STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NO.556

MUNICIPALITY OF

Parkesburg Borough

CHESTER COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on

September 19, 2022

WHEREAS, Parkesburg Borough desires to enact new stormwater management provisions in order to restate and update the existing stormwater management provisions as hereinafter described in this Ordinance.

NOW, THEREFORE, BE IT HEREBY ORDAINED AND ENACTED by the Borough Council of the Borough of Parkesburg as follows:

Section 1. The Borough's Code of Ordinances shall be amended by deleting its existing Stormwater Management Ordinance No.511 (Ordinance No.511) in its entirety and also deleting in its entirety the amendment thereto (Ordinance No. 540) (providing the definition of "High Tunnel" as an agricultural exemption) and replacing same by enacting and adding a new Stormwater Management as follows:

ARTICLE I – GENERAL PROVISIONS

Section 101. Short Title

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

Section 102. Statement of Findings

The Borough Council of Parkesburg Borough, Chester County, Pennsylvania, finds that:

A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases runoff volumes, flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases nonpoint source pollution of water resources.

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

C. Stormwater is an important water resource that provides groundwater recharge for water supplies and supports the base flow of streams.

D. The use of green infrastructure and low impact development (LID) are intended to address the root cause of water quality impairment by using systems and practices which use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, and/or 3) harvest and use precipitation near where it falls to earth. Green infrastructure practices and LID contribute to the restoration or maintenance of pre-development hydrology.

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

Section 103. Purpose

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

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

B. Preserve natural drainage systems.

C. Manage stormwater runoff close to the source, reduce runoff volumes and mimic predevelopment hydrology.

D. Provide procedures and performance standards for stormwater planning and management.

E. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and to otherwise protect water resources.

F. Prevent scour and erosion of stream banks and streambeds.

G. Provide proper operation and maintenance of all stormwater best management practices (BMPs) that are implemented within the Municipality.

H. Provide standards to meet NPDES permit requirements.

Section 104. Statutory Authority

The Borough of Parkesburg 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. The Borough Code, 8 Pa.C.S.A Section 101 et seq.

Section 105. Applicability

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

B. Duty of Persons Engaged in a Regulated Activity

Notwithstanding any provision(s) of this Ordinance, including exemptions, any Landowner or any person engaged in a Regulated Activity, including but not limited to the alteration or development of land, which may affect stormwater runoff characteristics, shall implement such measures as are reasonably necessary to prevent injury to health, safety, or other property. Such measures also shall include actions as are required to manage the rate, volume, direction, and quality of resulting stormwater runoff in a manner which otherwise adequately protects health, property, and water quality of Waters of the Commonwealth.

C. Phased and Incremental Project Requirements

1. Any Regulated Activity (including but not limited to New Development, Redevelopment, or Earth Disturbance) that is to take place incrementally or in phases, or occurs in sequential projects on the same parcel or property, shall be subject to regulation by this Ordinance if the cumulative Proposed Impervious Surface or Earth Disturbance exceeds the corresponding threshold for exemption (as presented in Table 302.1 "Thresholds for Regulated Activities that are Exempt from the Provisions of this Ordinance as Listed Below").

2. The date of adoption of this Ordinance shall be the starting point from which to consider tracts as parent tracts relative to future subdivisions, and from which Impervious Surface and Earth Disturbance computations shall be cumulatively considered, unless such requirements have previously been adopted, then the earliest date of the applicable municipal ordinance adoption shall remain as the starting point.

   For example:

   > If, after adoption of this Ordinance, an Applicant proposes construction of a two hundred (200) square foot shed, that project would be exempted from the requirements of this Ordinance as noted in Table 302.1. If, at a later date, an Applicant proposes to construct a nine hundred (900) square foot room addition on the same property, the Applicant would then be required to implement the stormwater management and plan submission requirements of this Ordinance for the cumulative total of one thousand one hundred (1,100) square feet of additional Impervious Surface added to the property since adoption of this Ordinance.

   This Ordinance shall operate in coordination with those parallel requirements of federal, state, and local regulations. The requirements of this Ordinance shall be no less restrictive in meeting the requirements for environmentally-safe water quality and water patterns than the requirements of federal, state and other local regulations.

D. All regulated conditions and activities require a Stormwater Management Permit as issued by the Borough or a Stormwater Management Exemption as issued by the Borough.

Section 106. Repealer

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

Section 107. Severability

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

Section 108. Compatibility with Other Requirements

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

Section 109. Erroneous Permit

Any permit or authorization issued or approved based on false, misleading or erroneous information provided by an Applicant is void without the necessity of any proceedings for revocation. Any work undertaken or use established pursuant to such permit or other authorization is unlawful. No action may be taken by a board, agency or employee of the Borough of Parkesburg purporting to validate such a violation.

Section 110. Waivers

A. If the Borough of Parkesburg determines that any requirement under this Ordinance cannot be achieved for a particular regulated activity, it may, after an evaluation of alternatives, approve measures other than those in this Ordinance, subject to paragraphs B and C below.

