinance is hereby repealed to the extent of the inconsistency only.

Section 107. Severability

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

Section 108. Compatibility with Other Requirements

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

Section 109. 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 Municipality purporting to validate such a violation.

Section 110. Waivers

- A. If the Municipality determines that any requirement under this Ordinance cannot be achieved for a particular regulated activity, the Municipality may, after an evaluation of alternatives, approve measures other than those in this Ordinance, subject to Section 110, paragraphs B and C.
- B. Waivers or modifications of the requirements of this Ordinance may be approved by the Municipality 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.

- C. No waiver or modification of any regulated stormwater activity involving earth disturbance greater than or equal to one acre may be granted by the Municipality unless that action is approved in advance by the Department of Environmental Protection (DEP) or the delegated county conservation district. Where an NPDES permit for stormwater discharges associated with construction activities is required, issuance of an NPDES permit shall constitute satisfaction of consultation with DEP.

Section 111. Municipal Liability

Except as specifically provided by the Pennsylvania Storm Water Management Act, Act of October 4, 1978, P.L. 864, No. 167, as amended, 32 P.S. §680.1 et seq., the making of any administrative decision by the Borough of Myerstown or any of its officials or employees shall not constitute a representation, guarantee or warranty of any kind by the Borough of the practicability or safety of any proposed structure or use with respect to damage from erosion, sedimentation, storm water runoff, flood, or any other matter, and shall create no liability upon or give rise to any cause of action against the Borough of Myerstown and its officials and employees. Borough of Myerstown, by enacting and amending this Ordinance, does not waive or limit any immunity granted to the Borough and its officials and employees by the Governmental Immunity Act, 42 Pa. C.S. §8541 et seq., and does not assume any liabilities or obligations.

ARTICLE II – 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.
- D. The word Lot includes the words “Plot”, “Tract” and “Parcel”.
- E. The word "person" includes individuals, firms, partnerships, joint ventures, trusts, trustees, estates, corporations, associations and any other similar entities.
- F. Any words not defined in this Ordinance or in Section 107 of the MPC Shall be construed as defined in standard dictionary usage.

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

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

Access Easement – A right granted by a landowner to a grantee, allowing entry for the purpose of inspecting, maintaining and repairing SWM Facilities.

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 municipality for approval to engage in any regulated activity at a project site in the municipality.

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.

BMP Manual – The Pennsylvania Stormwater Best Management Practices Manual of December 2006, or most recent version thereof.

Carbonate Geology - Limestone or dolomite bedrock. Carbonate geology is often associated with karst topography.

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

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.

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.

Infiltration Structures - A structure designed to direct runoff into the ground (e.g. french drains, seepage pits, seepage trench, rain gardens, vegetated swales, pervious paving, infiltration basins, etc.).

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 (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.

Municipality – Borough of Myerstown, Lebanon County, Pennsylvania.

MPC - The Pennsylvania Municipalities Planning Code, Act of 1968, P.L. 805, No. 247, as reenacted and amended, 53 P.S. Section 10101 et seq.

Natural Drainage Flow – The pattern of surface and stormwater drainage from a particular site deriving from existing conditions, before construction or installation of improvements or prior to any re-grading.

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

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

Open Channel - A drainage element in which stormwater flows with an open surface. Open channels include, but shall not be limited to, natural and man-made drainage ways, swales, streams, ditches, canals, and pipes flowing partly full. Open channels may include closed conduits so long as the flow is not under pressure.

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

Pervious Area – Any area not defined as impervious.

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

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

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

Release Rate – For a specific design storm or list of design storms, the percentage of peak flow rate for existing conditions which may not be exceeded for the proposed conditions.

Retention Basin - A Stormwater Management Facility that includes a permanent pool for water quality treatment and additional capacity above the permanent pool for temporary runoff storage.

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.

Small Project – Regulated activities that, measured on a cumulative basis from (the date of enactment of this Ordinance or other date as determined by the municipality), create additional impervious areas of 5,000 sq. ft. or less or involve removal of ground cover, grading, filling or excavation of an area less than 10,000 sq. ft. and do not involve the alteration of stormwater facilities or watercourses.

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

Stormwater Management Act - Act of October 4, 1978, P.L. 864, No. 167, as amended 32 P.S. Section 680.1 et seq.

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.

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

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.

ARTICLE III – STORMWATER MANAGEMENT STANDARDS

Section 301. General Requirements

- A. For all regulated activities, unless preparation of an SWM Site Plan is specifically exempted in Section 302:
 - 1. Preparation and implementation of an approved SWM Site Plan is required.
 - 2. No regulated activities shall commence until the municipality issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
- B. SWM Site Plans approved by the municipality, in accordance with Section 406, shall be on site throughout the duration of the regulated activity.
- C. The municipality may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law.
- D. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law. Various BMPs and their design standards are listed in the Erosion and Sediment Pollution Control Program Manual (E&S Manual3), No. 363-2134-008, as amended and updated.
- E. Unless prohibited by the Borough of Myerstown Zoning Ordinance or any Ordinance which regulates construction and development within the areas of the Borough subject to flooding, and any other applicable requirements of the Floodplain Management Act, stormwater management facilities located in the floodplain are permitted when designed and constructed in accordance with the provisions of the BMP Manual, regulatory requirements and the requirements of this Ordinance.
- F. Impervious areas:
 - 1. The measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages.
 - 2. For development taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.
 - 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 Section 303 and the peak rate controls of Section 304 do not need to be retrofitted to existing impervious areas that are not being altered by the proposed regulated activity.
- G. 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.
- H. 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 Manual⁴). 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.
- I. The design of all facilities over karst shall include an evaluation of measures to minimize adverse effects.
 - J. Infiltration BMPs should be spread out, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Ordinance.
 - K. 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 72 hours from the end of the design storm.
 - L. The design storm volumes to be used in the analysis of peak rates of discharge should be obtained from the latest version of the Precipitation-Frequency Atlas of the United States, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland.
- NOAA's Atlas 14⁵ can be accessed at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
- M. For all regulated activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.
 - N. Various BMPs and their design standards are listed in the BMP Manual⁴.
 - O. Any stormwater management facilities regulated by this Ordinance that would be located in or adjacent to waters of the Commonwealth or wetlands shall be subject to approval by DEP through the Joint Permit Application process, or, where deemed appropriate by DEP, 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 DEP. A wetlands report, prepared by a qualified professional, shall be submitted whenever wetlands are disturbed.
 - P. Stormwater management facilities, which involve a State Highway, shall be subject to the approval of PennDOT.
 - Q. Where a development site is traversed by watercourses other than permanent streams, 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 as approved by the appropriate governing authority.
 - R. Stormwater resulting from Regulated Activities shall not be discharged into sinkholes.

Section 302. Exemptions

- A. Regulated activities that result in cumulative earth disturbances less than one acre, building expansion, impervious area enlargement, and development of existing lots, where the applicant can document to the satisfaction of the Municipal Engineer the lot improvements will not result in detrimental stormwater discharges to adjoining lands, roads, waterways or other areas, provided that no subdivision of new lots or land development for new principal uses is involved are exempt from the requirements in Section 303, Section 304, and Article IV of this ordinance provided the following criteria are satisfied.

