LOWER ALLEN TOWNSHIP

ACT 167 STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NO. 2022-02

LOWER ALLEN TOWNSHIP
CUMBERLAND COUNTY, PENNSYLVANIA

This Ordinance amends the Code of the Township of Lower Allen by deleting existing Chapter 184, Stormwater Management, and replacing it with this new Chapter 184.

Adopted by the Lower Allen Township Board of Commissioners
at a Public Meeting Held on August 22, 2022

TABLE OF CONTENTS

Article I - General Provisions

Section 184-1 Short Title
Section 184-2 Statement of Findings
Section 184-3 Purpose
Section 184-4 Statutory Authority
Section 184-5 Applicability
Section 184-6 Repealer
Section 184-7 Severability
Section 184-8 Compatibility with Other Requirements
Section 184-9 Erroneous Permit
Section 184-10 Waivers

Article II - Definitions

Section 184-11 Word usage and definition of terms

Article III - Stormwater Management Standards

Section 184-12 General Requirements
Section 184-13 Exemptions
Section 184-14 Volume Controls
Section 184-15 Rate Controls
Section 184-16 Riparian Buffers
Section 184-17 Stormwater Management Districts
Section 184-18 Stormwater Management District Implementation Provisions
Section 184-19 Design Criteria for Stormwater Management Facilities
Section 184-20 Calculation Methodology
Section 184-21 Erosion and Sediment Control Requirements

Article IV - Stormwater Management Site Plan Requirements

Section 184-22 Plan Requirements
Section 184-23 Plan Submission
Section 184-24 Plan Review
Section 184-25 Modification of Plans
Section 184-26 Resubmission of Disapproved Stormwater Management Site Plans
Section 184-27 Recording of Documents
Section 184-28 Authorization to Construct and Term of Validity
Section 184-29 As-Built Plans

Article V - Operation and Maintenance

Section 184-30 Schedule of Inspections
Section 184-31 Right of Entry
Section 184-32 Responsibilities of Developers and Landowners
Section 184-33 Municipal Stormwater Maintenance Fund

TABLE OF CONTENTS

Article I - General Provisions

Section 184-1	Short Title
Section 184-2	Statement of Findings
Section 184-3	Purpose
Section 184-4	Statutory Authority
Section 184-5	Applicability
Section 184-6	Repealer
Section 184-7	Severability
Section 184-8	Compatibility with Other Requirements
Section 184-9	Erroneous Permit
Section 184-10	Waivers

Article II - Definitions

Section 184-11	Word usage and definition of terms

Article III - Stormwater Management Standards

Section 184-12	General Requirements
Section 184-13	Exemptions
Section 184-14	Volume Controls
Section 184-15	Rate Controls
Section 184-16	Riparian Buffers
Section 184-17	Stormwater Management Districts
Section 184-18	Stormwater Management District Implementation Provisions
Section 184-19	Design Criteria for Stormwater Management Facilities
Section 184-20	Calculation Methodology
Section 184-21	Erosion and Sediment Control Requirements

Article IV - Stormwater Management Site Plan Requirements

Section 184-22	Plan Requirements
Section 184-23	Plan Submission
Section 184-24	Plan Review
Section 184-25	Modification of Plans
Section 184-26	Resubmission of Disapproved Stormwater Management Site Plans
Section 184-27	Recording of Documents
Section 184-28	Authorization to Construct and Term of Validity
Section 184-29	As-Built Plans

Article V - Operation and Maintenance

Section 184-30	Schedule of Inspections
Section 184-31	Right of Entry
Section 184-32	Responsibilities of Developers and Landowners
Section 184-33	Municipal Stormwater Maintenance Fund
Section 184-34	Post-Construction Maintenance and Monitoring Inspection
Section 184-35	Operation and Maintenance Agreements
Section 184-36	Performance Guarantee

Article VI - Fees and Expenses

Section 184-37	General
Section 184-38	Municipality SWM Site Plan Review Fee
Section 184-39	Expenses Covered by Fees
Section 184-40	Additional Costs

Article VII - Prohibitions

Section 184-41	Prohibited Discharges and Connections
Section 184-42	Roof Drains and Sump Pumps
Section 184-43	Alteration of SWM BMPs

Article VIII - Enforcement and Penalties

Section 184-44	Right-of-Entry
Section 184-45	Inspection
Section 184-46	Enforcement
Section 184-47	Suspension and Revocation
Section 184-48	Public Nuisances
Section 184-49	Enforcement Generally
Section 184-50	Penalties
Section 184-51	Appeals

Article IX - References

Appendix A: Stormwater Management Design Criteria

Appendix B: Cedar Run Watershed Release Rate Maps

ARTICLE I - GENERAL PROVISIONS

Section 184-1. Short Title

This Ordinance shall be known and may be cited as the Lower Allen Township Act 167 Stormwater Management Ordinance."

Section 184-2. 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 flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases non-point source pollution of water resources.

B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety and welfare and the protection of people of the Commonwealth, their resources and the environment.

C. Stormwater is an important water resource, which provides groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.

D. 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.

F. Non-stormwater discharges to storm sewer systems can contribute to pollution of waters of the Commonwealth.

Section 184-3. 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 184-2 of this Ordinance, through provisions designed to:

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

B. Preserve the natural drainage systems as much as possible.

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.

Section 184-4. Statutory Authority

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.

Hereafter, all earthmoving activities and land development within this Township, including without limitation, the location, design and construction within the watershed of storm water management systems, obstructions, flood control projects, subdivisions and major land developments, highways and transportation facilities, facilities for the provision of public utility services and facilities owned or financed in whole or in part by funds from the Commonwealth, shall be in full compliance with the requirements of this Ordinance and shall be conducted in a manner consistent therewith. Any violation of the Cumberland County Storm Water Management Plan shall be considered a violation of this ordinance.

Section 184-5. Applicability

All regulated activities and all activities that may affect stormwater runoff, including land development and earth disturbance activity, are subject to regulation by this Ordinance as is reasonably necessary to prevent injury to health, safety or other property. The following activities are defined as "regulated activities" and shall be subject to the provisions of this Ordinance (unless otherwise exempted by Section 184-13):

1. Land development and/or redevelopment
2. Subdivision
3. Construction of new or additional impervious or semi-pervious surfaces (driveways, parking lots, etc.)
4. Construction of structures or additions to existing structures
5. Diversion or piping of any natural or man-made stream channel
6. Installation of stormwater management facilities or appurtenances thereto
7. Forest management/timber operations that include logging road construction and timber harvesting
8. Earth disturbance

Section 184-6. 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 184-7. 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 184-8. 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 184-9. 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 184-10. 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 184-10, 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.

ARTICLE II - DEFINITIONS

184-11. Word usage and definition of terms

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 "person" includes and individual, firm, association, organization, partnership, trust company, corporation, or any other similar entity.

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

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

Agricultural Activity - The work of producing crops, including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops, pasturing and raising of livestock, and installation of conservation measures. Construction of new buildings or impervious area is not considered an Agricultural Activity.

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

Applicant - A landowner, developer or other person who has filed an application 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.

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.

The Cumberland County Conservation District (CCCD).

Culvert - A structure with appurtenant works which carries a stream under or through an embankment or fill.

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

Detention Volume - The volume of runoff that is captured and then infiltrated, evaporated, reused, or released into the waters of this 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 land clearing and grubbing, grading, excavations, embankments, land development, agricultural plowing or tilling, operation of animal heavy use areas, timber harvesting activities, road maintenance activities, oil and gas activities, well drilling, mineral extraction, 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) – Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSG's (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The 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. Parking areas and driveways constructed of compacted aggregate will be considered an Impervious Surface.

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 of the following activities: (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, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure, or (b) the division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (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 – Lower Allen Township, Cumberland County, Pennsylvania.