B. Waivers or modifications of the requirements of this Ordinance may be approved by the Borough of Parkesburg if strict 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 (1) acre may be granted by the Borough of Parkesburg unless that action is approved in advance by the Department of Environmental Protection (DEP) or the Chester County Conservation District.

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.

As-Built Plans (Drawings) - Engineering or Site plans or drawings that document the actual locations, dimensions and elevations of the improvements, and building components, and changes made to the original design plans. The final version of these documents, or a copy of same, are signed and sealed by a qualified Licensed Professional and submitted to the Municipality at the completion of the project, as per the requirements of Section 502 of this Ordinance as "final As-Built Plans".

Bankfull - The channel at the top-of-bank or point from where water begins to overflow onto a floodplain.

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.

Buffer - See Riparian Buffer.

Carbonate Geology (or carbonate rock formations) – See Karst.

Channel – A natural or artificial open drainage feature that conveys, continuously or periodically, flowing water and through which stormwater flows. Channels include, but shall not be limited to, natural and man-made drainageways, swales, streams, ditches, canals, and pipes flowing partly full.

CFS – Cubic Feet per Second

CN - Curve number.

Commonwealth - Commonwealth of Pennsylvania.

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.

Conservation Plan A plan written by a planner certified by NRCS that identifies Conservation Practices and includes site specific BMPs for agricultural plowing or tilling activities and animal heavy use areas.

Conservation Practices - Practices installed on agricultural lands to improve farmland, soil and/or water quality which have been identified in a current Conservation Plan.

Conveyance – A natural or manmade, existing or proposed Stormwater Management Facility, feature or channel used for the transportation or transmission of stormwater from one place to another. For the purposes of this Ordinance, Conveyance shall include pipes, drainage ditches, channels and swales (vegetated and other), gutters, stream channels, and like facilities or features.

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 (or To Detain) – Capture and temporary storage of runoff in a Stormwater Management Facility for release at a controlled rate.

Detention Basin – An impoundment designed to collect and retard stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate. Detention basins are designed to drain completely shortly after any given rainfall event.

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.

Developer – A person who seeks to undertake any Regulated Activities at a Site in the Municipality.

Development Site (Site) – See Project Site.

Diameter at Breast Height (DBH) - The outside bark diameter of a tree at breast height which is defined as four and one half (4.5') feet (one and thirty-seven one-hundredths of a meter (1.37 m)) above the forest floor and/or ground on the uphill side of the tree.

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

Drainage Area - That land area contributing runoff to a single point (including but not limited to the point/line of interest used for hydrologic and hydraulic calculations) and that is enclosed by a natural or man-made ridge line.

Earth Disturbance (or 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.

Easement - A right of use granted by a Landowner to allow a grantee the use of the designated portion of land for a specified purpose, such as for stormwater management or other drainage purposes.

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

Erosion and Sediment Control Plan - A plan required by the Conservation District or the Municipality to minimize accelerated erosion and sedimentation, and that must be prepared and approved per the applicable requirements.

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

FEMA – Federal Emergency Management Agency.

Flood - A temporary condition of partial or complete inundation of land areas from the overflow of streams, rivers, and other waters of this Commonwealth.

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 presumed, 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.

Freeboard - A vertical distance between the design high-water elevation and the elevation of the top of a dam, levee, tank, basin, swale, or diversion berm. The space is required as a safety margin in a pond or basin.

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

Geotextile - A fabric manufactured from synthetic fiber that is used to achieve specific objectives, including infiltration, separation between different types of media (i.e.. between soil and stone), or filtration.

Governing Body - the Borough of Parkesburg,

Groundwater- Water that occurs in the subsurface and tills or saturates the porous openings, fractures and fissures of under-ground soils and rock units.

Groundwater Recharge - The replenishment of existing natural groundwater supplies from infiltration of rain or overland flow.

HEC-1 - The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) hydrologic runoff model.

HEC-HMS - The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) - Hydrologic Modeling System (HMS).

High Tunnel – A structure which meets the following:

1. Is used for the production, processing, keeping, storing, sale or shelter of an agricultural commodity as defined in section 2 of the Act of December 19, 1974 (P.L. 973, No. 319), known as the "Pennsylvania Farmland and Forest Land Assessment Act of 1974," or for the storage of agricultural equipment or supplies; and

2. Is constructed with all the following:

    a. Has a metal, wood or plastic frame;

    b. When covered, has a plastic, woven textile or other flexible covering; and

    c. Has a floor made of soil, crushed stone, matting, pavers or a floating concrete slab.

Hotspots - Areas where prior or existing land use or activities can potentially generate highly contaminated runoff with concentrations of pollutants in excess of those typically found in stormwater.

Hydrologic Soil Group (HSG) – Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSGs (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS[1,2]).

Impervious Surface (Impervious Area) – A surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) shall include, but not be limited to: roofs; additional indoor living spaces, patios, garages, storage sheds and similar structures; and any new streets or sidewalks. For the purposes of determining compliance with this Ordinance; compacted soils or stone surfaces used for vehicle parking and movement shall be considered impervious.

Infiltration - Movement of surface water into the soil, where it is absorbed by plant roots, evaporated into the atmosphere, or percolated downward to recharge groundwater.