Total Parcel Size*	Minimum Distance**	Impervious Exemption***
< ½ Acre	10 Feet	2,500 Ft ²
½ - 1 Acre	20 Feet	5,000 Ft ²
1.01 – 2 Acres	50 Feet	10,000 Ft ²
2.01 – 5 Acres	75 Feet	15,000 Ft ²
5.01 > Acres	100 Feet	20,000 Ft ²

(The chart above applies to properties where formal land development/stormwater management design has not previously been performed. In the case where a land development/stormwater design has previously been performed, exemptions shall be at the discretion of the Borough and Borough Engineer).

* Parent tract or original parcel size, prior to any subdivision, as of this Ordinance date.

** Minimum distance between proposed impervious areas and the downslope property line(s) shall be stable pervious conditions with non-point discharge.

*** Individual or cumulative total impervious area, after the effective date of this Ordinance.

Any lot which has been exempted from submission of a storm water management site plan, in accordance with the guidelines listed herein, and is subsequently found to be developed contrary to the plan exemption criteria shall be subject to mandatory submission of the required plan. Failure to satisfy these requirements is a violation of this Ordinance, punishable as provided by Article VIII of this Ordinance.

- B. Agricultural activity is exempt from the SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- C. Forest management and timber operations are exempt from the SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- D. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Sections 301.D. through K.
- E. The Municipality may deny or revoke any exemption pursuant to this Section at any time for any project that the Municipality believes may pose a threat to public health and safety or the environment.

Section 303. Volume Controls

The green infrastructure and low impact development practices provided in the BMP Manual⁴ 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 Manual⁴) 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 (20%) 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 Manual⁴) 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:
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 Section 304, Rate Controls.

Section 304. Rate Controls

- A. For areas not covered by a release rate map from an approved Act 167 Stormwater Management Plan:

Stormwater Management shall be accomplished by controlling post-development runoff rates to pre-development runoff rates for the storm events as listed below:

Post-Development Design Storm	Pre-Development Runoff Rate
1 Year	1 Year
2 Year	1 Year
5 Year	2 Year
10 Year	5 Year
25 Year	25 Year
50 Year	50 Year
100 Year	100 Year

- B. For areas covered by a release rate map from an approved Act 167 Stormwater Management Plan:

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 rate maps. For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the pre-development discharge rates.

- C. The Borough currently does not contain any reduced rate districts due to an approved Act 167 plan. Should any such plan be enacted by the Borough, county, or other agency having jurisdiction, the more stringent requirements of this chapter or the Act 167 plan shall be followed.

Section 305. Riparian Buffers

- A. In order to protect and improve water quality, a Riparian Buffer Easement shall be created and recorded as part of any subdivision or land development that encompasses a Riparian Buffer.
- B. Except as required by Chapter 102, the Riparian Buffer Easement shall be measured to be the greater of the limit of the 100-year floodplain or a minimum of 35 feet from the top of the streambank (on each side).
- C. Minimum Management Requirements for Riparian Buffers.
 1. Existing native vegetation shall be protected and maintained within the Riparian Buffer Easement.

2. Whenever practicable invasive vegetation shall be actively removed, and the Riparian Buffer Easement shall be planted with native trees, shrubs and other vegetation to create a diverse native plant community appropriate to the intended ecological context of the site.
- D. The Riparian Buffer Easement shall be enforceable by the municipality and shall be recorded in the appropriate County Recorder of Deeds Office, so that it shall run with the land and shall limit the use of the property located therein. The easement shall allow for the continued private ownership and shall count toward the minimum lot area as required by Zoning, unless otherwise specified in the municipal Zoning Ordinance.
 - E. Any permitted use within the Riparian Buffer Easement shall be conducted in a manner that will maintain the extent of the existing 100-year floodplain, improve or maintain the stream stability, and preserve and protect the ecological function of the floodplain.
 - F. The following conditions shall apply when public and/or private recreation trails are permitted within Riparian Buffers:
 1. Trails shall be for non-motorized use only.
 2. Trails shall be designed to have the least impact on native plant species and other sensitive environmental features.
 - G. Septic drainfields and sewage disposal systems shall not be permitted within the Riparian Buffer Easement and shall comply with setback requirements established under 25 Pa. Code Chapter 73.

Section 306. Modified Requirements for Small Projects

The Borough may elect to adopt by resolution, Modified Requirements for Small Projects. Under these regulations, Regulated Activities that involve up to 5,000 square feet of proposed Impervious Surfaces and 10,000 square feet of proposed Earth Disturbance may apply the modified requirements presented in the “Simplified Approach to Stormwater Management for Small Projects” (Simplified Approach) to comply with the requirements of this Ordinance. The Applicant shall first contact the Municipal Engineer: to confirm that the proposed project is eligible for use of the Simplified Approach and is not otherwise exempt from these Ordinance provisions; to determine what components of the proposed project are to be considered as Impervious Surfaces; and to determine if other known Site or local conditions exist that may preclude the use of any techniques included in the Simplified Approach.

Section 307. Calculation Methodology

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

Accepted Calculation Methods

Method	Applicability
Soil Cover Complex Method (formerly SCS)	Acceptable for all watersheds and for use with detention basin routings
Rational Method	Acceptable for small watersheds and residential underground absorption systems (See Storm Event Criteria below). Limited to watersheds < 10 acre
TR-20, USDA Soil Conservation Service	Acceptable for all watersheds especially where full hydrologic computer model is desired
HEC-1 U.S. Army Corps of Engineers	Army Corps of Engineers Acceptable for all watersheds especially where full hydrologic computer model is desired

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 Municipal Engineer should be consulted for method alternatives and applicability.

Soil Hydrologic Group Classification shall be per the USDA NRCS-Web Soil Survey-
www.webspoilsurvey.sc.gov/App/WebSoilSurvey.aspx

- B. Storm Event Criteria - All runoff calculations shall be completed in accordance with the standard guidelines for the selected method of calculation.

Rational Method - The NOAA Rainfall data shall be used (<http://hdsc.nws.noaa.gov/hdsc/pfds/>).

Where stormwater runoff hydrographs are produced using the Rational Method, the provided storage volume shall be verified with a critical duration analysis that investigates similar storm occurrences with extended durations and applicable intensities to determine the anticipated maximum elevation to occur in the storage facility for each required storm event. To approximate a full hydrograph, the ascending leg of the Rational Method hydrograph shall be three times the time of concentration and the descending leg shall be seven times the time of concentration.

Soil Cover Complex Method - 24-hour rainfall distribution shall be used in conjunction with the rainfall depths from NOAA Atlas 14. Established twenty-four (24) hour rainfall depths for the various storm events throughout Lebanon County by utilizing NOAA rainfall data specific to the project site location.

- C. Runoff Coefficients "C" and Curve Numbers "CN" shall be based on the charts contained in the Appendix.