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

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

PennDOT – The Pennsylvania Department of Transportation.

Pervious Area - Any area not defined as impervious.

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

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

Regulated Activities – Shall include, but not be limited to any Earth Disturbance Activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff as specified in Section 184-5.

Regulated Earth Disturbance Activity - Activity involving Earth Disturbance subject to regulation under 25 Pa. Code Chapters 92, Chapter 102, or the Clean Streams Law.

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

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

Riparian Buffer – A permanent area of trees and shrubs located adjacent to streams, lakes, ponds, and wetlands.
Runoff - Any part of precipitation that flows over the land.

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

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

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

Stormwater Management Facility - Any structure, natural or man-made, that, 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, municipality, or other entity indicating how storm water 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.

USDA - United States Department of Agriculture.

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

Watershed - Region or area drained by a river, watercourse, or other surface water of the Commonwealth.

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

ARTICLE III - STORMWATER MANAGEMENT STANDARDS

184-12. General Requirements

A. For all Regulated Activities, unless preparation of a SWM Site Plan is specifically exempted in Section 184-13:

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 a SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.

B. SWM Site Plans approved by the Municipality, in accordance with Section 184-23, shall be on site throughout the duration of the Regulated Activity.

C. The Municipality, after consultation with DEP, may 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 the Pennsylvania Code Title 25 and the Clean Streams Law. Various BMPs and their design standards are listed in the *Erosion and Sediment Pollution Control Program Manual* (E&S Manual[4]), Commonwealth of Pennsylvania, Department of Environmental Protection, No. 363-2134-008 (2000), as amended and updated.

E. Impervious areas:

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

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

3. For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this Ordinance; except that the volume controls in 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.

F. Stormwater flows/direct discharges onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written approval of the adjacent downstream property owner(s). Such stormwater flows shall be subject to the requirements of this Ordinance.

G. All regulated activities shall include such measures as necessary to:

1. Protect health, safety, and property.

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

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

b. Maintain or extend riparian buffers.

c. Avoid erosive flow conditions in natural flow pathways.

d. Minimize thermal impacts to waters of this Commonwealth.

e. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.

3. Incorporate methods described in the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual[3]). 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.

H. The design of all facilities over karst shall include an evaluation of measures to minimize adverse effects.

I. Infiltration BMPs should be spread out, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Ordinance.

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

K. The design storm precipitation depth estimates to be used in the analysis of peak rates of discharge should be obtained from the Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland, 20910. NOAA's Atlas 14 can be accessed at Internet address: http://hdsc.nws.noaa.gov/hdsc/pfds/.

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

M. Various BMPs and their design standards are listed in the BMP Manual[3]

184-13. Exemptions

A. Regulated activities that result in cumulative earth disturbances less than one acre and cumulative impervious surface less than 1000 Sq. Feet are exempt from the requirements in Section 184-14, Section 184-15, and Article IV 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 184-12. 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.

F. Regulated Activities meeting the following parcel size and square footage requirements are exempt from the peak rate control requirements, but not the volume control or SWM Site Plan preparation requirements of this Ordinance. These criteria shall apply to the total proposed development even if development is to take place in phases. November 12, 2002 shall be the starting point from which to consider tracts as "parent tracts" in which future subdivisions and respective impervious area computations shall be cumulatively considered.

New Impervious Area Exemption Criteria for Peak Rate Control

Total Parcel Size (acres)	Total Parcel Size (square feet)	New Impervious Area Exemption (square feet)
<0.25	<10,890	1000
.25 – 0.5	10,890 - 21,780	2,500
>0.5	>21,780	5,000

184-14. 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 Manual[3]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. 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 Manual[3]) 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 (1) acre or for projects that require design of stormwater detention or rate control facilities. For new impervious surfaces:

1. Stormwater facilities shall be sized to capture at least the first two inches (2") of runoff from all new impervious surfaces.

2. At least the first one inch (1.0") 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 one-half inch (0.5") of the permanently removed runoff shall be infiltrated.

4. This method is exempt from the requirements of Section 184-15, Rate Controls.

184-15. Rate Controls

A. Areas not covered by the Cedar Run Watershed or Yellow Breeches Creek Lower Watershed Release Rate Maps, or other approved Act 167 Stormwater Management Plan:

Post-development discharge rates shall not exceed the predevelopment discharge rates for the 1-, 2-, 10-, and 100-year storm events. If it is shown that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the pre-development analysis for 1-, 2-, 10-, and 100-year, 24-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

B. Areas covered by the Cedar Run Watershed or Yellow Breeches Creek Lower Watershed Release Rate Maps (see Appendix B), or other approved Act 167 Stormwater Management Plan:

For the 1-, 2-, 10-, and 100-year 24-hour storm events, the post-development peak discharge rates will follow the applicable approved release rate maps (see Appendix B). For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the predevelopment discharge rates.

184-16. 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 a 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 drain fields 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.

184-17. Stormwater Management Districts

A. The Municipality has been divided into two (2) stormwater management districts as shown on the Cedar Run Watershed and Yellow Breeches Creek Lower Watershed Release Rate Maps in Appendix B. All areas of the Municipality not specifically identified on the Watershed Release Rate Map are assumed to be in the 100% Release Rate District.

B. Standards for managing runoff from each subarea for the 1, 2, 10 and 100-year design storms are shown below. Development sites located in each of the districts must control post-development runoff rates to pre-development runoff rates for the design storms as follows:

DISTRICT	CONTROL CRITERIA
100%	Post-development peak discharge for all design storms must be no greater than pre-development peak discharges.
75%	Post-development peak discharge for all design storms must be no greater than 75

	percent of the pre-development peak discharges.

184-18. Stormwater Management District Implementation Provisions (Performance Standards)

A. General - Post-development rates of runoff from any regulated activity shall not exceed the peak release rates of runoff prior to development for the design storms specified on the Stormwater Runoff Peak Rate Districts Map, Ordinance Appendix B and Section 184-15, of the Ordinance.

B. District Boundaries - The boundaries of the Stormwater Management Districts are shown on the Cedar Run Watershed and Yellow Breeches Creek Lower Watershed Release Rate Maps, which are available for inspection at the municipal office. Copies of the Maps at reduced scale are included in the Ordinance Appendix B.

C. Sites Located in More Than 1 District - For a proposed development site located within two or more release rate districts, the peak discharge rate from any subarea shall be the pre-development peak discharge for that subarea multiplied by the applicable release rate. The calculated peak discharges shall apply regardless of whether the grading plan changes the drainage area by subarea. An exception to the above may be granted if discharges from multiple subareas re-combine in proximity to the site. In this case, peak discharge in any direction may be a 100% release rate provided that the overall site discharge meets the weighted average release rate.

D. Off-Site Areas - Off-site Areas that drain through a proposed development site are not subject to release rate criteria when determining allowable peak runoff rates. However, on-site drainage facilities shall be designed to safely convey off-site flows through the development site.

E. Site Areas - Where the site area to be impacted by a proposed development activity differs significantly from the total site area, only the proposed impact area shall be subject to the release rate criteria.

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

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

2. Natural or man-made channels or swales must be able to convey the increased 25-year return period runoff without creating any hazard to persons or property.

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

G. Regional Detention Alternatives - For certain areas, it may be more cost-effective to provide one control facility for more than one development site than to provide an individual control facility for each development site. The initiative and funding for any regional runoff control alternatives are the responsibility of prospective developers. The design of any regional control basins must incorporate reasonable development of the entire upstream watershed. The peak outflow of a regional basin would be determined on a case-by-case basis using the hydrologic model of the watershed consistent with protection of the downstream watershed areas. "Hydrologic model" refers to the calibrated model as developed for the Stormwater Management Plan.