Infiltration Facility - A stormwater BMP designed to collect and discharge runoff into the subsurface in a manner that allows infiltration into underlying soils and groundwater (e.g., French drains, seepage pits, or seepage trenches, etc.).

Intermittent Stream - A defined channel in which surface water is absent during a portion of the year, in response to seasonal variations in precipitation or groundwater discharge.

Invert - The lowest surface, the floor or bottom of a culvert, pipe, drain, sewer, channel, basin, BMP, or orifice.

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) – Any of the following activities:

A. The improvement of one (1) lot or two (2) or more contiguous lots, tracts, or parcels of land for any purpose involving:

   1. A group of two (2) or more residential or nonresidential 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

   2. The division or allocation of land or space, whether initially or cumulatively, between or among two (2) or more existing or prospective occupants by means of, or for the purpose of, streets, common areas, leaseholds, condominiums, building groups, or other features;

B. A subdivision of land;

C. Development in accordance with Section 503(1.1) of the Pennsylvania Municipalities Planning Code (as amended).

Landowner - The legal or beneficial owner or owners of land including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if they are authorized under the lease to exercise the rights of the Landowner, or other person having a proprietary interest in the land.

Licensed Professional - A Pennsylvania Registered Professional Engineer, Registered Landscape Architect, Registered Professional Land Surveyor, or Registered Professional Geologist, or any person licensed by the Pennsylvania Department of State or qualified by law to perform the work required by the Ordinance within the Commonwealth of Pennsylvania.

Limiting Zone - A soil horizon or condition in the soil profile or underlying strata that includes one of the following:

A. A seasonal high water table, whether perched or regional, determined by direct observation of the water table or indicated by other subsurface or soil conditions.

B. A rock with open joints, fracture or solution channels, or masses of loose rock fragments, including gravel, with insufficient fine soil to fill the voids between the fragments.

C. A rock formation, other stratum, or soil condition that is so slowly permeable that it effectively limits downward passage of water.

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.

Maintenance - The action taken to restore or preserve the as-built functional design of any Stormwater Management Facility or system.

MPC - Act of July 31, 1968, P.L. 805, No. 247, 53 P.S. Section 10101, et seq., as amended, the Pennsylvania Municipalities Planning Code, Act 247.

MFEMP - Mushroom Farm Environmental Management Plan.

Municipal Engineer - A professional engineer licensed as such in the Commonwealth of Pennsylvania, duly appointed as the engineer for the Municipality, planning agency, or joint planning commission.

Municipality – Parkesburg Borough, Chester County, Pennsylvania.

Municipal Separate Storm Sewer (MS3) — A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) which is all of the following:

A. Owned or operated by a state, city, town, borough, township, county, district, association or other public body (created under state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater or other wastes;

B. Designed or used for collecting or conveying stormwater;

C. Not a combined sewer; and

D. Not part of a publicly owned treatment works as defined at 40 CFR 122.2.

Municipal Separate Storm Sewer System (MS4) — All separate storm sewers that are defined as "large" or "medium" or "small" municipal separate storm sewer systems pursuant to 40 CFR 122.26(b)(18) or designated as regulated under 40 CFR 122.26(a)(1)(v). For the purposes of determining compliance with this ordinance; all Municipal Separate Storm Sewers shall be considered part of an MS4.

New Development - Any Regulated Activity involving placement or construction of new Impervious Surface or grading over existing pervious land areas not classified as Redevelopment as defined in this Ordinance.

Nonpoint Source Pollution - Pollution that enters a water body from diffuse origins in the watershed and does not result from discernible, confined, or discrete Conveyances.

Non-stormwater Discharges - Water flowing in stormwater collection facilities, such as pipes or swales, which is not the result of a rainfall event or snowmelt.

Nonstructural Best Management Practice (BMPs) - See Best Management Practice (BMP).

NOAA - National Oceanic and Atmospheric Administration.

NPDES - National Pollutant Discharge Elimination System, the Federal government's system for issuance of permits under the Clean Water Act, which is delegated to DEP in Pennsylvania.

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

PADEP - Pennsylvania Department of Environmental Protection.

Parent Tract - The parcel of land from which a land development or subdivision originates, determined from the date of municipal adoption of this Ordinance.

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

PennDOT - Pennsylvania Department of Transportation.

Pennsylvania Stormwater Best Management Practices Manual (PA BMP Manual) - Document Number 363-0300-002 (December 2006, and as subsequently amended).

Pervious Area (or Pervious Surface) – Any area not defined as impervious.

Planning Commission - The Planning Commission of Borough of Parkesburg.

Point Source - Any discernible, confined, and discrete Conveyance including, but not limited to, any pipe, ditch, channel, tunnel, or conduit from which stormwater is or may be discharged, as defined in State regulations at 25 Pennsylvania Code § 92.1.

Post-construction (Postdevelopment) - Period after construction during which Disturbed Areas are stabilized, stormwater controls are in place and functioning, and all proposed improvements approved by the Municipality are completed.