- D. Times of concentration shall be based on the following design parameters:

1. A. Sheet flow: The maximum length for each reach of sheet or overland flow before shallow concentrated or open channel flow develops is one hundred fifty (150) feet. Flow lengths greater than one hundred (100) feet shall be justified based on the actual conditions at each development site.
2. Shallow concentrated flow: Travel time for shallow concentrated flow shall be determined using Average Velocities For Estimating Travel Time for Shallow Concentrated Flow nomograph from TR-55, Urban Hydrology for small watersheds.
3. Open Channel flows: At points where sheet and shallow concentrated flows concentrate in field depressions, swales, gutters, curbs, or pipe collection systems, the travel times and downstream end of the development site between these design points shall be based upon Manning's Equation and/or acceptable engineering design standards as determined by the Borough engineer.

- E. For the purpose of calculating pre-development peak discharges, all runoff coefficients, both on-site and off-site, shall be based on actual land use assuming summer or good land conditions. Post-development runoff coefficients for off-site discharges used to design conveyance facilities shall be based on actual land use assuming winter or poor land conditions.
- F. Design of on-site conveyance systems calculations may use the Rational Method of $Q=CIA$ where Q is the peak discharge of the watershed in cubic feet per second, C is the coefficient of runoff, I is the intensity of rainfall in inches per hour, and A is the area of the watershed in acres; or any other method approved by the Borough.
- G. 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, sediment basins, and 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 storm water runoff from the project site.
- H. Runoff calculations will also be made to ensure that the runoff from the upstream watershed area can be accommodated by the pipes, drainage easements, watercourses, etc. on the site.
- I. Runoff calculations will also be made to ensure that the runoff from the project site can be accommodated by the receiving pipes, drainage easements, watercourses, etc., downstream from the site.
- J. Peak rate control is not required for off-site runoff. Off-site runoff may be bypassed around the site provided all other discharge requirements are met. If offsite runoff is routed through rate control facilities, runoff coefficients for off-site discharges used to design those rate control facilities shall be based on actual land use assuming winter or poor land conditions.

Section 308. Stormwater Performance Standards

- A. Runoff from impervious areas shall be drained to pervious areas within the Development Site, unless the site has 85% or more impervious cover and is a Redevelopment, in which case the portion of the site that discharges to pervious areas shall be maximized.

- B. Stormwater runoff from a Development Site to an adjacent property shall flow directly into a natural drainageway, watercourse, or into an existing storm sewer system, or onto adjacent properties in a manner similar to the runoff characteristics of the pre- development flow.
- C. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification of the adjacent property owner(s) by the developer. Such stormwater flows shall be subject to the requirements of this Ordinance, including the establishment of a drainage easement. Copies of all such notifications shall be included in SWM Site Plan submissions.
- D. Existing on-site natural and man-made SWM facilities shall be used to the maximum extent practicable.
- E. Stormwater runoff shall not be transferred from one sub-watershed to another unless they are sub-watersheds of a common watershed that join together within the perimeter of the Development Site and the effect of the transfer does not alter the peak discharge onto adjacent lands.
- F. Minimum floor elevations for all structures that would be affected by a basin, other temporary impoundments, or open conveyance systems where ponding may occur shall be two (2) feet above the 100-year water surface elevation. If basement or underground facilities are proposed, detailed calculations addressing the effects of stormwater ponding on the structure and waterproofing and/or flood-proofing design information shall be submitted for approval.
- G. All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) shall be designed to convey a 25-year storm event*. All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) conveying water originating from offsite shall be designed to convey a 50-year storm event*. Safe conveyance of the 100-year runoff event* to appropriate peak rate control BMPs must be demonstrated in the design.

* A 24-hour SCS Type II storm or an IDF Curve Rational Method storm.

- H. Erosion protection shall be provided along all open channels, and at all points of discharge. Flow velocities from any storm sewer may not result in erosion of the receiving channel.
- I. Unless an alternate design is submitted to the Borough for review, and said design is prepared by a licensed (in the Commonwealth of Pennsylvania) geologist or geotechnical engineer:
 - 1. No storm water facilities shall be placed in, over or within a distance that will impact the following features:
 - a. Sinkholes
 - b. Closed depressions
 - c. Lineaments in carbonate areas
 - d. Fracture traces
 - e. Caverns
 - f. Intermittent streams
 - g. Ephemeral streams
 - h. Bedrock pinnacles (surface or subsurface)
 - 2. The minimum isolation distance from storm water management facilities to the listed geologic features shall be as follows:
 - a. One hundred (100) feet from the rim of sinkholes or closed depressions;
 - b. One hundred (100) feet from disappearing streams;
 - c. Fifty (50) feet from lineaments or fracture traces;
 - d. Twenty-five (25) feet from surface or identified subsurface pinnacles.
 - 3. Storm water runoff from any regulated activity shall not be discharged into sinkholes.
 - 4. It shall be the developer's responsibility to verify if the development is underlain by carbonate geology. The certificate provided in the Appendix shall be attached to all Storm Water Management Site Plans and signed and sealed by the developer's qualified professional.
 - 5. Whenever a storm water facility will be located in an area underlain by carbonate geology, a geological evaluation of the proposed location by a Registered Professional Geologist shall be conducted to determine

subsurface conditions including soil permeability, depth to bedrock, subgrade stability, and susceptibility to sinkhole formation.

6. Impermeable liners may be used to reduce or eliminate the separation distances listed in Subsections 1 and 2 above.
- J. Stormwater facilities intended to receive and infiltrate runoff from regulated activities shall be selected based on suitability of soils and site conditions based on the following characteristics:
1. Infiltration testing shall be conducted in accordance with BMP manual.
 2. Acceptable soil will have a percolation rate of at least 0.1 inch per hour and not more than 10 inches per hour (after application of the appropriate safety factor from the BMP manual).
 3. A minimum separation of 24 inches of acceptable soil between the bottom of the facility and the limiting zone, unless it is demonstrated to the satisfaction of the Borough that the selected BMP has design criteria which allow for a smaller separation.
 4. A stabilized infiltration rate sufficient to accept the additional stormwater load and drain completely as determined by field tests conducted by the applicant's professional designer. The stabilized infiltration rate is to be determined in the same location and within the same soil horizon as the bottom of the infiltration facility. The stabilized infiltration rate is to be determined as specified in the BMP manual.

Section 309. Stormwater Facility Design Requirements

A. Water Carrying Facilities:

1. All storm sewer pipes, grass waterways, open channels, swales, and other water-carrying facilities that service drainage areas within the site shall be designed to convey the twenty-five (25) year storm event unless in the opinion of the Borough or Borough Engineer the character of development and potential for damage warrant design for the 50- or 100-year storm.
2. Storm water management facilities that convey off-site water through the site shall be designed to convey the fifty (50)-year storm event.
3. All developments shall include provisions that allow for the overland conveyance and flow of the post-developed one hundred (100)-year storm event without damage to public or private property.
4. Conveyance facilities shall comply with the design criteria in the following table:

Conveyance Facility Design Criteria		
Location	Within public street right-of-way/paved areas	Outside Public Street right-of-way
a) Pipe Design		
1. Material	SLHDPE/RCP	SLHDPE/RCP
2. Slope (minimum)	0.50%	0.50%
3. Cover	1' to stone subgrade	1' to surface
4. Diameter (minimum)	18 inches	per design calculations
5. Street crossing angle	90 degrees	N/A
6. Access/maintenance port frequency (maximum)	400 feet	400 feet
b) Inlet Design		
1. Material	Concrete	Concrete
2. Grate depression	N/A	6 inches
c) Manhole Design		
1. Material	Concrete	Concrete
d) Swale Design		

