

STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NO. 334 of 2019

MUNICIPALITY OF

NORTH APOLLO BOROUGH

ARMSTRONG COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on

March 4, 2019

**NORTH APOLLO BOROUGH
ARMSTRONG COUNTY, PENNSYLVANIA**

ORDINANCE NO. 334 of 2019

AN ORDINANCE OF THE BOROUGH OF NORTH APOLLO ESTABLISHING
REGULATIONS FOR THE PLANNING, DESIGN, REVIEW, CONTROL AND
MANAGEMENT OF THE CONVEYANCE AND STORAGE OF SURFACE WATERS
RESULTING FROM PRECIPITATION/STORMWATER RUN-OFF.

WHEREAS, the governing body of North Apollo Borough (hereinafter referred to as the “Borough”) agrees with the General Assembly in that “surface waters resulting from precipitation” / “inadequately managed stormwater run-off” is disruptive to the natural drainage system, is costly, and threatens public health and safety; and

WHEREAS, the governing body of the Borough finds that inadequate management of accelerated run-off of stormwater resulting from development increases flood flows and velocities, contributes to erosion and sedimentation, over taxes 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 ground water recharge, and threatens public health and safety; and

WHEREAS, the Borough Council shall be responsible for approval and enforcement procedures as set forth by this Ordinance; and

WHEREAS, the Borough desires to establish a Stormwater Maintenance Fund for the inspection of new Stormwater Management Facilities/Controls; and

WHEREAS, the Borough may from time to time, review and amend the regulations set forth by this Ordinance.

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ARTICLE I - GENERAL PROVISIONS

Section 101. Introduction

Stormwater management consists of the planning, design, and control of the conveyance and storage of surface waters resulting from precipitation. Major objectives are the protection of water quality, the prevention of flooding and erosion, and the promotion of the natural recharge of ground water. The Pennsylvania Stormwater Management Act was enacted in 1978 to address these crucial issues. The intent of the Act is to encourage stormwater run-off planning and management, with the program administered locally, consistent with the Commonwealth's duty as trustee of natural resources and the people's constitutional right to the preservation of the environment. The Act places major responsibility for managing stormwater on the landowner or developer.

Section 102. Short Title

This Ordinance shall be known and may be cited as the "North Apollo Borough Stormwater Management Ordinance."

Section 103. Statement of Findings

The governing body of the municipality finds that:

- A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases runoff volumes, flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases nonpoint source pollution of water resources.
- B. A comprehensive program of stormwater management (SWM), including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, and welfare and the protection of people of the Commonwealth, their resources, and the environment.
- C. Stormwater is an important water resource that provides groundwater recharge for water supplies and supports the base flow of streams.
- D. The use of green infrastructure and low impact development (LID) are intended to address the root cause of water quality impairment by using systems and practices which use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, and/or 3) harvest and use precipitation near where it falls to earth. Green infrastructure practices and LID contribute to the restoration or maintenance of pre-development hydrology.
- E. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES) program.

Section 104. 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 103 of this Ordinance, through provisions designed to:

- A. To the extent practicable, meet legal water quality requirements under state law, including regulations at 25 Pa. Code Chapter 93 to protect, maintain, reclaim, and restore the existing and designated uses of the waters of the Commonwealth.
- B. Manage accelerated runoff and erosion and sedimentation problems close to their source by regulating activities that cause these problems.
- C. Preserve the natural drainage systems as much as possible.
- D. Maintain groundwater recharge, to prevent degradation of surface and groundwater quality, and to otherwise protect water resources.
- E. Maintain existing flows and quality of streams and watercourses.
- F. Preserve and restore the flood-carrying capacity of streams and prevent scour and erosion of stream banks and streambeds.
- G. Manage stormwater impacts close to the runoff source with a minimum of structures and a maximum use of natural processes.
- H. Provide procedures, performance standards, and design criteria for stormwater planning and management.
- I. Provide proper operation and maintenance of all temporary and permanent stormwater management facilities and best management practices (BMPs) that are constructed and implemented.
- J. Provide standards to meet the NPDES permit requirements.

Section 105. 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.