Predevelopment (Pre-construction) -Ground cover conditions assumed to exist within the proposed Disturbed Area prior to commencement of the Regulated Activity for the purpose of calculating the Predevelopment water quality volume, infiltration volume, and peak flow rates as required in this Ordinance.

Pretreatment - Techniques employed in stormwater BMPs to provide storage or filtering, or other methods to trap or remove coarse materials and other pollutants before they enter the stormwater system, but may not necessarily be designed to meet the entire water quality volume requirements of this Ordinance.

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

Proposed Impervious Surface – All new additional and replacement Impervious Surfaces.

Qualified Professional – Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by this Ordinance. (See also, Licensed Professional)

Rainfall Intensity - The depth of accumulated rainfall per unit of time.

Recharge - The replenishment of groundwater through the infiltration of rainfall, other surface waters, or land application of water or treated wastewater.

Redevelopment - Any Regulated Activity that involves demolition, removal, reconstruction, or replacement of existing Impervious Surface(s).

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.

Regulated Impervious Surface - Proposed impervious surface as part of a current proposed activity and all existing impervious surfaces installed after December 16, 2013, as part of previous activity.

Retention (or To Retain) - The prevention of direct discharge of stormwater runoff into surface waters or water bodies during or after a storm event by permanent containment in a pond or depression; examples include systems which discharge by percolation to groundwater, exfiltration, and/or evaporation processes and which generally have residence times of less than three (3) days.

Retention Basin - An impoundment that is designed to temporarily detain a certain amount of stormwater from a catchment area and which may be designed to permanently retain stormwater runoff from the catchment area; retention basins always contain water.

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 - Pertaining to anything connected with or immediately adjacent to the banks of a stream or other body of water.

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.

SALDO - See Subdivision and Land Development Ordinance.

SCS - Soil Conservation Service, now known as the Natural Resources Conservation Service.

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

Separate Storm Sewer System – See Municipal Separate Storm Sewer and Municipal Separate Storm Sewer System.

Sheet Flow - A flow process associated with broad, shallow water movement on sloping ground surfaces that is not channelized or concentrated.

Site - Total area of land in the Municipality where any proposed Regulated Activity, as defined in this Ordinance, is planned, conducted, or maintained or that is otherwise impacted by the Regulated Activity.

Soil Cover Complex Method - A method of runoff computation developed by NRCS that is based on relating soil type and land use/cover to a runoff parameter called curve number (CN).

State Water Quality Requirements – The current 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.

Storm Frequency - (see Return Period).

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 (SWM) 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.

Stream - A natural watercourse.

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

Subdivision and Land Development Ordinance – the Subdivision and Land Development Ordinance of Parkesburg Borough, Chester County, PA, as amended. Also referred to as "SALDO".

Swale - An artificial or natural waterway or low-lying stretch of land that gathers and conveys stormwater or runoff, and is generally vegetated for soil stabilization, stormwater pollutant removal, and infiltration.

SWM Site Plan - See Stormwater Management Site Plan.

Top-of-bank - Highest point of elevation of the bank of a stream or channel cross-section at which a rising water level just begins to flow out of the channel and into the floodplain.

USDA – the 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.

Watercourse - A channel or Conveyance of surface water having a defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

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

Water Table - The upper most level of saturation of pore space or fractures by groundwater. Seasonal High Water Table refers to a water table that rises and falls with the seasons due either to natural or man-made causes.

Waters of the 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 the 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.

Woods - Any land area of at least one-quarter (0.25) acre with a natural or naturalized ground cover (excluding manicured turf grass) and that has an average density of two (2) or more viable trees per one thousand five hundred (1,500) square feet with a DBH of six (6") inches or greater. The land area to be considered Woods shall be measured from the outer drip lines of the outer trees.

ARTICLE III – STORMWATER MANAGEMENT STANDARDS

Section 301. General Requirements

A. For all regulated activities, unless preparation of an SWM Site Plan is specifically exempted in Section 302:

1. Preparation and implementation of an approved SWM Site Plan is required.

2. No regulated activities shall commence until:

a) the Municipality issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance; and

b) The Applicant has received a letter of adequacy or approval for the Erosion and Sediment Control Plan review by the Municipality and the Conservation District (if required), and has received all other local, State and Federal permit approvals required for the project involving the Regulated Activity.

B. Neither submission of an SWM Site Plan under the provisions herein nor compliance with the provisions of this Ordinance shall relieve any person from responsibility for damage to any person or property otherwise imposed by law.

C. SWM Site Plans approved by the Municipality, in accordance with Section 406, shall be on site throughout the duration of the regulated activity.

D. The Municipality may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this Ordinance, provided that such alternative measures meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law.

E. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law. Various BMPs and their design standards are listed in the Erosion and Sediment Pollution Control Program Manual (E&S Manual3), No. 363-2134-008, as amended and updated.

F. Impervious areas:

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

2. For development taking place in stages, the entire development plan shall be used in determining compliance 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 306 do not need to be retrofitted for existing impervious areas that are not being altered by the proposed regulated activity.

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

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

1. Protect health, safety, and property.

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

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

b. Maintain or extend riparian buffers.

c. Avoid erosive flow conditions in natural flow pathways.

d. Minimize thermal impacts to waters of this Commonwealth.