H. Waiver of Peak Rate Control Requirement – For certain development sites in close proximity to stream channels, the Municipality may consider a waiver of the peak rate control requirement, upon recommendation of the Municipal Engineer. Developer is responsible to demonstrate "no harm" by providing engineering analysis, in accordance with the following:

1. Developer must demonstrate that discharge without peak rate control will improve drainage conditions by draining the development site prior to peak stream flows from the upstream drainage area.

2. Developer must demonstrate that all drainage facilities downstream from the site have adequate capacity to safely convey the undetained increased peak flows for the storm events listed in Section 184-14. This analysis may be required for any drainage facility between the development site and the discharge point at the Yellow Breeches Creek.

Approval of a detention waiver shall not relieve the developer from meeting the Volume Control (Section 184-13) requirements.

184-19. Design Criteria for Stormwater Management Facilities

A. Detention and Retention Facilities
   1. Any stormwater management facility or BMP designed to store runoff and requiring a berm or earthen embankment required or regulated by this ordinance shall be designed to provide an emergency spillway to handle flow up to and including the 100-year post-development conditions.
   2. The height of the embankment must be set as to provide a minimum 1.0 foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year post-development inflow.
   3. Emergency spillways must be designed to pass the 100-year post-development flow assuming that all discharge orifices are completely clogged, and that any principal spillway grate is 50% clogged.
   4. Should any stormwater management facility require a dam safety permit under DEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety which may be required to pass storms larger than 100-year event.

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

C. Storm sewers must be able to convey post-development runoff from a 25-year design storm without surcharging inlets.

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

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

F. Storm drainage facilities shall be required as necessary to:
   1. Permit the unimpeded flow of natural water courses;
   2. Ensure the drainage of all low points along the line of streets and other applicable areas;
   3. Intercept, retain or detain surface water runoff in a manner reasonably related to the extent and grade of the area drained;
   4. Provide positive drainage away from on-site sewage disposal facilities and buildings.

G. General storm drainage facility design requirements:

   1. Design of storm drainage facilities shall generally conform with PennDOT Design Manual Part 2, Chapter 10.

   2. The minimum design criteria shall be a 10-year storm with a five-minute duration. Higher frequency conditions may be required by the Municipality where an overflow would endanger public or private properties.

3. The complete drainage system for the subdivision or land development shall be incorporated into the design. If the subdivision or land development is to be developed in phases, an overall stormwater facilities plan for the entire site shall be submitted with the Preliminary Plan.

4. Developer shall be responsible for obtaining any permits required by State or Federal agencies for construction of the facilities or points of discharge. Copies of hydrologic or other studies requested by other agencies shall be provided by the developer.

5. The existing points of drainage discharge, whether natural or constructed, shall not be altered without written approval from the affected property owner(s).

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

7. Facilities for storm drainage shall be designed to handle the anticipated peak discharge from the property being subdivided or developed as well to handle the anticipated increase in runoff that will occur when all upstream property is fully developed.

8. Where a watercourse runs across or through a subdivision or land development, a drainage easement, which conforms with the line of such watercourse, shall be provided at such a width as will be adequate to preserve the unimpeded flow of natural drainage. Provisions for reasonable access for maintenance of these facilities shall be provided.

9. All drainage structures that are located within right-of-way of State highway agencies shall be approved by the applicable agency.

10. All streets shall be designed so that surface water is discharged from their cartways and rights-of-way. The minimum street cross-slope shall be two percent.

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

12. Street drainage shall not be permitted to cross intersections or the centerline of a road.

13. Storm water roof drains, sump pump discharge drains and other stormwater drainage facilities or groundwater discharges shall not:
    1. Discharge directly over a sidewalk.
    2. Discharge within five feet of any lot line.
    3. Cross a lot line.
    4. Be connected to streets, sanitary or storm sewers or roadside ditches, to promote overland flow and infiltration of stormwater where advantageous to do so. When it is more advantageous to connect directly to streets or storm sewers, then it shall be permitted on a case-by-case basis by the Municipality.

14. Stabilized outlets shall be provided for footer drains, floor drains, downspouts, and other point discharges.

15. No person, corporation or other entity shall block, impede the flow of, or alter, construct any structure, or deposit any material or thing, or commit any act which will affect normal or flood flow in any stream or watercourse without having obtained prior approval from applicable Local, State and Federal agencies.

16. All street inlets shall be the combination inlet and hood type in compliance with PennDOT Standard Construction Drawings for Type C Special Inlet. The designation of Special means a 10-inch curb reveal which requires the road surface to be sloped into the inlet for additional effectiveness. Inlets shall be constructed of reinforced cast-in-place concrete or precast concrete with separate bottom and top units.

17. All storm drainage system manholes shall be reinforced cast-in-place concrete or precast concrete in compliance with PennDOT Standard Construction Drawings.

18. The minimum pipe size shall be 18-inch diameter for all storm drainage facilities. 12-inch diameter pipes shall be permitted in privately-owned systems on private property where no upstream drainage is contributed. All pipes shall meet PennDOT Specifications. A headwall or end section shall be provided at the start and end of each pipe run.

19. All springs and sump pump discharges shall be collected by piping so as not to flow in the streets.

20. Underdrain shall be required at all low points on the street profile. The underdrain system shall be designed and installed in accordance with PennDOT Specifications. Combination Storm Sewer/Underdrain shall be permitted, where applicable.

21. Pavement Base Drain shall be provided along each side of each street, in accordance with PennDOT Standards. In locations where storm sewer is proposed, Combination Storm Sewer/Underdrain shall be permitted.

H. Storm drainage system design standards:

1. Minimum slope of smooth-interior storm drainage pipes shall be 0.35 percent. Minimum slope for corrugated pipes shall be 0.50 percent.

2. Pipe runs between structures shall not exceed 400 feet.

3. Pipe runs shall be designed to align generally parallel to street centerlines, with perpendicular crossings as needed. Diagonal crossings should be avoided, to minimize conflicts with other underground facilities.

4. Pipes shall be designed with a minimum of 12 inches of cover between top of pipe and subgrade elevation for pipes within paved areas. Pipes outside paved areas shall have a minimum of 12 inches of cover between top of pipe and finished ground elevation.

5. Inlet spacing shall be designed to limit spread of water on streets in accordance with PennDOT criteria.

6. Inlets, junction boxes or manholes shall be provided at all locations of pipe size change or direction change, whether horizontal or vertical.

7. Frames, covers and grates shall be provided in accordance with PennDOT standards. All inlets within paved areas shall have bicycle safe grates.

8. Pipe materials shall be one of the following:
    1. High-density polyethylene.
    2. Reinforced concrete.
    3. Aluminized steel.
    4. Galvanized steel.

9. Pipe trench excavation and backfill shall be in accordance with PennDOT Standards.

I. Storm drainage system design and construction shall be in conformance with standards and procedures that may be adopted by the Municipality from time to time. Where adopted, such standards shall take precedence over PennDOT standards that are referenced herein.

184-20. Calculation Methodology

Stormwater runoff from all development sites shall be calculated using either the rational method or a soil-cover-complex methodology.

A. Any stormwater runoff calculations involving drainage areas greater than 200 acres, including on- and off-site areas, shall use generally accepted calculation technique that is based on the NRCS soil cover complex method. Table 184-1 summarizes acceptable computation methods. It is assumed that all methods will be selected by the design professional based on the individual limitations and suitability of each method for a particular site.

The Municipality may approve the use of the Rational Method to estimate peak discharges from drainage areas that contain less than 200 acres.