1. Freeboard (minimum)	6 inches	6 inches
2. Velocity (maximum)	Stability check	Stability check
3. Slope (minimum)	2%	1%
4. Side Slopes	4:1 max	4:1 max
5. Bottom width to flow depth ratio	12:01	12:01
e) Pipe Inlet/Outlet Design		
1. End treatment	Concrete headwall/endwall	Concrete headwall/endwall
2. Energy dissipator	Required	Required

5. Storm sewer pipes, culverts, manholes, inlets, endwalls, and end sections proposed for dedication or located along streets shall conform to the requirements of the Pennsylvania Department of Transportation, Bureau of Design, Standards for Roadway Construction, Publication No. 72, in effect at the time the design is submitted.
6. The roughness coefficient (Manning “n” values) used for conveyance pipe capacity calculations shall be determined in accordance with PennDOT Publication 584, PennDOT Drainage Manual, or per the manufacturer’s specifications.
7. Inlets shall be placed along streets as follows:
 - a. On both sides of streets at low spots.
 - b. At all changes in the horizontal or vertical direction of storm sewers
 - c. At points where the flow in gutters exceeds three (3) inches.
 - d. At or beyond the curb radius points at intersections.
 - i. For the purpose of inlet location at intersections, the depth of flow shall be considered for each gutter.
 - ii. At intersections, the depth of flow for the 25-year storm across the through streets shall not exceed one (1) inch.
8. Inlets shall be depressed below the grade of the road-side swale or ground surface as indicated in the above design chart.
9. An access/maintenance port may either be an inlet or manhole.
10. Manholes may be substituted for inlets at locations where inlets are not required to collect surface runoff.
11. Material consistency and placement depths for storm sewer pipe backfill shall be (at a minimum) per all applicable pipe manufacturer’s recommendations, further providing it should be free of large (not exceeding 6 inches in any dimension) stone, rock, or other objectionable or detritus material.
12. Within the public street right-of-way, the gutter spread based on the 25-year storm shall be no greater than one-half of the travel lane and have a maximum depth of three (3) inches at the curb line. A parking lane shall not be considered as part of the travel lane.
13. Inlets or manholes shall be placed at all points of changes in the horizontal or vertical directions of conveyance pipes. Curved pipe sections are prohibited.
14. All inlets placed in paved areas shall have heavy duty bicycle-safe grating consistent with PennDOT Publication 72M, latest edition. A note to this effect shall be added to the Storm Water Management Site Plan or inlet details therein.
15. Where the connecting pipe has a diameter eighteen (18) inches or greater, headwalls and endwalls shall be provided with a protective barrier device to prevent entry of the storm sewer pipe by unauthorized persons. Such protection devices shall be designed to be removable for cleaning.
16. Flow velocities from any storm sewer shall not result in a degradation of the receiving channel.

17. Energy dissipaters shall be placed at the outlets of all storm sewer pipes where flow velocities exceed maximum permitted channel velocities.
18. The capacities of swales shall be computed from the Manning Equation using the following design parameters: Permissible open channel velocities and design standards shall be in accordance with good engineering practice as documented in the Engineering Field Manual for Conservation Practices, U.S.D.A., S.C.S., or in Design Charts for Open-Channel Flow, Hydraulic Design Series No. 3, U.S. Department of Transportation.
- a. Vegetated swales:
 1. The first condition shall consider swale stability based upon a low degree of retardance (“n” = 0.03);
 2. The second condition shall consider swale capacity based upon a higher degree of retardance (“n” = 0.05); and
 3. The “n” factors to be used for paved or riprap swales or gutters shall be based upon accepted engineering design practices, as approved by the Borough Engineer.
 - b. All swales shall be designed to maximize infiltration and concentrate low flows to minimize siltation and meandering, unless geotechnical conditions do not permit infiltration.

B. Above Ground Storage Facilities:

1. Above ground storage facilities shall consist of all storm water facilities which store, infiltrate/evaporate/transpire, clean, release, or otherwise affect storm water runoff and the top of which is exposed to the natural environment. Above ground storage facilities shall be located above the finished ground elevation. Above ground storage facilities do not include storm water management facilities designed for conveyance, or cisterns.
2. Facilities with a facility depth greater than eight (8) feet shall not be permitted in residential areas.
3. Above ground storage facilities shall comply with the design criteria in the following table:

Above-ground storage facility design criteria			
	Facility Depth		
	Less than 2 feet	2 feet to 6 feet	Greater than 6 feet
a. Embankment Geometry			
1. Top width (minimum)	2 feet	5 feet	8 feet
2. Interior side slope (maximum)	3:1	4:1	4:1
3. Exterior side slope (maximum)	3:1	3:1	3:1
b. Embankment Construction			
1. Clay/Impervious Core	Not required	Required	Required
2. Pipe collar	Not required	Required	Required
3. Compaction density	Not required	Required	Required
c. Internal Construction			
1. Dewatering feature	N/A	Required	Required
2. Pretreatment elements	Not Required*	Required	Required
d. Outlet Structure			
1. Pipe size (minimum)	12 inches	18 inches	18 inches
2. Pipe material	SLHDPE, PVC, RCP	SLHDPE, RCP	SLHDPE, RCP
3. Anticlogging devices	Required	Required	Required
4. Antivortex design	Not required	Required	Required
5. Watertight joints in piping	Yes	Yes	Yes
e. Spillway Requirements			

1. Spillway freeboard (minimum)	3 inches	6 inches	12 inches
2. Width (minimum)	5 feet	10 feet	20 feet
3. Width (maximum)	20 feet	50 feet	50 feet
4. Spillway channel design	Required	Required	Required
5. Routing of 100-year storm	Permitted	Permitted	Permitted

* Pretreatment is required for infiltration BMPs unless shown to be unnecessary.

N/A = Not applicable

SLHDPE = Smooth lined high density polyethylene pipe; PVC = Polyvinyl chloride;