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

3. Incorporate methods described in the *Pennsylvania Stormwater Best Management Practices Manual* (PA 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.

I. For areas underlain by Karst or carbonate geology that may be susceptible to the formation of sinkholes and other Karst features, the location, type, and design of infiltration BMPs shall be based on a Site evaluation conducted by a qualified Licensed Professional and based on the PA BMP Manual (as amended) or other design guidance acceptable to the Municipal Engineer.

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

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

L. The design of all BMPs and Conveyances shall incorporate sound engineering principles and practices in a manner that does not aggravate existing stormwater problems as identified by the Municipality. The Municipality reserves the right to disapprove any design that would result in construction in an area affected by existing stormwater problem(s) or continuation of an existing stormwater problem(s).

M. The design storm volumes to be used in the analysis of peak rates of discharge should be obtained from the latest version of the Precipitation-Frequency Atlas of the United States, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland.

NOAA's Atlas 14[5] can be accessed at: http://hdsc.nws.noaa.gov/hdsc/pfds/.

N. 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.

O. Various BMPs and their design standards are listed in the BMP Manual[4].

P. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) that drain through a proposed Site are not subject to water quality and volume control, infiltration, stream channel protection, or peak flow rate control requirements (as presented in Sections 303, 304, 305, and 306). Drainage facilities located on the Site shall be designed to safely convey flows from outside of the Site through the Site.

Q. Existing wetlands, either on the Site or on an adjacent property, shall not be used to meet the minimum design requirements for stormwater management or stormwater runoff quality treatment. Stormwater discharges to existing wetlands shall not degrade the quality or hydrologic integrity of the wetland.

R. Hotspots Runoff Controls -

Specific structural or pollution prevention practices may be required, as determined to be necessary by the Municipal Engineer, to pretreat runoff from Hotspots prior to infiltration. Following is a list of examples of Hotspots:

1. Vehicle salvage yards and recycling facilities;

2. Vehicle fueling stations;

3. Vehicle service and maintenance facilities;

4. Vehicle and equipment cleaning facilities;

5. Fleet storage areas (bus, truck, etc.);

6. Industrial sites based on Standard Industrial Classification Codes;

7. Marinas (service and maintenance areas);

8. Outdoor liquid container storage;

9. Outdoor loading/unloading facilities;

10. Public works storage areas;

11. Facilities that generate or store hazardous materials;

12. Commercial container nursery;

13. Contaminated sites/brownfields;

14. Other land uses and activities as designated by the Municipality.

S. Additional Water Quality Requirements -

The Municipality may require additional stormwater control measures for stormwater discharges to special management areas including, but not limited to:

1. Water bodies listed as "impaired" by PADEP.

2. Any water body or watershed with an approved Total Maximum Daily Load (TMDL).

3. Areas of known existing flooding problems.

4. Critical areas with sensitive resources (e.g., State designated special protection waters, cold water fisheries, carbonate geology or other groundwater recharge areas that may be highly vulnerable to contamination, drainage areas to water supply reservoirs, etc.).

T. All Regulated Activities located within a Special Flood Hazard Area designated by the Federal Emergency Management Agency (FEMA) shall comply with Chapter 117 of the Parkesburg Borough Code of Ordinances, more specifically known as the "Parkesburg Borough Floodplain Management Ordinance" and shall be designed to maintain the flood carrying capacity of the floodway such that the base flood elevations are not increased, either upstream or downstream. The natural conveyance

characteristics of the Site and the receiving floodplain shall be incorporated into the stormwater management practices proposed for the Site.

Section 302. Exemptions and modified requirements

A. General exemptions. Regulated activities that involve less than or equal to 1,000 square feet of proposed impervious surfaces and less than or equal to 5,000 square feet of earth disturbance or are listed in Subsection H are exempt from those (and only those) requirements of this chapter that are included in the sections and articles listed in Table 302.1. Exemptions are for the items noted in Table 302.1 only and shall not relieve the landowner from other applicable requirements of this chapter. Exemption shall not relieve the Applicant from implementing such measures as are necessary to protect health, safety, and welfare, property, and water quality.

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

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

D. Exemptions from any provisions of this Ordinance shall not relieve the Applicant from the requirements in Sections 301.E. through M.

E. The Municipality may deny or revoke any exemption or modified requirements 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. Requirements for Exempt Activities

1. An exemption from any requirement of this Ordinance shall not relieve the Applicant from implementing all other applicable requirements of this Ordinance or from implementing such measures as are necessary to protect public health, safety, and welfare, property and water quality.

2. An exemption shall not relieve the Applicant from complying with the requirements for State-designated special protection waters designated by PADEP as high quality (HQ) or exceptional value (EV) waters, or any other current or future State or municipal water quality protection requirements.

3. An exemption under this Ordinance shall not relieve the Applicant from complying with all other applicable municipal ordinances or regulations.

4. Any Applicant desiring exemption from design, plan submission, and plan processing requirements shall complete an application for exemption in the form available at the Muncipality's office and pay any applicable filing fee.