Section 106. Applicability

- A. In North Apollo Borough, all regulated activities and all activities that may affect stormwater runoff, including land development and earth disturbance activity, are subject to regulation by this Ordinance.
- B. Earth disturbance activities and associated stormwater management controls are also regulated under existing state law and other regulations. This Ordinance shall operate in coordination with those parallel requirements; the requirements of this Ordinance shall be no less restrictive in meeting the purposes of this Ordinance than state law.

- C. "Regulated activities" are any earth disturbance activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff. "Regulated activities" include, but are not limited to, the following listed items:
 - a. Earth disturbance activities.
 - b. Land development.
 - c. Subdivision.
 - d. Construction of new or additional impervious or semi-pervious surfaces.
 - e. Construction of new buildings or additions to existing buildings.
 - f. Installation of stormwater management facilities or appurtenances thereto.
- D. See Section 302 of this Ordinance for exemption/modification criteria.

Section 107. 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 108. 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 109. 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. To the extent that this Ordinance imposes more rigorous or stringent requirements for stormwater management, the specific requirements contained in this Ordinance shall be followed.

Section 110. 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 111. Waivers

- A. The provisions of this Ordinance are the minimum standards for the protection of the public welfare.
- B. General requirements.
 - a. All waiver requests must meet the provisions of Subsections G and H of this section. Waivers shall not be issued from implementing such measures as necessary to:
 - i. Protect health, safety, and property.
 - ii. Meet special requirements for high quality (HQ) and exceptional value (EV) watersheds.
 - b. Municipalities will then consider waivers in accordance with Section 301.C.
- C. If an applicant demonstrates to the satisfaction of the governing body of the municipality that any mandatory provision of this Ordinance is unreasonable or causes unique or undue hardship as it applies to the proposed project, or that an alternate design may result in a superior result within the

context of Sections 103 and 104 of this Ordinance, the governing body of the municipality, upon obtaining the comments and recommendations of the Municipal Engineer, may grant a waiver or relief so that substantial justice may be done and the public interest is secured; provided that such waiver will not have the effect of nullifying the intent and purpose of this Ordinance.

- D. The applicant shall submit all requests for waivers in writing and shall include such requests as a part of the plan review and approval process. The applicant shall state in full the facts of unreasonableness or hardship on which the request is based, the provision or provisions of this Ordinance that are involved, and the minimum waiver or relief that is necessary. The applicant shall state how the requested waiver and how the applicant's proposal shall result in an equal or better means of complying with the intent or purpose and general principles of this Ordinance.
- E. The municipality shall keep a written record of all actions on waiver requests.
- F. All waiver requests must be accompanied by a fee set by resolution by North Apollo Borough, the fee being designed to cover the administrative costs of reviewing the waiver request. The applicant shall also agree to reimburse the municipality for reasonable and necessary fees that may be incurred by the Municipal Engineer and Solicitor in any review of a waiver request.
- G. In granting waivers, the municipality may impose reasonable conditions that will, in its judgment, secure substantially the objectives of the standards or requirements that are to be modified.
- H. The municipality may grant applications for waivers when the following findings are made, as relevant:
 - a. That the waiver shall result in an equal or better means of complying with the intent of this Ordinance.
 - b. That the waiver is the minimum necessary to provide relief.
 - c. That the applicant is not requesting a waiver based on cost considerations.
 - d. That existing down gradient stormwater problems will not be exacerbated.
 - e. That increased flooding or ponding on off-site properties or roadways will not occur.
 - f. That potential icing conditions will not occur.
 - g. That increase of peak flow or volume from the site will not occur.
 - h. That erosive conditions due to increased peak flows or volume will not occur.
 - i. That adverse impact to water quality will not result.
 - j. That increased one-hundred-year floodplain levels will not result.
 - k. That increased or unusual municipal maintenance expenses will not result from the waiver.
 - l. That infiltration of runoff throughout the proposed site has been provided where practicable and predevelopment groundwater recharge protected.
 - m. That peak flow attenuation of runoff has been provided.
 - n. That long-term operation and maintenance activities are established.
 - o. That the receiving streams and/or water bodies will not be adversely impacted in flood carrying capacity, aquatic habitat, channel stability and erosion and sedimentation.
- I. 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.