RCP = Reinforced concrete pipe

4. If required, pretreatment elements shall be designed according to the BMP manual.
5. All above ground storage facilities shall be structurally sound and shall be constructed of sound and durable materials.
 - a. All discharge control devices with appurtenances shall be made of reinforced concrete and stainless steel.
 - b. Bolts/fasteners shall be stainless steel.
 - c. The completed structure and the foundation of all basins shall be stable under all probable conditions of operation.
 - d. Spillways shall be capable of discharging the peak discharge of a post-development 100-year storm event through the emergency spillway facilities, in a condition that assumes the primary outlet(s) are blocked, which will not damage the integrity of the facility or the downstream drainage areas.
 - e. Use of the spillway to convey flows greater than the 50-year design storm shall be permitted.
 - f. The effect on downstream areas if the above ground storage facility embankment fails shall be considered in the design of all basins. The basin shall be designed to minimize the potential damage caused by such failure of the embankment.
 - g. An easement shall be provided from the spillway outfall to a natural or artificial watercourse.
 - h. The maximum depth of water for above ground storage facilities without restricted access shall not exceed six (6) feet.
6. All detention basins shall include an outlet structure to permit draining the Rate Control Volume within twenty-four (24) hours, exclusive of BMP storage.
7. All outlet structures and emergency spillways shall include a satisfactory means of dissipating the energy of flow at its outlet to assure conveyance of flow without endangering the safety and integrity of the basin and the downstream drainage area.
8. A concentrated discharge of stormwater to an adjacent property shall be within a natural drainageway or watercourse, or an easement shall be required.
9. A clay/impervious core shall consist of a cutoff trench (below existing grade) and a core trench (above existing grade).
 - a. A clay/impervious core may not be required wherever the facility depth is less than two (2) feet.
 - b. Materials used for the clay/impervious core shall conform to the Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the No. 200 sieve.
 - c. The dimensions of the clay/impervious core shall provide a minimum trench depth of two (2) feet below existing grade, minimum width of four (4) feet and side slope of 1H:1V or flatter.
 - d. The clay/impervious core should extend up to the 25-year water surface elevation or six (6) inches below the emergency spillway elevation, whichever is lower.
 - e. The clay/impervious core shall extend four (4) feet below any pipe penetrations through the impervious core.
 - f. The core shall be installed along or parallel to the centerline of the embankment.
 - g. Compaction requirements for the clay/impervious core shall be the same as those for the embankment to assure maximum density and minimum permeability.

10. All pipe collars, if required, shall be designed in accordance with Chapter 7 of the PADEP Erosion and Sediment Control Manual. The material shall consist of concrete or otherwise non-degradable material around the outfall barrel and shall be watertight.
11. The embankment fill material shall be free of topsoil, organic material, roots, stumps, wood, rubbish, stones greater than six (6) inches, frozen or other objectionable materials.
12. The minimum freeboard for spillways shall be provided above the 100-year design elevation of the water surface at the emergency spillway in a condition that assumes the primary outlet(s) is (are) blocked.
13. The minimum bottom slope of facilities not designed for infiltration shall be one percent (1%). A flatter slope may be used if an equivalent dewatering mechanism is provided.
14. If required, dewatering shall be provided through the use of underdrain, surface device, or an alternate approved by the Borough Engineer. If the facility is to be used for infiltration, the dewatering device should be capable of being disconnected and only be made operational if the basin is not dewatering within the required timeframe.
15. Within basins designed for infiltration, a planting plan shall be prepared in accordance with this Ordinance and the BMP Manual.
16. Access. All stormwater management facilities shall be accessible by vehicular means along stabilized access roads to allow for proper maintenance as required.
17. Fencing. Any aboveground stormwater management detention/retention facility that is designed to store at least a two-foot depth of runoff shall be subject to the following fencing requirements:
 - a. Stormwater facility must be completely surrounded by a chain-link fence of not less than four feet in height. Alternative fences and barriers may be permitted upon request to and approval by the Borough.
 - b. All gates or doors opening through such enclosure shall be equipped with a self-closing and self-latching device for keeping the gate or door securely closed at all times, when not in actual use.
18. Where required, impermeable liner shall be constructed to meet the following minimum requirements:
 - a. The minimum liner required is thirty mil (30-mil) high density polyethylene (HDPE) and must be UV resistant. Actual individual liner specifications shall be provided by the manufacturer for each individual pond.
 - b. The liner must be placed on a layer of fine-grained soil that has been rolled with a smooth drum roller in both directions to produce a smooth level base for the liner. The soil may not contain sharp angular rock or other debris that could puncture the liner and must meet all manufacturers' specifications for a liner bedding. All vegetation, roots, and grass must be removed, and any cracks or voids shall be filled.
 - c. If rock is encountered in the bedding area, this rock must be excavated to a depth of six inches (6") below the liner and backfilled with a fine-grained soil. This area should then be covered with geotextile fabric, extending three feet (3') beyond the limits of the rock outcrop before placing the pond liner.
 - d. Installation of the liner may only take place when the ambient temperature is within the manufacturer's specifications. The number of field seams shall be minimized by requiring factory fabrication of large panels. Any field seams performed must be in accordance with the manufacturer's specifications.
 - e. All structures (i.e., headwalls, pipes, outlet structures) which come in contact with the liner must have a waterproof seal installed to prevent leaks around the structure. These seals shall be installed per manufacturer's recommendations.
 - f. A minimum of twelve inches (12") of earth cover shall be placed over the lining. Soil containing sharp jagged rocks, roots, debris, or any other material that may puncture the liner shall not be used as cover material.
 - g. The liner must be installed to a minimum height of the 100-year flood water elevation in the facility.

C. Subsurface Storage Facilities:

1. Subsurface storage facilities shall consist of all storm water facilities which store, infiltrate/evaporate/transpire, clean, release, or otherwise affect storm water runoff and the top of which is not exposed to the natural environment. Subsurface facilities shall be located below the finished ground elevation. Subsurface facilities shall not include storm water management facilities designed for conveyance.
2. Subsurface storage facilities shall comply with the design criteria in the following table:

Subsurface storage facility design criteria		
	Facility Type	
	Infiltration and Storage	Storage without Infiltration
a. Facility Geometry		
1. Depth from surface (maximum)	2 feet less than limiting zone	N/A
2. Loading ratio (maximum)	Per BMP Manual*	N/A
a. Distribution System Requirements		
1. Pipe size (minimum)	4 inches	4 inches
2. Loading/balancing	Required	Required
3. Observation/access ports	Required	Required

*unless otherwise determined by professional geologic evaluation

3. The facility shall be designed according to the BMP Manual to provide pretreatment to eliminate solids, sediment, and other debris from entering the subsurface facility.
4. The facility shall be designed to provide a means of evenly balancing the flow across the surface of the facility to be used for infiltration.
5. Observation/access ports shall be provided for all subsurface storage facilities as follows:
 - a. For facilities with the bottom less than five (5) feet below the average grade of the ground surface, a clean-out shall be an acceptable observation port.
 - b. For facilities with the bottom five (5) feet or more below the average grade of the ground surface, a manhole or other means acceptable to the Borough shall be provided for access to and monitoring of the facility.
 - c. The number of access points shall be sufficient to flush or clean out the system.
6. Storage and distribution system piping shall be PVC, SLHDPE, or RCP.
7. The stone used for infiltration beds shall be clean washed, uniformly graded coarse aggregate. The void ratio for design shall be assumed to be 40%.
8. Material consistency and placement depths for backfill shall be (at a minimum) per all applicable pipe manufacturer's recommendations.
 - a. Backfill material shall be free of large (not exceeding 6 inches in any dimension) stone, rock, or other objectionable or detritus material.
 - b. Select non-aggregate backfill material should be indigenous to the surrounding soil material for non-vehicular areas.
 - c. Backfill material within vehicular areas shall comply with the requirements of the governing municipal road/street or subdivision and land development ordinance.
 - d. If the design concept includes the migration of runoff through the backfill to reach the infiltration facility, the material shall be well drained, free of excess clay or clay-like materials and generally uniform in gradation.
9. Non-woven geotextiles shall be placed on the sides and top of subsurface infiltration facilities.