Table 302.1
Thresholds for Regulated Activities Exempt from Chapter Provisions

Ordinance Article/Section	Activities Listed In § 302.H	< 1,000 Square Feet of Proposed Impervious Surfaces AND < 5,000 Square Feet of Proposed Earth Disturbance	> 1,000 Square Feet of Proposed Impervious Surfaces OR > 5,000 Square Feet of Proposed Earth Disturbance
Article I	Not exempt	Not exempt	Not exempt
Article II	Not exempt	Not exempt	Not exempt
Sections 310 and 301.E	Not exempt	Not exempt	Not exempt
Sections 301, 303, 304, 305, 306, 307, and 308	Exempt	Exempt	Not exempt
Article IV	Exempt	Exempt	Not exempt
Article V	Exempt	Exempt	Not exempt
Article VI	Exempt	Exempt	Not exempt
Article VII	Not Exempt	Not Exempt	Not exempt
Article VIII	Not exempt	Not exempt	Not exempt
Other Erosion, Sediment and Pollution Control Requirements	Must comply with Title 25, Chapter 102 of the PA Code and other applicable State and municipal codes, including the Clean Streams Law.		

H. Exemptions for Specific Activities

The following specific Regulated Activities are exempt from the requirements of Sections 301, 303, 304, 305, 306, 307, and 308, and Article IV, Article V, and Article VI) of this Ordinance (as shown in Table 302.1), unless otherwise noted

below. All other conveyance and system design standards established by the Municipality in other codes or ordinances shall be required, and all other provisions of this Ordinance shall apply.

1. Emergency Exemption - Emergency maintenance work performed for the protection of public health, safety and welfare. This exemption is limited to repair of an existing Stormwater Management Facility; upgrades, additions or other improvements are not exempt. A written description of the scope and extent of any emergency work performed shall be submitted to the Municipality within two (2) business days of the commencement of the activity. A detailed plan shall be submitted no later than thirty (30) calendar days following commencement of the activity. If the Municipality finds that the work is not an emergency, then the work shall cease immediately and the requirements of this Ordinance shall be addressed as applicable.

2. Maintenance - Any maintenance to an existing Stormwater Management Facility, BMP or Conveyance made in accordance with plans and specifications approved by the Municipal Engineer or Municipality.

3. Existing Landscaping - Use of land for maintenance, replacement or enhancement of existing landscaping.

4. Gardening - Use of land for gardening for home consumption.

5. Agricultural Related Activities -

    a. Agricultural Activities (as defined in Article II), when performed in accordance with the requirements of 25 PA Code Chapter 102.

    b. High Tunnel if:

        i. The High Tunnel or its flooring does not result in an impervious surface exceeding 25% of all structures located on the Landowner's total contiguous land area under common ownership; and

        ii. The High Tunnel meets one of the following:

            1. The High Tunnel is located at least 100 feet from any perennial stream or watercourse, public road or neighboring property line

            2. The High Tunnel is located at least 35 feet from any perennial stream or watercourse, public road or neighboring property line and located on land with a slope not greater than 7%

3. The High Tunnel is supported with a buffer or diversion system that does not directly drain into a stream or other watercourse by managing stormwater runoff in a manner consistent with the requirements of Pennsylvania Act 167.

6. Forest Management - Forest management operations, which are consistent with a sound forest management plan as filed with the Municipality and which comply with the Pennsylvania Department of Environmental Protection's management practices contained in its publication "Soil Erosion and Sedimentation Control Guidelines for Forestry" (as amended or replaced by subsequent guidance). Such operations are required to have an Erosion and Sedimentation Control Plan, which meets the requirements of 25 PA Code Chapter 102 and meets the erosion and sediment control standards of Section 303 of this Ordinance.

7. Maintenance of Existing Gravel and Paved Surfaces - Replacement of existing gravel and paved surfaces shall meet the erosion and sediment control requirements of 25 PA Code Chapter 102 and Section 301.E of this Ordinance, and is exempt from all other requirements of this Ordinance listed in Subsection 302.H above. Resurfacing of existing gravel and paved surfaces is also exempt from the requirements of this Ordinance listed above. Paving of existing gravel surfaces is exempt from the requirements of this Ordinance listed above. Construction of new or additional Impervious Surfaces shall comply with all requirements of this Ordinance as indicated in Table 302.1.

8. Municipal Roadway Shoulder Improvements - Shoulder improvements conducted within the existing roadway cross-section of municipal owned roadways, unless an NPDES permit is required, in which case the proposed work must comply with all requirements of this Ordinance.

9. In-Place Replacement of Residential Dwelling Unit - The replacement in the exact footprint of an existing one- or two-family dwelling unit.

10. In-Place Replacement, Repair, or Maintenance of Residential Impervious Surfaces - The replacement of existing residential patios, decks, driveways, pools, garages, and/or sidewalks that are accessory to an existing one- or two-family dwelling unit in the exact footprint of the existing Impervious Surface.