TABLE 184-1

ACCEPTABLE COMPUTATION METHODOLOGIES FOR STORMWATER MANAGEMENT PLANS

METHOD	METHOD DEVELOPED BY	APPLICABILITY
TR-20 or commercial Package Based on TR-20	USDA - NRCS	When use of full model is desirable or necessary
Tr-55 or Commercial Package Based on TR-55	USDA - NRCS	Applicable for plans within the models limitations
HEC-HMS	U.S. Army Corps of Eng.	When use of full model is desirable or necessary
PSRM	Penn State Univ.	When use of full model is desirable or necessary
Rational Method or commercial package based on Rational Method	Emil Kuiching (1889)	For sites less than 200 acres
Other Methods	Various	As approved by the municipal engineer

B. All calculations consistent with this Ordinance using the soil cover complex method shall use the appropriate design rainfall depths for the various return period storms presented in Table A-1 in Appendix A of this Ordinance. If a hydrologic computer model such as PSRM or HEC-1 is used for stormwater runoff calculations, then the duration of rainfall shall be 24 hours. The NRCS 'S' curve shall be used for the rainfall distribution.

C. For the purposes of predevelopment flow rate determination, undeveloped land shall be considered as "meadow" good condition, unless the natural ground cover generates a lower curve number or Rational 'C' value (i.e., forest).

D. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration for overland flow and return periods from the Design Storm Curves from PennDOT Design Rainfall Curves (1986). Times of concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watersheds, NRCS, TR-55 (as amended or replaced from time to time by NRCS). Times of concentration for channel and pipe flow shall be computed using Manning's equation.

E. Runoff Curve Numbers (CN) for both existing and proposed conditions to be used in the soil cover complex method shall be obtained from Table A-2 in Appendix A of this Ordinance.

F. Runoff coefficients (c) for both existing and proposed conditions for use in the Rational method shall be obtained from Table A-3 in Appendix A of this Ordinance.

G. Where uniform flow is anticipated, the Manning equation shall be used for hydraulic computations, and to determine the capacity of open channels, pipes, and storm sewers. Values for Manning's roughness coefficient (n) shall be consistent with Table A-4 in Appendix A of the Ordinance.

H. Outlet structures for stormwater management facilities shall be designed to meet the performance standards of this Ordinance using any generally accepted hydraulic analysis technique or method.

I. The design of any stormwater detention facilities intended to meet the performance standards of this Ordinance shall be verified by routing the design storm hydrograph through these facilities using the Storage-Indication Method. For drainage areas greater than 20 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. The municipality may approve the use of any generally accepted full hydrograph approximation technique that shall use a total runoff volume that is consistent with the volume from a method that produces a full hydrograph.

J. The Municipality has the authority to require that computed existing runoff rates be reconciled with field observations and conditions. If the designer can substantiate through actual physical calibration that more appropriate runoff and time-of-concentration values should be utilized at a particular site, then appropriate variations may be made upon review and recommendations of the Municipal Engineer. Calibration shall require detailed gauge and rainfall data for the particular site in question.

K. An Impervious Area Flash (IAF) analysis shall be conducted for all sites. The analysis requires that the watershed impervious area be modeled without the pervious areas. The time of concentration should also be determined from the impervious areas only. If the IAF analysis results in a higher post-development peak runoff rate, this higher value must be used for the final design/comparison.

184-21. Erosion and Sediment Control Requirements

A. Whenever the vegetation and topography are to be disturbed, such activity must be in conformance with Chapter 102, Title 25, Rules and Regulations, Part I, Commonwealth of Pennsylvania, Department of Environmental Protection, Subpart C, protection of Natural Resources, Article II, Water Resources, Chapter 102, "Erosion Control," and in accordance with the Cumberland County Conservation District (CCCD) and the standards and specifications of the Municipality.

B. No regulated activities shall commence until an Erosion and Sediment Control Plan consistent with this Ordinance is approved by the Municipality.

C. Evidence of any permits required by DEP or CCCD must be provided to the Municipality.

D. Plan review, approval and permitting functions under this Section may be delegated by the Municipality to another entity, if such agreement is entered into by the Municipality.

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

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

F. A copy of the approved Erosion and Sediment Control Plan and any required permits shall be available at the project site at all times.

G. Any permanent stormwater detention or retention facility that also functions as a sediment control facility during construction must be designed to meet the permanent peak rate release design requirements for the 10-year storm event during the construction period. Documentation of this design shall be included in the Stormwater Management Report. This requirement is in addition to design parameters that may be required by other agencies.

ARTICLE IV - STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

184-22. Plan Requirements

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

A. Appropriate sections from the Municipal Subdivision and Land Development Ordinance, and other applicable local ordinances, shall be followed in preparing the SWM Site Plans.

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 and maintenance easements as determined necessary by the Municipality for all physical SWM BMPs, such as ponds and infiltration structures, as necessary to implement the Operation and Maintenance (O&M) plan discussed in Section 184-22 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. 2022-XX"

E. The SWM Site Plan shall provide the following information:

1. The overall stormwater management concept for the project.

2. A determination of site conditions in accordance with the BMP Manual[3]. 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 measures have been taken to meet the requirements of this Ordinance, including the recommendations and general requirements in Section 184-12.

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 adjacent 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 Operation and Maintenance (O&M) plan for all proposed physical stormwater management facilities. This plan shall address long-term ownership and responsibilities for operation and maintenance 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 to achieve the volume, rate, and water quality controls under this Ordinance.

11. Plans shall be no larger than 18-inch x 24-inch and shall be prepared in a form that meets the requirements for recording at the offices of the Recorder of Deeds of Cumberland County. The contents of the plan(s) shall include, but not be limited to:

    1. The location of the project relative to highways, municipalities, or other identifiable landmarks.
    2. Existing contours at intervals of two (2) feet. In areas of steep slopes (greater than 15 percent), five-foot contour intervals may be used. Spot elevations at significant points are required.
    3. Existing streams, lakes, ponds, or other bodies of water within the project area.
    4. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, areas of natural vegetation to be preserved, and the total extent of the upstream area draining through the site.
    5. The locations of all existing and proposed utilities, sanitary sewers, and water lines.
    6. An overlay showing soil names and boundaries.
    7. Proposed changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added.
    8. Proposed structures, roads, paved areas, and buildings.
    9. Final contours at intervals at two (2) feet. In areas of steep slopes (greater than 15 percent), five-foot contour intervals may be used. Spot elevations at significant points are required.
    10. The name of the development, the name and address of the owner of the property, and the name of the individual or firm preparing the plan.
    11. The date of submission, and any subsequent revision dates.
    12. A graphic and written scale of one (1) inch equals no more than fifty (50) feet.
    13. A North arrow.
    14. The total tract boundary and size with distances marked to the nearest foot and bearings to the nearest degree.

15. Existing and proposed land use(s).
16. A key map showing all existing man-made features beyond the property boundary that would be affected by the project.
17. Plan and profile of all pipes, swales, and open channels.
18. Overland drainage paths.
19. Stormwater management easements, a minimum of twenty feet in width, around all stormwater management facilities and permanent BMPs.
20. A twenty-foot-wide access easement to provide access for inspection and maintenance of all stormwater management facilities and permanent BMPs.
21. A note on the plan indicating the location and responsibility for maintenance of stormwater management facilities that would be located off-site. All off-site facilities shall meet the performance standards and design criteria specified in this Ordinance.
22. A construction detail of any improvements to sinkholes.
23. A statement, signed by the landowner, acknowledging the stormwater management facilities and BMPs to be permanent fixtures that can be altered or removed only after approval of a revised plan by the municipality.
24. The following signature block for the Design Engineer:
    "(Design Engineer), on this date (date of signature), have reviewed and hereby certify that the Drainage Plan meets all design standards and criteria of the Lower Allen Township Act 167 Stormwater Management Ordinance."
25. An Erosion and Sediment Control Plan in accordance with Section 184-19.
26. A BMP Operations and Maintenance Plan in accordance with Section 184-30.
27. All stormwater management facilities and permanent BMPs, including construction details.
28. When infiltration methods are proposed, the locations of existing and proposed on-lot sewage disposal systems and infiltration areas and water supply wells.