10. When located under pavement, the top of the subsurface facility shall be a minimum of three (3) inches below the bottom of pavement subbase. Where located under vegetative cover, the top of the subsurface facility shall be a minimum of twelve (12) inches below the surface elevation or as required to establish vegetation.
11. Subsurface facilities shall be designed to safely convey and/or bypass flows from storms exceeding the design storm.

ARTICLE IV – STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

Section 401. Plan Requirements

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

- A. Appropriate sections from the municipal's Subdivision and Land Development Ordinance, and other applicable local ordinances, shall be followed in preparing the SWM Site Plans. In instances where the Municipality lacks Subdivision and Land Development regulations, the content of SWM Site Plans shall follow the county's Subdivision and Land Development Ordinance.
- B. The Municipality 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 municipality may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the Municipality 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 municipality:

“(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 Manual⁴. 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 Section 301.
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.
10. A justification must be included in the SWM Site Plan if BMPs other than green infrastructure methods and LID practices are proposed to achieve the volume, rate and water quality controls under this Ordinance.

17. A note informing the owner that the Municipality shall have the right of entry for the purposes of inspecting all stormwater conveyance, treatment, or storage facilities.

18. A location map, drawn to a scale of a minimum of one-inch equals two thousand feet (1"= 2,000'), relating the Plan to municipal boundaries, at least two (2) intersections of road centerline or other identifiable landmarks.

19. Existing Features

- A. In areas of disturbance, contours at intervals of one (1) or two (2) feet. In areas of steep slopes (greater than 15 percent) and areas undisturbed, five-foot contour intervals may be used.
- B. The locations of all existing utilities (including on lot disposal systems and wells), sanitary sewers, and water lines and associated easements.
- C. Physical features including flood hazard boundaries, wetlands, sinkholes, streams, lakes, ponds and other waterbodies, existing drainage courses, karst features, areas of native vegetation including trees greater than 6" diameter at breast height, woodlands, other environmentally sensitive areas and the total extent of the upstream area draining through the Development Site.
- D. An overlay showing soil names and boundaries.
- E. All existing man-made features within two hundred (200) feet of the Development Site boundary.

20. Proposed Features

- A. Changes to the land surface and vegetative cover, including final proposed contours at intervals of one (1) or two (2) feet in areas of disturbance. In areas of steep slopes (greater than 15 percent) and areas undisturbed, five-foot contour intervals may be used.
- B. Proposed structures, roads, paved areas, buildings and other impervious and semi-impervious areas, including the size width and rights-of-way.
- C. The location of any proposed on-lot disposal systems, replacement drain field easements, and water supply wells.
- D. A note indicating existing and proposed land use(s).
- E. Plan and profile drawings of all proposed SWM facilities, including BMPs, drainage structures, pipes, open channels, and swales.
- F. Where pervious pavement is to be installed, pavement material and construction specifications shall be included.
- G. The location of all existing and proposed easements, including drainage easements, access easements and riparian corridor easements.
- H. A planting plan shall be provided for all vegetated BMPs in accordance with Section 301.N.

21. Easements and rights-of-way, including

- A. A minimum 20-foot-wide access easement around all Storm Water Management facilities that would provide ingress from the egress to a public right-of-way. Easements shall be provided to allow for the collection and discharge of water, the inspection, maintenance, repair and reconstruction of the drainage facilities, and the passage of machinery for work.
- B. Provisions for permanent access or maintenance easements for all existing and proposed physical Storm Water Management facilities, such as ponds and infiltration structures, as necessary to implement the Operation and Maintenance (O&M) Plan. All such agreements

shall be duly recorded in the Office of the Recorder Deeds and shall constitute a binding permanent covenant upon the property, superior to all liens of record and not subordinate to any easement or restriction that would interfere with its provisions and the implementation thereof.

22. Building setback line and building envelope.
23. Identification of buildings to be demolished and all other features to be removed.
24. Storm water management data and plans designed in accordance with this Ordinance. This information may be provided on a sheet with other data or on separate sheets and need not necessarily be recorded with the final plan. In the case of any dispute in the methodology used in the design of any Storm Water Management Site Plan and/or in the presentation of such information, the Supervisors shall make the final determination on the design criteria, methodology and form of presentation. The following information shall be included:
 - A. All calculations, assumptions, criteria, and references used in the design of the storm water management facilities, the establishment of existing facilities capacities, and the pre and post development discharges.
 - B. All plans and profiles of the proposed storm water management facilities, including the horizontal and vertical location, size, and type of material.
 - C. For all basins, a plotting or tabulation of the storage volumes and discharge curves with corresponding water surface elevations, inflow hydrographs, and outflow hydrographs.
 - D. The guidelines for lot grading within the subdivisions. This information shall identify the direction of storm water runoff flow within each lot and the areas where storm water runoff flows will be concentrated. This information shall be shown by flow arrows or topographical data.
25. A statement identifying the number of square feet of impervious coverage for which storm water management facilities have been designed for each lot.
26. A statement on the plan indicating the granting of a zoning amendment, special exception or variance, if applicable, along with modifications granted by the Board of Supervisors to sections of the Subdivision and Land Development Ordinance or this Ordinance.
27. Where the proposed regulated activity is located partially or wholly within an area prone to frequent flooding (either by impoundment or conveyance) as indicated by the flow boundary and floodway map, profiles, and supporting data, soil type or local historical record; the developer shall supply the location and elevation of all proposed roads, fills, utilities, buildings, storm water management, and erosion control facilities.
 28. Location of all percolation test holes, deep probe holes and proposed well locations.
 29. Easements for on-lot sewage replacement locations.
 30. The location of all trees and/or woodlands on the site and location of trees and/or woodland to be removed and trees and/or woodlands to remain.
 31. A detailed grading plan. The grading plan shall include finished grades and ground floor elevations. This information may be provided on separate sheets.
 32. The location of all Erosion and Sedimentation Control facilities.
 33. Identification of any lands to be dedicated or reserved for public, semi-public or community use.
 34. In the case of a plan which requires access to a highway under the jurisdiction of the Department of Transportation, the inclusion of the following plan note:

“A Highway Occupancy Permit is required pursuant to Section 420 of the Act of June 1, 1945

(P.O. 1242, No. 428), known as the 'State Highway Law', before access to a state highway is permitted. Access to the state highway shall be as authorized by a Highway Occupancy Permit, and the Supervisor's approval of this plan in no way implies that such a permit can be acquired."

35. A complete landscape plan showing the location, size and type of all plant material required by provisions of this Ordinance or any other applicable Borough regulations, including but not limited to all vegetated storm water BMPs. The landscape plan should be provided on separate sheets and must include the signature and seal of the registered landscape architect responsible for preparation of the plan. Native or Naturalized/Noninvasive Vegetation suitable to the soil and hydrologic conditions of the development site shall be used unless otherwise specified in the BMP Manual. The limit of existing, native vegetation to remain shall be delineated on the plan along with proposed construction protection measures.

36. A detailed schedule of inspections during construction, as generally outlined as follows, which is tailored for the site under consideration.

A. The Borough shall inspect all phases of the installation of any temporary or permanent Storm Water Management facilities during construction. The developer shall pay the cost of any such inspection. The developer shall provide at least forty- eight (48) hours' notice prior to the start of construction of any improvements that are subject to inspection. All inspections of completed items shall be requested, in writing, as least seventy-two (72) hours in advance of the inspection time and date.