I. Modified Requirements for Small Projects

1. Regulated Activities that involve both of the following: 1) 1,000 to 2,500 square feet of Proposed Impervious Surfaces and 2) 1,000 to 5,000 square feet of proposed Earth Disturbance may apply the modified requirements presented in the "Simplified Approach to Stormwater Management for Small Projects" (Simplified Approach) (Appendix A) to comply with the requirements of Sections 301, 303, 304, 305, 306, 307, and 308, and Article IV, Article V, and Article VI of this Ordinance (as shown in Table 302.2). The

Applicant shall first contact the Municipal Engineer: to confirm that the proposed project is eligible for use of the Simplified Approach and is not otherwise exempt from these Ordinance provisions; to determine what components of the proposed project are to be considered as Impervious Surfaces; and to determine if other known Site or local conditions exist that may preclude the use of any techniques included in the Simplified Approach. Appendix A includes instructions and procedures for preparation, submittal, review and approval of documents required when using the Simplified Approach and shall be adhered to by the Applicant. All other provisions of this Ordinance shall apply."

TABLE 302.2

Thresholds for Regulated Activities that are Eligible for "Modified" Requirements for the Provisions of this Ordinance that are Listed Below

Ordinance Article/Section	Activities Listed in Subsection 302.I
Article I	All Provisions Apply
Article II	All Provisions Apply
Sections 310 and 301.E	All Provisions Apply
Sections 301, 303, 304, 305, 306, 307, and 308	Exempt if Modified Requirements of 302.I are Applied
Article IV	Exempt if Modified Requirements of 302.I are Applied
Article V	Exempt if Modified Requirements of 302.I are Applied
Article VI	Exempt if Modified Requirements of 302.I are Applied
Article VII	Exempt if Modified Requirements of 302.I are Applied
Article VIII	All Provisions Apply
Other Erosion, Sediment and Pollution Control Requirements	Must comply with Title 25, Chapter 102 of the PA Code and other applicable State and municipal codes, including the Clean Streams Law

Table 302.2 Notes:

- "Modified Requirements" - Regulated Activities listed within the Subsections of this Ordinance noted in Table 302.2 are eligible for exemption only from the indicated sections and subsections of this Ordinance and only if the modified requirements of 302.I are met to the satisfaction of the Municipality; all other provisions of this Ordinance apply.

Section 303. Water Quality and Runoff Volume Requirements

To control Post-construction stormwater impacts from Regulated Activities and meet State water quality requirements, BMPs shall be provided in the Site design that replicate Predevelopment stormwater infiltration and runoff conditions, such that Post-construction stormwater discharges do not degrade the physical, chemical, or biological characteristics of the receiving waters. The green infrastructure and Low Impact Development (LID) practices provided in the PA BMP Manual, as well as the guidance on green infrastructure LID and Conservation Design (CD) provided in Appendix B, shall be utilized for all regulated activities wherever possible. The Applicant shall comply with the following water quality and runoff volume requirements for all Regulated Activities, including all New Development and Redevelopment activities:

A. The Post-construction total runoff volume shall not exceed the Predevelopment total runoff volume for all storms equal to or less than the two (2) year, twenty-four (24) hour duration precipitation (design storm) or a minimum of one and one-half (1.5") inches of runoff from all Regulated Impervious Surfaces shall be managed, whichever volume to be managed is greater. The water quality and runoff volume to be managed shall consist of any runoff volume generated by the proposed Regulated Activity over and above the Predevelopment total runoff volume and shall be captured and permanently retained or infiltrated on the Site. Permanent retention options may include, but are not limited to, reuse, evaporation, transpiration, and infiltration.

B. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Subsection 307.D of this Ordinance.

C. The design of the Stormwater Management Facility outlet shall provide for protection from clogging and unwanted sedimentation.

D. BMPs that moderate the temperature of stormwater shall be used to protect the temperature of receiving waters.

E. Water quality improvement shall be achieved in conjunction with achieving the infiltration requirements of Section 304. The infiltration volume required under Section 304 may be included as a component of the water quality volume. If the calculated water quality and runoff volume is greater than the volume infiltrated, then the difference between the two (2) volumes shall be managed for water quality and runoff volume control through other techniques or practices but shall not be discharged from the Site.

F. Runoff from the Disturbed Area shall be treated for water quality prior to entering existing waterways or water bodies. If a stormwater management practice does not provide water quality treatment, then water quality BMPs shall be utilized to

provide pre-treatment prior to the runoff entering the stormwater management practice.

G. The Municipality may require additional water quality and runoff control measures for stormwater discharging to special management areas such as those listed in Subsection 301.S.

H. When the Regulated Activity contains or is divided by multiple drainage areas, the water quality and runoff volume shall be separately addressed for each drainage area.

I. Weighted averaging of runoff coefficients shall not be used for manual computations or input data for water quality and runoff volume calculations.

J. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) may be excluded from the calculation of the water quality and runoff volume requirements.