Section 112. Duties of Developers

Any landowner or any person engaged in the alteration or development of land which may affect

stormwater runoff characteristics shall, unless an exemption is granted, implement such measures as are required by this Ordinance to prevent injury to health, safety, or other property. Such measures also shall include actions as are required to manage the rate, volume, direction, and where practicable quality of resulting stormwater runoff in a manner which otherwise adequately protects health, property, and water quality.

Section 113. Municipal Liability

- A. Neither the granting of any approval under this Ordinance, nor the compliance with the provisions of this Ordinance, or with any condition imposed by a municipal official hereunder, shall relieve any person from any responsibility for damage to persons or property resulting therefrom, or as otherwise imposed by law nor impose any liability upon the municipality for damages to persons or property.
- B. The granting of a permit which includes any stormwater management facilities shall not constitute a representation, guarantee or warranty of any kind by the municipality, or by an official or employee thereof, of the practicability or safety of any structure, use or other plan proposed, and shall create no liability upon or cause of action against such public body, official or employee for any damage that may result pursuant thereto.

ARTICLE II – DEFINITIONS

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

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

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

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

Applicant – A landowner, developer, or other person who has filed an application to the 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.

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

Detention Volume – The volume of runoff that is captured and released into the waters of the Commonwealth at a controlled rate.

DEP – The Pennsylvania Department of Environmental Protection.

Development Site (Site) – See Project Site.

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

Earth Disturbance Activity – A construction or other human activity which disturbs the surface of the land, including, but not limited to: clearing and grubbing; grading; excavations; embankments; road maintenance; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

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

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

FEMA – Federal Emergency Management Agency.

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

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

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

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

Hydrologic Soil Group (HSG) – Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSGs (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS).

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.

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

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

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

Municipality – North Apollo Borough, Armstrong County, Pennsylvania.

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

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

Pervious Area – Any area not defined as impervious.

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

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

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

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

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

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

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

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

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

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

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

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

Stormwater Management Site Plan – The plan prepared by the developer or his representative indicating how stormwater runoff will be managed at the development site in accordance with this Ordinance.

Stormwater Management Site Plan will be designated as **SWM Site Plan** throughout this Ordinance.

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

USDA – United States Department of Agriculture.

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

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

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

ARTICLE III – STORMWATER MANAGEMENT STANDARDS

Section 301. General Requirements

- A. For all regulated activities, unless preparation of an SWM Site Plan is specifically exempted in Section 302:
 - a. Preparation and implementation of an approved SWM Site Plan is required.
 - b. No regulated activities shall commence until the municipality issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
- B. SWM Site Plans approved by the municipality, in accordance with Section 407, shall be on site throughout the duration of the regulated activity.
- C. The municipality may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law.
- D. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law. Various BMPs and their design standards are listed in the *Erosion and Sediment Pollution Control Program Manual* (E&S Manual)⁴, Technical Guidance No. 363-2134-008, as amended and updated.
- E. Impervious areas:
 - a. The measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages.
 - b. For development taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.
 - c. 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. If diffused flow is proposed to be concentrated and discharged onto adjacent property, the applicant must document that adequate downstream conveyance facilities exist to safely transport the concentrated discharge, or otherwise prove that no erosion, sedimentation, flooding, or other harm will result from the concentrated discharge.
 - a. Applicant must obtain an easement for proposed concentrated flow across adjacent properties to a drainage way or public right-of-way.
 - b. Such stormwater flows shall be subject to the requirements of this Ordinance.
- G. All regulated activities shall include such measures as necessary to:
 - a. Protect health, safety, and property.