B. It is generally required that the following phases of site construction have mandatory inspection. This general list of phases may be amended by mutual agreement of the Borough and developer when the site requires special construction procedures. The inspection schedule must be shown on the approved Storm Water Management Site Plan.

C. General Site Construction

1. Upon completion of preliminary site preparation including stripping of the vegetation, stockpiling of topsoil and construction of temporary erosion and sedimentation control devices.
2. Upon completion of rough grading, but prior to placing topsoil, permanent drainage, or other site development improvements and ground covers.
3. During the construction of permanent storm water management and BMP facilities.
4. Upon the final completion of permanent storm water management and BMP facilities, including the establishment of ground covers and plantings.
5. After review of the as-built drawings, required by Section 509, but prior to final release of the financial security for completion of final grading, vegetative controls required by the BMP standards, or other site restoration work.

D. In addition to the above outlined observations, additional observations will be made at the request of the developer for reduction of financial securities. Random observations should be made at the frequency desired by the Borough. At the time of any of the above listed observations, all ongoing construction (i.e., storm drainage, grading, placement of impervious surfaces, changes in ground cover, erosion control, etc.) should also be checked for compliance with the approved plans and the finding reported. Since the above inspections are mandatory, it is recommended that requests for reduction of financial security be submitted to coincide with the above inspections.

37. A note indicating that As-Built Plans will be provided for all storm water management facilities prior to occupancy, or the release of financial security.

38. Operation and Maintenance (O&M) Plan Contents:

A. The O&M Plan shall clearly establish the operation and maintenance necessary to ensure the proper functioning of all temporary and permanent stormwater management facilities and erosion and sedimentation control facilities.

B. The following shall be addressed in the O&M Plan:

1. Description of maintenance requirements, including, but not limited to, the following:
 - a. Regular inspection of the SWM facilities. To assure proper implementation of BMPs, maintenance and care SWM BMPs should be inspected by a qualified person, which may include the landowner, or the owner's designee (including the Municipality for dedicated and owned facilities), according to the following minimum frequencies:
 - i. Annually for the first 5 years.
 - ii. Once every 3 years thereafter.
 - iii. During or immediately after the cessation of a 10-year or greater storm.
 - iv. As specified in the O&M Agreement pursuant to Section 502.
 - b. 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 recommendation for improving performance, if applicable. Inspection reports shall be submitted to the municipality within thirty (30) days following completion of the inspection.
 - c. All pipes, swales and detention facilities shall be kept free of any debris or other obstruction and in original design condition.
 - d. Removal of silt from all permanent structures which trap silt or sediment in order to keep the material from building up in grass waterways, pipes, detention or retention basins, infiltration structures, or BMPs, and thus reducing their capacity to convey or store water.
 - e. Re-establishment of vegetation of scoured areas or areas where vegetation has not been successfully established. Selection of seed mixtures shall be subject to approval by the Municipality.
2. Identification of a responsible individual, corporation, association or other entity for ownership and maintenance of both temporary and permanent stormwater management and erosion and sedimentation control facilities.
3. Establishment of suitable easements for access to all facilities.

Section 402. Plan Submission

Five copies of the SWM Site Plan shall be submitted as follows:

1. Two copies to the municipality.
2. One copy to the municipal engineer.
3. One copy to the County Conservation District.
3. One copy to the County Planning Commission/Office.

An electronic copy of the submission shall be submitted to the Borough and Borough Engineer.

Section 403. Plan Review

- A. SWM Site Plans shall be reviewed by the municipality for consistency with the provisions of this Ordinance.
- B. The Municipality 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 (90 days). If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the municipality.

- C. For any SWM Site Plan that proposes to use any BMPs other than green infrastructure and LID practices to achieve the volume and rate controls required under this Ordinance, the Municipality will not approve the SWM Site Plan unless it determines that green infrastructure and LID practices are not practicable.
- D. If the Municipality disapproves the SWM Site Plan, the Municipality will state the reasons for the disapproval in writing. The Municipality also may approve the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing.

Section 404. Modification of Plans

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

Section 405. Resubmission of Disapproved SWM Site Plans

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

Section 406. Authorization to Construct and Term of Validity

The Municipality's approval of an SWM Site Plan authorizes the regulated activities contained in the SWM Site Plan for a maximum term of validity of 5 years following the date of approval. The Municipality may specify a term of validity shorter than 5 years in the approval for any specific SWM Site Plan. Terms of validity shall commence on the date the Municipality signs the approval for an SWM Site Plan. If an approved SWM Site Plan is not completed according to Section 407 within the term of validity, then the Municipality may consider the SWM Site Plan disapproved and may revoke any and all permits. SWM Site Plans that are considered disapproved by the Municipality shall be resubmitted in accordance with Section 405 of this Ordinance.

Section 407. As-Built Plans, Completion Certificate, and Final Inspection

- A. The developer shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM Site Plan. The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to the Municipality.
- 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 Municipality, the Municipality may conduct a final inspection.

Section 408. Performance Guarantee

The applicant shall provide a financial guarantee to the Borough for the timely installation and proper construction of all stormwater management controls as required by the approved SWM plan and this chapter in accordance with the provisions of §§ 509, 510, and 511 of the Pennsylvania Municipalities Planning Code.

ARTICLE V – OPERATION AND MAINTENANCE

Section 501. Responsibilities of Developers and Landowners

- A. The Municipality shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan. The municipality 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 municipality will accept the facilities. The municipality 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 O&M Plan shall be recorded as a restrictive deed covenant that runs with the land.
- D. The Municipality may take enforcement actions against an owner for any failure to satisfy the provisions of this Article.

Section 502. Operation and Maintenance Agreements

- A. Prior to final approval of the SWM Site Plan, the property owner shall sign and record an Operation and Maintenance (O&M) Agreement (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 Municipality conservation easements to assure access for periodic inspections by the Municipality and maintenance, as necessary.
 - 3. The owner shall keep on file with the Municipality 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 Municipality within ten (10) working days of the change.
- B. The owner is responsible for operation and maintenance (O&M) of the SWM BMPs. If the owner fails to adhere to the O&M Agreement, the Municipality may perform the services required and charge the owner appropriate fees. Nonpayment of fees may result in a lien against the property.

Section 503. Performance Guarantee

For SWM Site Plans that involve subdivision and land development, the applicant shall provide a financial guarantee to the Municipality 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 VI – FEES AND EXPENSES

Section 601. General

The Municipality may include all costs incurred in the review fee charged to an applicant and may incorporate the fee in its annual fee schedule resolution.

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

- A. Administrative/clerical processing.
- B. Review of the SWM Site Plan.
- C. Attendance at meetings.
- D. Inspections.

ARTICLE VII – PROHIBITIONS

Section 701. 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 regulated small MS4 or to enter the surface waters of this Commonwealth is prohibited.
- B. No person shall allow, or cause to allow, discharges into a regulated small 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 a regulated small 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 municipality or DEP determines that any of the discharges identified in Subsection C significantly contribute pollutants to a regulated small MS4 or to the waters of this Commonwealth, the municipality or DEP will notify the responsible person(s) to cease the discharge.