F. Supplemental Information

1. A written description of the following information shall be submitted.

    1. The overall stormwater management concept for the project.
    2. Stormwater runoff computations as specified in this Ordinance.
    3. Stormwater management techniques to be applied both during and after development.

2. A geologic assessment of the effects of runoff on sinkholes as specified in this Ordinance.

3. A Declaration of Adequacy and Highway Occupancy Permit from the PennDOT when utilization of a PennDOT storm drainage system is proposed.

4. All calculations, assumptions, and criteria used in the design of the stormwater management facilities and BMPs.

184-23. Plan Submission

For all activities regulated by this Ordinance, the steps below shall be followed for submission. For any activities that require a DEP Joint Permit Application and regulated under Chapter 105 (Dam Safety and Waterway Management) or Chapter 106 (Floodplain Management) of DEP's Rules and Regulations, require a PADOT Highway Occupancy Permit, or require any other permit under applicable state or federal regulations, the permit(s) shall be part of the plan.

A. The SWM Site Plan and application shall be submitted by the Developer as part of the submission for the Regulated Activity.

B. If the SWM Site Plan is incorporated in plans submitted as a Subdivision or Land Development (SLD) Plan, the SWM Site Plan may be reviewed and approved as part of those plans.

C. If the SWM Site Plan is submitted independently for a Regulated Activity, two (2) complete copies of the SWM Site Plan must be submitted.

184-22. Plan Review

A. The Municipal Engineer shall review the SWM Site Plan for consistency with the adopted Cumberland County Act 167 Stormwater Management Plan and this Ordinance. The Municipality shall require receipt of a complete plan, as specified in this Ordinance.

B. The Municipal Engineer shall review the SWM Site Plan for any submission or land development in accordance with the municipal subdivision and land development ordinance provisions not superseded by this Ordinance.

C. 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.

D. 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.

C. Should the SWM Site Plan be determined to be inconsistent with the Stormwater Management Ordinance, the Municipal Engineer will forward a disapproval letter to the Developer with a copy to the Township Manager citing the reason(s) for the disapproval. Any disapproved SWM Site Plans may be revised by the Developer and resubmitted consistent with this Ordinance. The Municipality also may approve the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing.

D. In lieu of a disapproval letter, the Municipal Engineer may provide a list of comments that will bring the Plan into an approvable format, if adequately addressed.

E. For Regulated Activities requiring a DEP Joint Permit Application, the Municipal Engineer shall notify DEP whether the SWM Site Plan is consistent with the Stormwater Management Ordinance and forward a copy of the review letter to the Township Manager and the Developer. DEP may consider the Municipal Engineer's review comments in determining whether to issue a permit.

F. The Municipality shall not approve any subdivision or land development for Regulated Activities if the SWM Site Plan has been found to be inconsistent with the Stormwater Management Ordinance, as determined by the Municipal Engineer. All required permits from DEP must be obtained prior to approval or as a condition of approval.

G. The Municipal Building Code Official and/or Zoning Officer shall not issue a permit for any Regulated Activity until a SWM Site Plan has been approved by the Municipal Engineer. All required permits from DEP must be obtained prior to issuance of a permit.

H. The Developer shall be responsible for completing an "As-Built Survey" of all stormwater management facilities and BMPs included in the approved SWM Plan. The As-Built Survey and an explanation of any discrepancies with the design plans shall be submitted to the Municipal Engineer for final approval. In no case shall the Municipality approve the As-Built Survey until the Municipality receives a copy of an approved Declaration of Adequacy, Highway Occupancy Permit from the PennDOT District Office, and any applicable permits from DEP.

I. The Municipality's approval of a SWM Site Plan shall be valid for a period not to exceed one (1) year. This one-year time period shall commence on the date that the Municipality signs the approved SWM Plan. If construction of stormwater management facilities included in the approved SWM Plan has not commenced, 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 184-24 of this Ordinance. The Municipality may, at its discretion, grant time extensions for completion of work on approved SWM Plans. Nothing in this Section shall supersede a developer's rights under the Pennsylvania Municipalities Planning Code to pursue approved plans.

184-25. Modification of Plans

A. 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.

B. A modification to an already approved or disapproved SWM Site Plan shall be submitted to the Municipality, accompanied by the applicable Municipal Review Fee. A modification to a SWM Site Plan, for which a formal action has not been taken by the Municipality, shall be submitted to the Municipality, accompanied by the applicable Municipal Review Fee.

184-26. Resubmission of Disapproved Storm Water Management 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.

184-27. Recording of Documents

A. The owner of any property upon which stormwater management facilities or permanent BMPs will be placed, constructed, or implemented, as described on the SWM Site Plan, shall record or cause to have recorded the following documents in the Office of the Recorder of Deeds for Cumberland County prior to the start of any site construction:

1. The approved SWM Site Plan
2. The BMP Operations and Maintenance Plan, if such is not included in a recorded SWM Site Plan
3. Stormwater Facilities and BMP Maintenance and Monitoring Agreement

184-28. Authorization to Construct and Term of Validity

The Municipality's approval of a SWM Site Plan authorizes the Regulated Activities contained in the SWM Site Plan for a maximum term of validity of five years following the date of approval. 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 Sections 184-29 and 30 within the term of validity, then the Municipality may consider the SWM Site Plan disapproved and may revoke any and all permits issued by the Municipality. SWM Site Plans that are considered disapproved by the Municipality shall be resubmitted in accordance with Section 184-26 of this Ordinance.

184-29. As-Built Plans

A. The Applicant shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM Site Plan. The as-built plans 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.

ARTICLE V – INSPECTIONS, OPERATION AND MAINTENANCE

184-30. Schedule of Inspections

A. The Municipal Engineer or his/her designee shall be permitted to inspect all phases of the installation of the permanent stormwater management facilities and BMPs.

B. The Municipal Engineer or his/her designee shall be permitted inspect all phases of the site development work in progress, to ensure compliance with Erosion and Sediment Control requirements. Inspection functions under this Section may be delegated by the Municipality to another entity if such agreement is entered into by the Municipality.

C. During any stage of the work, if the Municipal Engineer determines that the permanent stormwater management facilities or BMPs are not being installed in accordance with the approved SWM Site Plan, the Municipality shall revoke any existing municipal permits and/or issue a stop work order until a revised SWM Site Plan is submitted and approved, as specified in this Ordinance.

184-31. Right-of-Entry

A. Upon presentation of proper credentials, duly authorized representatives of the Municipality may enter at reasonable times upon any property within the Municipality to inspect the implementation, condition, or operation of the stormwater BMPs in regard to any aspect governed by this Ordinance.

B. BMP owners and operators shall allow persons working on behalf of the Municipality ready access to all parts of the premises for the purposes of determining compliance with this Ordinance.

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

D. Unreasonable delays in allowing the Municipality access to a BMP is a violation of this Ordinance.

184-31. Responsibilities of Developers and Landowners

A. The Municipality shall make the final determination on the continuing maintenance and inspection 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 Stormwater Management BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or conservation easements that run with the land.

C. The Operation and Maintenance 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.

E. No regulated activities shall commence until a BMP Operations and Maintenance Plan (O & M Plan) consistent with this Ordinance is approved by the Municipality.

F. The SWM Site Plan Content requirements are applicable to the O & M Plan and are incorporated herein by reference. O & M Plan requirements can be shown concurrently in the plan set with the SWM Site Plan requirements.

G. The O & M Plan shall establish responsibilities for the continuing operation and maintenance of all permanent stormwater facilities and BMPs, as follows:

1. If a Plan includes structures or lots which are to be separately owned and in which streets, sewers and other public improvements are to be dedicated to the Municipality, stormwater facilities and BMPs may also be dedicated to and maintained by the Municipality.
2. If a plan includes operations and maintenance by a single owner, or if sewers and other improvements are to be privately owned and maintained, then the operation and maintenance of stormwater facilities and BMPs shall be the responsibility of the owner.