- b. Meet the water quality goals of this Ordinance by implementing measures to:
 - i. Minimize disturbance to floodplains, wetlands, natural slopes, existing native vegetation and woodlands.
 - ii. Encourage the creation, maintenance and extension of riparian buffers and the protection existing forested buffers.
 - iii. Provide trees and woodlands adjacent to impervious areas whenever feasible.
 - iv. Minimize the creation of impervious surfaces and the degradation of waters of the Commonwealth and promote groundwater recharge.
 - v. Protect natural systems and processes (drainageways, vegetation, soils, and sensitive areas) and maintain, as much as possible, the natural hydrologic regime.
 - vi. Incorporate natural site elements (wetlands, stream corridors, mature forests) as design elements.
 - vii. Avoid erosive flow conditions in natural flow pathways.
 - viii. Minimize soil disturbance and soil compaction.
 - ix. Minimize thermal impacts to waters of the Commonwealth.
 - x. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible, and decentralize and manage stormwater at its source.
 - c. Incorporate methods described in the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual³).
- 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, located at least a minimum distance of ten feet away from basements and foundations, 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 volumes to be used in the analysis of peak rates of discharge should be obtained from the latest version of the Precipitation-Frequency Atlas of the United States, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland⁵.
 - L. NOAA's Atlas 14 can be accessed at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
 - M. For all regulated activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Stormwater Management Act.
 - N. Various BMPs and their design standards are listed in the BMP Manual³.
 - O. Stormwater drainage systems shall be provided in order to permit unimpeded flow along natural watercourses, except as modified by stormwater management facilities or open channels consistent with this Ordinance.
 - P. Where watercourses traverse a development site, drainage easements with a minimum width of 20 feet and which include the one-hundred-year water surface shall be provided conforming to the

centerline of such watercourses. Excavation, the placing of fill or structures, and any alterations that may adversely affect the flow of stormwater within any portion of the drainage area shall be prohibited. Also, maintenance, including mowing of vegetation within the drainage area, may be required, except as approved by the appropriate governing authority.

- Q. When it can be shown that, due to topographic conditions, natural drainageways on the site cannot adequately provide for drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainageways. Work within natural drainage ways shall be subject to approval by PA DEP under regulations at 25 Pa. Code Chapter 105 through the joint permit application process, or, where deemed appropriate by PA DEP, through the general permit process.
- R. Any stormwater management facilities or any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures, etc.) that are regulated by this Ordinance, that will be located in or adjacent to waters of the Commonwealth (including wetlands), shall be subject to approval by PA DEP under regulations at 25 Pa. Code Chapter 105 through the joint permit application process, or, where deemed appropriate by PA DEP, the general permit process. When there is a question whether wetlands may be involved, it is the responsibility of the applicant or his agent to show that the land in question cannot be classified as wetlands; otherwise, approval to work in the area must be obtained from PA DEP.
- S. Should any stormwater management facility require a dam safety permit under PA DEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety.
- T. Any stormwater management facilities regulated by this Ordinance that will be located on, or discharged onto state highway rights-of-ways shall be subject to approval by the Pennsylvania Department of Transportation (PennDOT).
- U. Minimization of impervious surfaces and infiltration of runoff through seepage beds, infiltration trenches, etc., are encouraged, where soil conditions and geology permit, to reduce the size or eliminate the need for detention facilities.
- V. Roof drains shall not be connected to streets, sanitary or storm sewers, or roadside ditches in order to promote overland flow and infiltration/percolation of stormwater where it is advantageous to do so. When it is more advantageous to connect directly to streets or storm sewers, then the municipality shall permit it on a case-by-case basis.
- W. Applicants are encouraged to use low-impact development practices to reduce the costs of complying with the requirements of this Ordinance and the state water quality requirements.
- X. When stormwater management facilities are proposed within 1,000 feet of a downstream municipality, the developer shall notify the downstream municipality and provide a copy of the SWM Site Plan, if requested, for review and comment.

Section 302. Exemptions

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

- B. The applicant must demonstrate that the following BMPs are being utilized to the maximum extent practicable to receive consideration for an exemption:
- a. Design around and limit disturbance of floodplains, wetlands, natural slopes over 15%, existing native vegetation, and other sensitive and special value features.
 - b. Maintain riparian and forested buffers.
 - c. Limit grading and maintain non-erosive flow conditions in natural flow paths.
 - d. Maintain existing tree canopies near impervious areas.
 - e. Minimize soil disturbance and reclaim disturbed areas with topsoil and vegetation.
 - f. Direct runoff to pervious areas.
- C. The applicant must demonstrate that the proposed development/additional impervious area will not adversely impact the following:
- a. Capacities of existing drainage ways and storm sewer systems.
 - b. Velocities and erosion.
 - c. Quality of runoff if direct discharge is proposed.
 - d. Existing known problem areas.
 - e. Safe conveyance of the additional runoff.
 - f. Downstream property owners.
- D. An applicant proposing regulated activities may be eligible for exemption from rate control, volume control, or SWM Site Plan requirements in this Ordinance according to the following table:

Table 302.1 — Exemptions and Submission Requirements

New Impervious Area (square feet)	Applicant Must Provide
0 - <5,000	Documentation of New Impervious Surfaces
5,000 and greater	Rate Controls, Volume Controls and SWM Site Plan

NOTES:

- 1. New impervious area since the date of adoption of this Ordinance.
- 2. Gravel in existing condition shall be considered pervious and gravel in proposed condition shall be considered impervious.

- E. Single-family residential activities are exempt from these requirements, provided the construction:
- a. Complies with Section 301.F and Subsections A, B and C of this section; and
 - b. Driveways.
 - i. Runoff must discharge onto pervious surface with a gravel strip or other spreading device.
 - ii. No more than 1,000 square feet of paved surface may discharge to any one point as a concentrated discharge.
 - iii. The length of flow on the pervious surface must exceed the length of flow on the paved surface.
 - c. The municipality can require more information or require mitigation of certain impacts through installation of stormwater management BMPs if there is a threat to property, health, or safety.
- F. An applicant proposing regulated activities, after demonstrating compliance with Subsections A, B and C of this section, may be exempted from various requirements of this Ordinance if documentation

can be provided that a downstream man-made water body (i.e., reservoir, lake, or man-made wetlands) has been designed or modified to address the potential stormwater flooding impacts of the proposed development.

- G. The purpose of this section is to ensure consistency of stormwater management planning between local ordinances and NPDES permitting (when required) and to ensure that the applicant has a single and clear set of stormwater management standards to which the applicant is subject. The municipality may accept alternative stormwater management controls under this section, provided that:
 - a. The municipality, in consultation with the PA DEP (or delegated authority), determines that meeting the volume control requirements (see Section 303) is not possible or places an undue hardship on the applicant.
 - b. The alternative controls are documented to be acceptable to PA DEP (or delegated authority), for NPDES requirements pertaining to post construction stormwater management requirements.
 - c. The alternative controls are in compliance with all other sections of this Ordinance, including but not limited to Section 301.C and Subsections A, B and C of this section.
- H. Agricultural activities are exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- I. Forest management and timber operations are exempt from the rate and volume control requirement and SWM Site Plan preparation requirement of this Ordinance, provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- J. 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, safety, property or the environment.
- K. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Sections 301.D. through M.

Section 303. Volume Controls

- 1. The low-impact development practices provided in the PA SWM BMP Manual shall be utilized for all regulated activities to the maximum extent practicable.
- 2. Stormwater runoff volume controls shall be implemented using the Design Storm Method or the Simplified Method, as defined 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 method; therefore, the applicant may select either method on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors.
 - a. The Design Storm Method (CG-1 in the BMP Manual) is applicable to any sized regulated activity. This method requires detailed modeling based on site conditions.
 - i. Do not increase the post-development total runoff volume when compared to the predevelopment total runoff volume for the two-year/twenty-four-hour storm event.
 - ii. For hydrologic modeling purposes.
 - 1. Existing non-forested pervious areas must be considered meadow (good condition) for predevelopment hydrologic calculations.

2. Twenty percent of existing impervious area, when present within the proposed project site, shall be considered meadow (good condition) for predevelopment hydrologic calculations for redevelopment.
- b. The Simplified Method (CG-2 in the BMP Manual) is independent of site conditions and should be used if the Design Storm Method is not followed. This method is not applicable to regulated activities greater than one acre or for projects that require detailed design of stormwater storage facilities. For new impervious surfaces:
 - i. Stormwater facilities shall capture at least the first two inches of runoff from all new impervious surfaces.
 - ii. At least the first one inch of runoff from new impervious surfaces shall be permanently removed from the runoff flow, i.e., it shall not be released into surface waters of the Commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.
 - iii. Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases, at least the first 0.5 inch of the permanently removed runoff should be infiltrated.
 - iv. Actual field infiltration tests at the location of the proposed elevation of the stormwater BMPs are required. Infiltration test shall be conducted in accordance with the BMP Manual. Notification of the municipality shall be provided to allow witnessing of the testing.
3. The applicable worksheets from the BMP Manual must be used in calculations to establish volume control.