Section 702. Roof Drains and Sump Pumps

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

Section 703. 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 Municipality.

ARTICLE VIII – ENFORCEMENT AND PENALTIES

Section 801. Right-of-Entry

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

Section 802. Inspection

The landowner or the owner's designee (including the Municipality 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 5 years.
2. Once every 3 years thereafter.
3. During or immediately after the cessation of a 10-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 Municipality within 30 days following completion of the inspection.

Section 803. Enforcement

- A. It shall be unlawful for a person to undertake any regulated activity except as provided in an approved SWM Site Plan, unless specifically exempted in Section 302.
- B. It shall be unlawful to violate Section 703 of this Ordinance.
- C. Inspections regarding compliance with the SWM Site Plan are a responsibility of the Municipality.

Section 804. Suspension and Revocation

- A. Any approval or permit issued by the Municipality 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 Municipality when:
 1. The Municipality has inspected and approved the corrections to the violations that caused the suspension.
 2. The Municipality is satisfied that the violation has been corrected.
- C. An approval that has been revoked by the Municipality 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 Municipality may provide a limited time period for the owner to correct the violation. In these cases, the Municipality 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 municipality may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

Section 805. Penalties

- A. Anyone violating the provisions of this Ordinance shall be guilty of a summary offense, and upon conviction, shall be subject to a fine of not more than \$500.00 for each violation, recoverable with costs. Each day that the violation continues shall be a separate offense and penalties shall be cumulative.
- B. In addition, the municipality may institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus, or other appropriate forms of remedy or relief.

Section 806. Appeals

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

ARTICLE IX – REFERENCES

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, Natural Resources Conservation Service. 1986. *Technical Release 55: Urban Hydrology for Small Watersheds*, 2nd Edition. Washington, D.C.
3. Pennsylvania Department of Environmental Protection. No. 363-0300-002 (December 2006), as amended and updated. *Pennsylvania Stormwater Best Management Practices Manual*. Harrisburg, PA.
4. 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.
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. Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.

ARTICLE X – EFFECTIVE DATE

This Ordinance shall become effective immediately.

Duly ordained and enacted this ____day of _____202____, by the Borough Council of the Borough of Myerstown, Lebanon County, Pennsylvania in lawful session duly assembled.

**BOROUGH COUNCIL
BOROUGH OF MYERSTOWN**

ATTEST:

Borough Manager

APPENDIX A

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

(Municipality may revise the form and/or use a different form at any time as deemed necessary by the Municipality)

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

WITNESSETH

WHEREAS, the Landowner is the owner of certain real property as recorded by deed in the land records of _____ County, Pennsylvania, Deed Book _____ at page _____, (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 Municipality (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 Municipality, provides for management of stormwater within the confines of the Property through the use of BMPs; and

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

WHEREAS, the Municipality 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 SWM Site Plan.
2. The Landowner shall operate and maintain the BMPs as shown on the SWM Site Plan 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 Municipality, 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 Municipality 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 Municipality 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 Municipality 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 Municipality.
5. In the event the Municipality, 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 Municipality for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the Municipality.
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 Municipality 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 Municipality.
8. The Municipality 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 Borough of Myerstown:

 Name:
 Title: (Vice) President Borough of Myerstown
 Council

Date:

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)

For the Landowner:

ATTEST:

_____ (City, Borough, Township)

County of _____, Pennsylvania

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 _____, 20____, has acknowledged the same before me in my said county and state.

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

NOTARY PUBLIC

(SEAL)

APPENDIX B

Runoff Coefficients “C” for Rational Method

Soil Group	A			B			C			D		
	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Slope												
Land Use												
Cultivated												
Winter Conditions	0.14	0.23	0.34	0.21	0.32	0.41	0.27	0.37	0.48	0.34	0.45	0.56
Summer Conditions	0.10	0.16	0.22	0.14	0.20	0.28	0.19	0.26	0.33	0.23	0.29	0.38
Fallowed Fields												
Poor Conditions	0.12	0.19	0.28	0.17	0.25	0.34	0.23	0.33	0.40	0.27	0.35	0.45
Good Conditions	0.08	0.13	0.16	0.11	0.15	0.21	0.14	0.19	0.26	0.18	0.23	0.31
Forest/Woodland	0.08	0.11	0.14	0.10	0.14	0.18	0.12	0.16	0.20	0.15	0.20	0.25
Grass Areas												
Good Conditions	0.10	0.16	0.20	0.14	0.19	0.26	0.18	0.22	0.30	0.21	0.25	0.35
Average Conditions	0.12	0.18	0.22	0.16	0.21	0.28	0.20	0.25	0.34	0.24	0.29	0.41
Poor Conditions	0.14	0.21	0.30	0.18	0.28	0.37	0.25	0.35	0.44	0.30	0.40	0.50
Impervious Areas	0.90	0.91	0.92	0.91	0.92	0.93	0.92	0.93	0.94	0.93	0.94	0.95
Weighted Residential												
Lot Size 1/8 acre	0.29	0.33	0.36	0.31	0.35	0.40	0.34	0.38	0.44	0.36	0.41	0.48
Lot Size 1/4 acre	0.26	0.30	0.34	0.29	0.33	0.38	0.32	0.36	0.42	0.34	0.38	0.46
Lot Size 1/3 acre	0.24	0.28	0.31	0.26	0.32	0.35	0.29	0.35	0.40	0.32	0.36	0.45
Lot Size 1/2 acre	0.21	0.25	0.28	0.24	0.27	0.32	0.27	0.31	0.37	0.30	0.34	0.43
Lot Size 1 acre	0.18	0.23	0.26	0.21	0.24	0.30	0.24	0.29	0.36	0.28	0.32	0.41

APPENDIX C

Appendix C – Runoff Curve Numbers “CN” for SCS Method

Soil Group	A			B			C			D		
Slope	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Land Use												
Cultivated												
Winter Conditions	48	60	65	62	73	73	68	78	79	77	81	88
Summer Conditions	35	51	61	48	55	70	57	65	77	64	69	80
Fallowed Fields												
Poor Conditions	45	54	76	56	63	85	64	74	90	69	77	93
Good Conditions	30	44	74	43	48	83	48	54	88	56	60	90
Forest/Woodland												
	30	30	40	42	46	55	45	50	70	50	56	77
Grass Areas												
Good Conditions	35	39	51	48	54	61	56	59	74	62	63	80
Average Conditions	45	49	53	52	55	69	60	63	79	65	69	84
Poor Conditions	48	55	68	56	67	79	66	74	86	73	81	89
Impervious Areas												
	96	97	98	96	97	98	96	97	98	96	97	98
Weighted Residential												
Lot Size 1/8 acre	71	75	77	74	76	85	78	80	90	81	83	92
Lot Size 1/4 acre	61	62	67	66	69	75	67	69	83	75	78	87
Lot Size 1/3 acre	57	59	65	64	66	72	65	66	81	74	77	86
Lot Size 1/2 acre	54	57	63	62	64	70	63	65	80	72	76	85
Lot Size 1 acre	51	55	62	61	63	68	61	64	79	71	75	84