H. The property owner shall execute a Stormwater Facilities and BMP Maintenance and Monitoring Agreement with the Municipality covering all stormwater facilities and BMPs that are to be privately owned. The agreement shall be in a form provided by the Municipality.

184-33. Municipal Stormwater Maintenance Fund

A. If stormwater facilities are accepted by the Municipality for dedication, persons installing stormwater facilities or BMPs shall be required to pay a specified amount to the Municipal Stormwater BMP Operation and Maintenance Fund to help defray costs of operations and maintenance expenses. The amount of the deposit shall be determined as follows:

1. If the stormwater facility or BMP is to be owned and maintained by the municipality, the deposit shall cover the estimated costs for operations and maintenance for ten (10) years, as determined by the Municipality.

2. The amount of the deposit to the fund shall be converted to present worth of the annual series values.

B. If a stormwater facility or BMP is proposed that also serves as a recreation facility (e.g. ballfield, lake), the Municipality may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purpose.

184-34. Post-Construction Maintenance and Monitoring Inspections

A. Stormwater facilities and permanent BMPs must be inspected in accordance with the O & M Plan. The property owner has two options to accomplish this:

1. Employing a qualified registered professional to conduct the inspections and prepare reports; or

2. Entering into an agreement with the Municipality for the Municipality to conduct the inspections and prepare reports. This can be included in the Stormwater Facilities and BMP Maintenance and Monitoring Agreement.

B. If option one is chosen, the entity conducting the inspection shall be required to submit a report to the Municipality within one (1) month following completion of the inspection. The report will present documentation regarding the condition of the facility and recommending necessary repairs, if needed. Any needed repairs shall be implemented by the Owner within one (1) month of the report issuance date.

C. If option two is chosen, the owner will be responsible for reimbursing the Municipality for the costs involved, such reimbursement to be specified in the Stormwater Facilities and BMP Maintenance and Monitoring Agreement.

184-35. Operations 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.

184-36. 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

184-37. General

The fee required by this Ordinance is the Municipal Review Fee. The Municipal Review Fee shall be established by the Municipality to defray review costs incurred by the Municipality and the Municipal Engineer. All fees shall be paid by the Applicant.

184-38. Municipality SWM Site Plan Review Fee

The Municipality shall establish a Fee Schedule by resolution of the municipal governing body. The Municipality shall periodically update the Fee Schedule to ensure that costs are adequately reimbursed.

184-39. Expenses Covered by Fees

The fees required by this Ordinance may include, but not be limited to, costs for the following:

A. Administrative/clerical processing.

B. The review of the SWM Site Plan by the Municipality and the Municipal Engineer.

C. Fees and expenses to record plans at the Cumberland County Recorder of Deeds Office.

D. Preconstruction meetings and site inspections.

E. The inspection of stormwater management facilities and BMPs during construction.

F. The final inspection upon completion of the stormwater management facilities and BMPs presented in the SWM Site Plan.

G. Work required to monitor and enforce provisions of this Ordinance, to correct violations, and to assure proper completion of remedial actions.

184-40. Additional Costs

Developer will be invoiced for any additional costs incurred by the Municipality in the course of reviewing the SWM Site Plan. These costs may include, but are not limited to, special studies by qualified engineers or surveyors, field reconnaissance, and testing.

ARTICLE VII - PROHIBITIONS

184-41. Prohibited Discharges and Connections

A. Any drain or conveyance, whether on the surface or subsurface, which allows any non-stormwater discharge including, but not limited to, sewage, process wastewater, wash water, ammonia, chlorine, petroleum products (gasoline, fuel oil, etc.) pesticides, pollutants and other hazardous materials to enter the Municipality's separate storm sewer system or to enter the waters of the Commonwealth is prohibited.

Handling and disposal of all materials and wastes shall comply with all Federal and State requirements. Structural and non-structural BMPs, in accordance with Chapters 5 and 6 of the most current version of the SWM Manual, shall be implemented where necessary to preserve the quality of stormwater runoff.

B. Discharges to the Municipality's separate storm sewer system or to waters of the Commonwealth which are not composed entirely of stormwater shall be prohibited, except (1) as provided in subsection C below, and (2) discharges allowed under a state or federal permit.

C. The following discharges are authorized unless they are determined to be significant contributors to pollution 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 to pollution of the waters of this Commonwealth, the Municipality or DEP will notify the responsible person(s) to cease the discharge.

E. Nothing in this Section shall affect a discharger's responsibilities under State or Federal law.

184-42. Roof Drains and Sump Pumps

A. Roof drains and sump pumps shall not discharge to any impervious area if site conditions permit.

B. Roof drains shall not be connected to streets, sanitary or storm sewers, or roadside swales, except as provided in Section 184-42C.

C. When it is more advantageous to connect roof drains directly to streets, storm sewers or roadside swales, such connections may be permitted by the Municipality on a case-by-case basis.

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

184-43. Alteration of SWM BMPs

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

ARTICLE VIII - ENFORCEMENT AND PENALTIES

184-44. Right-of-Entry

Upon presentation of proper credentials, the Municipality 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.

184-45. 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.

2. 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 and submitted to the Municipality according to the schedule in the O&M Plan. 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.

184-46. Enforcement

The municipal governing body is hereby authorized and directed to enforce all of the provisions of this ordinance. All inspections regarding compliance with the SWM Site Plan shall be the responsibility of the Municipal Engineer or other qualified persons designated by the municipality.

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 184-13.

B. It shall be unlawful to violate Section 184-43 of this Ordinance.

C. A copy of the SWM Site Plan approved by the Municipality shall be on file at the site throughout the duration of the construction activity. Periodic inspections may be made by the Municipality or designee during construction.

D. 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 184-13.

E. Inspections regarding compliance with the SWM Site Plan during project construction are a responsibility of the Municipality.

F. A Certificate of Occupancy shall not be issued unless all requirements of this ordinance have been met.

184-47. 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 Operation and Maintenance 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 or nuisance, pollution, or which 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.

184-48. Public Nuisance

A. The violation of any provision of this ordinance is hereby deemed a Public Nuisance.

B. Each day that a violation continues shall constitute a separate violation.

184-49. Enforcement Generally

A. Whenever the Municipality finds that a person has violated a prohibition or failed to meet a requirement of this Ordinance, the Municipality may order compliance by written notice to the responsible person. Such notice may require without limitation:
   1. The performance of monitoring, analyses, and reporting;
   2. The elimination of prohibited connections or discharges;
   3. Cessation of any violating discharges, practices or operations;
   4. The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
   5. The implementation of stormwater BMPs; and
   6. Operation and Maintenance of stormwater BMPs.

B. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violation(s). Said notice may further advise that, if applicable, should violator fail to take the required action within the established deadline, the work will be done by the Municipality or designee and the expense thereof shall be charged to the violator. Said notice shall state the penalty for failure to comply

C. Failure to comply within the time specified shall also subject such person to the penalty provisions of this Ordinance All such penalties shall be deemed cumulative and shall not prevent the municipality from pursuing any and all other remedies available in law or equity.

184-50. 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 plus court costs and attorney fees. Each day that the violation continues shall be a separate offense and penalties shall be cumulative.

B. In addition, the Municipality, through its Solicitor, 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.

184-51. 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 thirty (30) days of that action.

C. Any person aggrieved by any decision of the Municipality, relevant to the above appeal of this Ordinance, may appeal to the Cumberland County Court of Common Pleas within thirty (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/.

Act 167 Stormwater Management Ordinance

Ordinance No. 2022-02

ENACTED and ORDAINED at a regular meeting of the

Lower Allen Township Board of Commissioners

on this 22nd day of August, 2022.