Section 304. Rate Controls

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

Post-development discharge rates shall not exceed pre-development discharge rates for the 2-, 10-, 25-, 50-, and 100-year, 24-hour 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 2-, 10-, 25-, 50-, 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. For areas covered by a release rate map from an approved Act 167 Stormwater Management Plan:

For the 2-, 10-, 25-, 50-, and 100-year, 24-hour storm events, the post-development peak discharge rates will follow the applicable approved release rate maps. For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the pre-development discharge rates.

Section 305. Sensitive Areas and Stormwater Hotspots

- A. Sensitive areas and water-quality-sensitive developments as defined below which require special consideration with regard to stormwater management.
- a. "Sensitive areas" are defined as those areas that, if developed, have the potential to endanger a water supply. These areas consist of the delineated one-year zone of contribution and direct upslope areas tributary to the water supply wells. North Apollo Borough may update the sensitive area boundaries based on new research or studies as required.
 - b. Stormwater hotspots are defined as a land development project that has a high potential to endanger local water quality, and could potentially threaten groundwater reservoirs. The

Municipal Engineer will determine what constitutes these classifications on a case-by-case basis. The PA DEP wellhead protection contaminant source list shall be used as a guide in these determinations. Industrial manufacturing site and hazardous material storage areas must provide NPDES SIC codes.

B. Performance standards.

- a. The location of the boundaries of sensitive areas is set by drainage areas tributary to any public water supply. The exact location of these boundaries, as they apply to a given development site, shall be determined using mapping at a scale which accurately defines the limits of the sensitive area. If the project site is within the sensitive area (in whole or in part), two-foot contour interval mapping shall be provided to define the limits of the sensitive area. If the project site is adjacent to but within 500 linear feet of a defined sensitive area, a five-foot contour interval map defining the limits of the sensitive area shall be included in the stormwater management plan to document the site's location relative to the sensitive area.
- b. Stormwater hotspots may be required to prepare and implement a stormwater pollution prevention plan and file notice of intent as required under the provision of the EPA Industrial Stormwater NPDES Permit Requirements.
- c. Stormwater hotspots must use an acceptable pretreatment BMP prior to volume control and/or rate control BMPs. Acceptable pretreatment BMPs for these developments include those based on filtering, settling, or chemical reaction processes such as coagulation.

Section 306. Protected Watersheds

For any regulated activity within a protected watershed (high quality or exceptional value), the applicant shall meet requirements as contained in 25 Pa. Code Chapter 93 as required and applicable.

Section 307. Design Criteria

A. General design guidelines:

- a. Stormwater shall not be transferred from one watershed to another, unless:
 - i. The watersheds are subwatersheds of a common watershed which join together within the perimeter of the property;
 - ii. The effect of the transfer does not alter the peak rate discharge onto adjacent lands; or
 - iii. Easements from the affected landowner(s) are provided.
- b. Consideration shall be given to the relationship of the subject property to the drainage pattern of the watershed. A concentrated discharge of stormwater to an adjacent property shall be within an existing watercourse or confined in an easement or returned to a predevelopment flow-type condition.
- c. Innovative stormwater BMPs and recharge facilities are encouraged (e.g., rooftop storage, dry wells, cisterns, recreation area ponding, diversion structures, porous pavements, holding tanks, infiltration systems, in-line storage in storm sewers, and grading patterns). They shall be located, designed, and constructed in accordance with the latest technical guidance published by PA DEP, provided they are accompanied by detailed engineering plans and performance capabilities and supporting site-specific soils, geology, runoff and groundwater and infiltration rate data to verify proposed designs. Additional guidance from other sources may be accepted at the discretion of the Municipal Engineer (a preapplication meeting is suggested).
- d. All existing and natural watercourses, channels, drainage systems and areas of surface water concentration shall be maintained in their existing condition unless an alteration is approved by the appropriate regulatory agency.