This Ordinance shall take effect immediately.

ATTEST:

Helen Grundon, Township Secretary

BOARD OF COMMISSIONERS
LOWER ALLEN TOWNSHIP

Dean W. Villone, President

APPENDIX A

TABLE A-1
DESIGN STORM RAINFALL AMOUNT (INCHES)
FOR 24-HOUR STORM EVENT

RETURN FREQUENCY (YEARS)	PRECIPITATION (INCHES)
1	2.40
2	2.90
5	3.55
10	4.45
25	5.40
50	6.60
100	7.60

Source: PennDOT "Storm Intensity-Duration-Frequency Charts", May 1986.

TABLE A-2
RUNOFF CURVE NUMBERS
(FROM NRCS (SCS) TR-55)

LAND USE	HYDROLOGIC CONDITION	RUNOFF CURVE NUMBER FOR INDICATED			
		A	B	C	D
Open Space:					
Poor Condition (grass cover < 50%)		68	79	86	89
Fair Condition (grass cover 50% to 75%)		49	69	79	84
Good Condition (grass cover > 75%)		39	61	74	80
Impervious Areas					
Paved parking lots, roof, driveways		98	98	98	98
Streets and roads:					
Paved; w/ curbs and storm sewers		98	98	98	98
Paved; w/ open ditches		83	89	92	93
Gravel		76	85	89	91
Dirt		72	82	87	89
Urban Districts:					
Commercial and Business		89	92	94	95
		81	88	91	93
Residential Districts by average lot size:					
1/8 acre or less (town houses)		77	85	90	92
¼ acre		61	75	83	87
1/3 acre		57	72	81	86
½ acre		54	70	80	85
1 acre		51	68	79	84
2 acres		47	66	77	82
Newly graded areas (pervious area, no vegetation)		81	89	93	95
Agricultural Lands:					
Fallow:					
Bare soil		77	86	91	94
Crop residue cover	Poor	76	85	90	93
Crop residue cover	Good	74	83	88	90
Pasture, grassland, or range	Poor	68	79	86	89
Pasture, grassland, or range	Fair	49	69	79	84
Pasture, grassland, or range	Good	39	61	74	80
Agricultural Lands (continued):					
Row Crops:					
Straight row	Poor	72	81	88	91
Straight row	Good	67	78	85	89
Straight row and crop residue cover	Poor	71	80	87	90
Straight row and crop residue cover	Good	64	75	82	85

LAND USE	HYDROLOGIC CONDITION	RUNOFF CURVE NUMBER FOR INDICATED			
		A	B	C	D
Contoured	Poor	70	79	84	88
Contoured	Good	65	75	82	86
Contoured and crop residue cover	Poor	69	78	83	87
Contoured and crop residue cover	Good	64	74	81	85
Contoured and terraced	Poor	66	74	80	82
Contoured and terraced	Good	62	71	78	81
Contoured, terraced & crop residue	Poor	65	73	79	81
Contoured, terraced & crop residue	Good	61	70	77	80
Small Grain:					
Straight row	Poor	65	76	84	88
Straight row	Good	63	75	83	87
Straight row and crop residue	Poor	64	75	83	86
Straight row and crop residue	Good	60	72	80	84
Contoured	Poor	63	74	80	85
Contoured	Good	61	73	81	84
Contoured and crop residue	Poor	62	73	81	84
Contoured and crop residue	Good	60	72	80	83
Contoured and terraced	Poor	61	72	79	82
Contoured and terraced	Good	59	70	78	81
Contoured, terraced & crop residue	Poor	60	71	78	81
Contoured, terraced & crop residue	Good	58	69	77	80
Meadow or Legumes:					
Straight row	Poor	66	77	85	89
Straight row	Good	58	72	81	85
Contoured	Poor	64	75	83	85
Contoured	Good	55	69	78	83
Contoured and terraced	Poor	63	73	80	83
Contoured and terraced	Good	51	67	76	80
Meadow, continuous grass, protected from grazing and mowed for hay		30	58	71	78
Brush – brush/weed mixture	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30	48	65	73
Woods and grass combination (orchard)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Farmsteads – buildings, lanes, driveways, and surrounding lots		59	74	82	86

TABLE A-3
RATIONAL FORMULA RUNOFF COEFFICIENTS

TYPE OF DRAINAGE AREA	RUNOFF COEFFICIENT
Lawns:	
Sandy soil, flat, <2%	0.05-0.10
Sandy soil, average, 2-7%	0.10-0.15
Sandy soil, steep, >7%	0.15-0.20
Heavy soil, flat, <2%	0.13-0.17
Heavy soil, average, 2-7%	0.18-0.22
Heavy soil, steep, >7%	0.25-0.35
Business:	
Downtown areas	0.70-0.95
Neighborhood areas	0.50-0.70
Residential:	
Single-family areas	0.30-0.50
Multi units, detached	0.40-0.60
Multi units, attached	0.60-0.75
Suburban	0.25-0.40

Apartment dwelling areas	0.50-0.70
Industrial:	
Light areas	0.50-0.80
Heavy areas	0.60-0.90
Parks, Cemeteries	0.10-0.25
Playgrounds	0.20-0.35
Railroad Yard Areas	0.20-0.40
Unimproved Areas	0.10-0.30
Streets:	
Asphaltic	0.70-0.95
Concrete	0.80-0.95
Brick	0.70-0.85
Drives and Walks	0.75-0.85
Roofs	0.75-0.95

TABLE A-4
MANNING ROUGHNESS COEFFICIENTS

PIPE MATERIAL OR CHANNEL LINING	ROUGHNESS COEFFICIENT
Cast Iron Pipe	0.013
Concrete Pipe	0.012
Corrugated Metal Pipe	0.024
Corrugated Metal Pipe – Paved Invert	0.019
High Density Polyethylene Pipe (HDPE) – Smooth Lined	0.012
High Density Polyethylene Pipe (HDPE) – Corrugated	0.018
Plastic Pipe (PVC, SDR, S&D)	0.011
Earth-lined Channel (few rocks)	0.020
Earth-bottomed Channel with Rock Sides	0.030
Grass-lined Channel	0.050

APPENDIX B

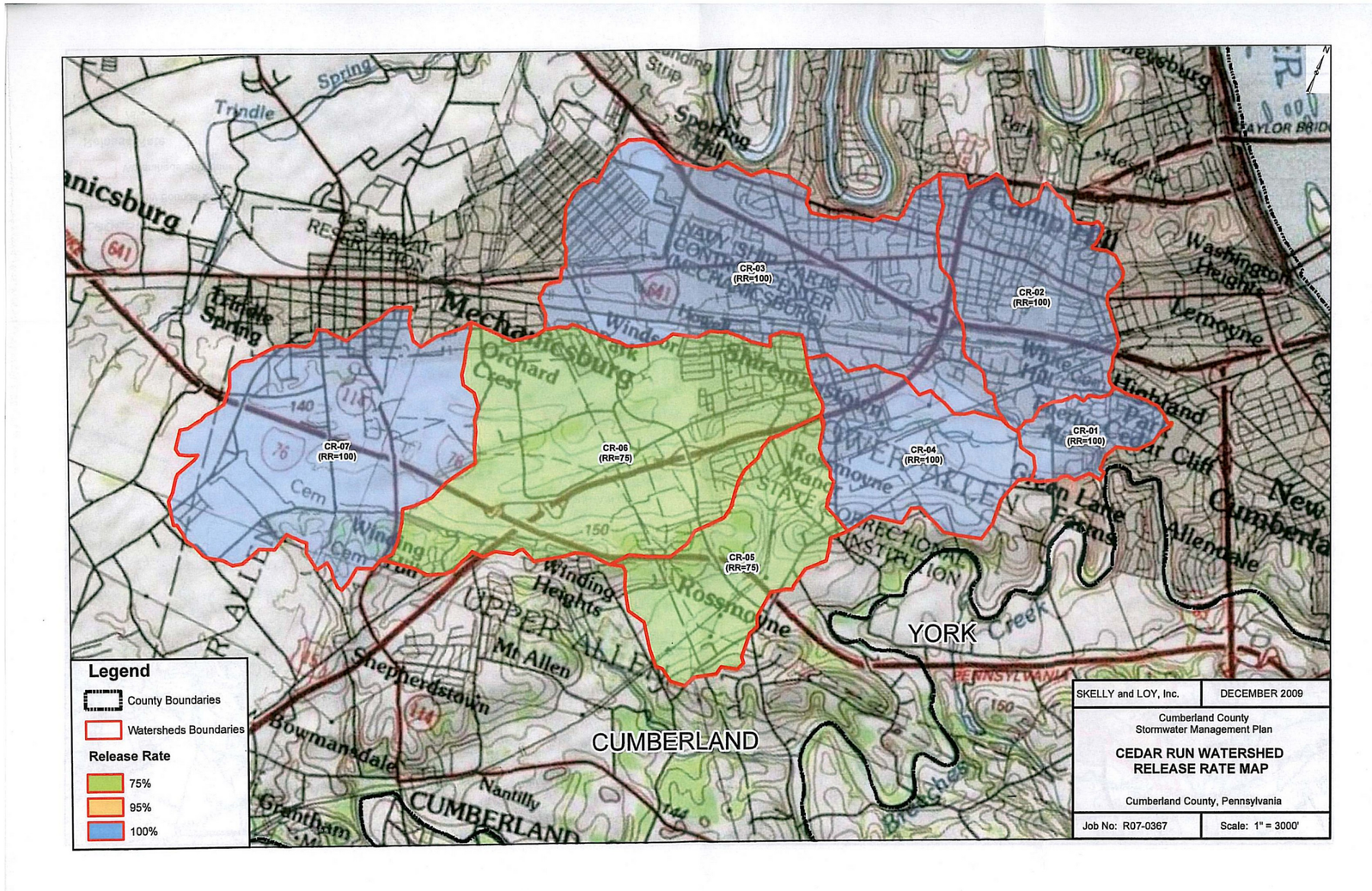
CEDAR RUN WATERSHED RELEASE RATE MAP

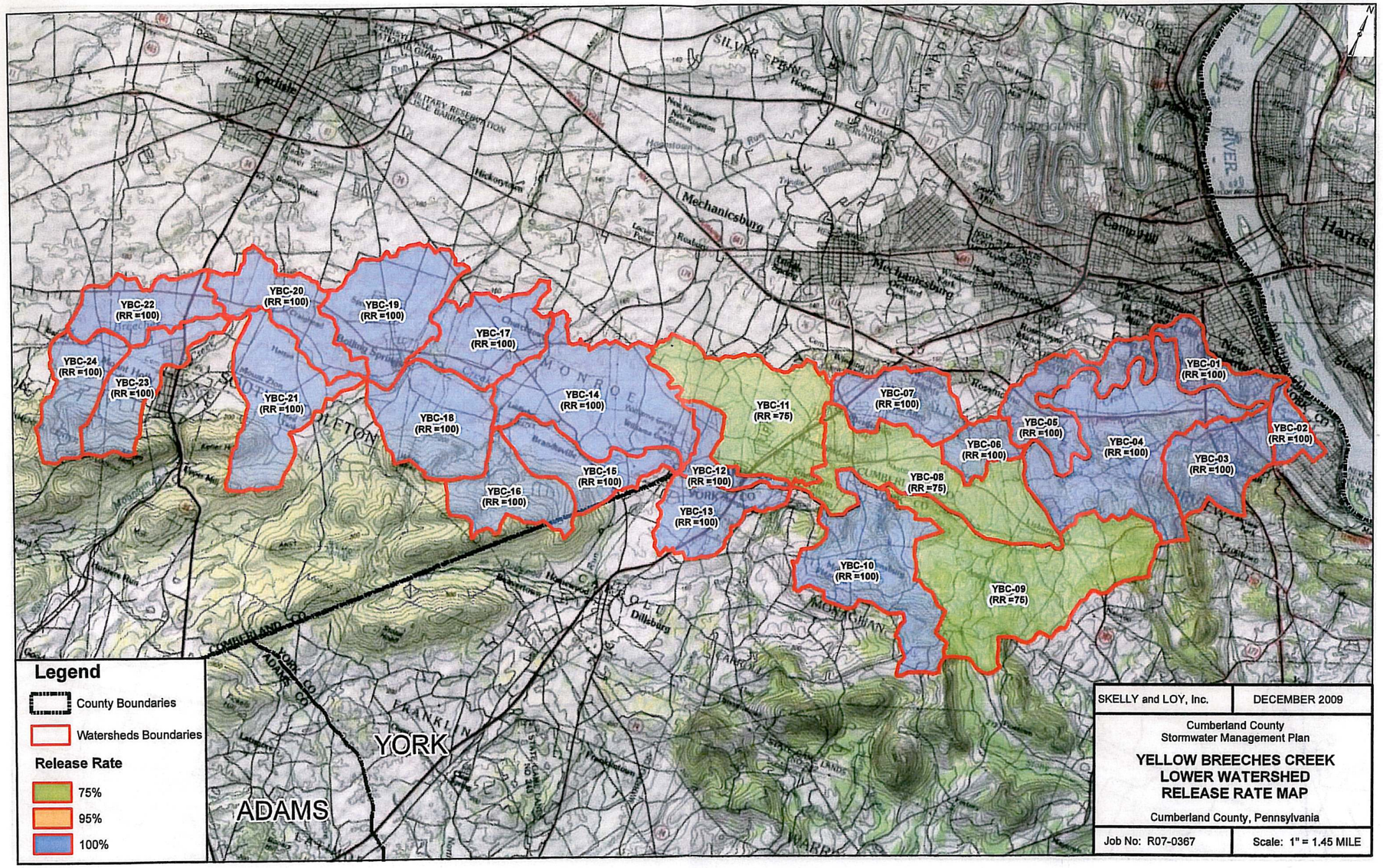
YELLOW BREECHES CREEK LOWER WATERSHED RELEASE RATE MAP

184 Attachment 3

Township of Lower Allen

Appendix B
Cedar Run Watershed Release Rate Map
Yellow Breeches Creek Lower Watershed Release Rate Map




YBC-22 (RR =100)
YBC-20 (RR =100)
YBC-19 (RR =100)
YBC-17 (RR =100)
YBC-24 (RR =100)
YBC-23 (RR =100)
YBC-21 (RR =100)
YBC-18 (RR =100)
YBC-14 (RR =100)
YBC-11 (RR =75)
YBC-07 (RR =100)
YBC-01 (RR =100)
YBC-05 (RR =100)
YBC-06 (RR =100)
YBC-04 (RR =100)
YBC-02 (RR =100)
YBC-03 (RR =100)
YBC-15 (RR =100)
YBC-12 (RR =100)
YBC-08 (RR =75)
YBC-16 (RR =100)
YBC-13 (RR =100)
YBC-10 (RR =100)
YBC-09 (RR =75)
Mechanicsburg
Camp Hill
Carlisle
Dillsburg
YORK
ADAMS
Legend
County Boundaries
Watersheds Boundaries
Release Rate
75%
95%
100%
SKELLY and LOY, Inc.
DECEMBER 2009
Cumberland County
Stormwater Management Plan
YELLOW BREECHES CREEK
LOWER WATERSHED
RELEASE RATE MAP
Cumberland County, Pennsylvania
Job No: R07-0367
Scale: 1" = 1.45 MILE