Section 304. Infiltration Requirements

Providing for infiltration consistent with the natural hydrologic regime is required to compensate for the reduction in the recharge that occurs when the ground surface is disturbed or Impervious Surface is created or expanded. The Applicant shall achieve the following infiltration requirements:

A. For Regulated Activities involving either New Development or Redevelopment, infiltration should be designed to accommodate the entire water quality and runoff volume required in Section 303. If the runoff volume required by Section 303 cannot be infiltrated, then alternative methods consistent with the PA BMP Manual (as amended) may be used to manage this volume with approval from the Municipal Engineer. If the requirements of any subsection of Section 304 cannot be physically accomplished, then the Applicant shall be responsible for demonstrating with data or calculations to the satisfaction of the Municipal Engineer why the required infiltration volume controls cannot be physically accomplished on the Site (e.g., shallow depth to bedrock or limiting zone, open voids, steep slopes, etc.) and what alternative volume can be infiltrated; however in all cases at least the first one-half (0.5) inch of runoff volume shall be infiltrated.

B. A waiver from Section 304 shall be considered by the Municipality only if a minimum of at least one-half (0.5") inch infiltration requirement cannot be physically accomplished on the Site.

C. If Site conditions preclude capture of runoff from portions of the Impervious Surfaces, the infiltration volume for the remaining area shall be increased by an equivalent amount to offset the loss.

D. When a project contains or is divided by multiple watersheds, the infiltration volume shall be separately addressed for each watershed.

E. Existing Impervious Surfaces located in areas outside of the Site (i.e., outside of the Regulated Activity) may be excluded from the calculation of the required infiltration volume.

F. A detailed soils evaluation of the Site shall be conducted by a qualified professional and at a minimum shall address soil permeability, depth to bedrock, and subgrade stability. The general process for designing the infiltration BMP shall be conducted by a qualified Licensed Professional and shall be consistent with the PA BMP Manual (as amended) (or other guidance acceptable to the Municipal Engineer) and in general shall:

1. Analyze hydrologic soil groups as well as natural and man-made features within the Site to determine general areas of suitability for infiltration practices. In areas where development on fill material is under consideration, conduct geotechnical investigations of sub-grade stability; infiltration may not be ruled out without conducting these tests.

2. Provide field tests such as double ring infiltrometer or other hydraulic conductivity tests (at the elevation of the proposed infiltration surface) to determine the appropriate hydraulic conductivity rate. Standard septic/sewage percolation tests are not acceptable for design purposes.

3. Design the Infiltration Facility for the required retention (infiltration) volume based on field-determined infiltration capacity (and apply safety factor as per applicable design guidelines) at the elevation of the proposed infiltration surface.

4. On-lot infiltration features are encouraged; however, it shall be demonstrated to the Municipal Engineer that the soils are conducive to infiltration on the identified lots.

G. Infiltration BMPs shall be selected based on suitability of soils and Site conditions and shall be constructed on soils that have the following characteristics:

1. A minimum depth of twenty-four (24") inches between the bottom of the BMP and the top of the Limiting Zone. Additional depth may be required in areas underlain by Karst or carbonate geology.

2. An infiltration rate sufficient to accept the additional stormwater volume and drain completely as determined by field tests conducted by the Applicant.

3. The Infiltration Facility shall completely drain the retention (infiltration)

volume within three (3) days (seventy-two (72) hours) from the end of the design storm.

H. All infiltration practices shall:

1. Be set back at least twenty-five (25') inches from all buildings and features with sub-grade elements (e.g., basements, foundation walls, etc.), unless otherwise approved by the Municipal Engineer;

2. For any infiltration practice that collects runoff from shared or multiple features and that is located within fifty (50') feet of a building or feature with sub-grade elements (e.g., basements, foundation walls, etc.), the bottom elevation shall be set below the elevation of the sub-grade element.

I. Infiltration Facilities shall, to the maximum extent practicable, be located to avoid introducing contaminants to groundwater:

1. When a Hotspot is located in the area draining to a proposed Infiltration Facility, an evaluation of the potential of groundwater contamination from the proposed Infiltration Facility shall be performed, including a hydrogeologic investigation (if necessary) by a qualified Licensed Professional to determine what, if any, pretreatment or additional design considerations are needed to protect groundwater quality.

2. When located within a "well head protection area" of a public water supply well, infiltration practices shall be in conformance with the applicable approved source water protection assessment or source water protection plan.

3. The Applicant shall provide appropriate safeguards against groundwater contamination for land uses that may cause groundwater contamination should there be a mishap or spill.

J. During Site construction, all infiltration practice components shall be protected from compaction due to heavy equipment operation or storage of fill or construction material. Infiltration areas shall also be protected from sedimentation. Areas that are accidentally compacted or graded shall be remediated to restore soil composition and porosity. Adequate documentation to this effect shall be submitted to the Municipal Engineer for review. All areas designated for infiltration shall not receive runoff until the contributory drainage area has achieved final stabilization.

K. Where sediment transport in the stormwater runoff is anticipated to reach the infiltration system, appropriate permanent measures to prevent or collect sediment

shall be installed prior to discharge to the infiltration system.

L. Where roof drains are designed to discharge to infiltration practices, they shall have appropriate measures to prevent clogging by unwanted debris (for example, silt, leaves and vegetation). Such measures shall include but are not limited to leaf traps, gutter guards and cleanouts.

M. All infiltration practices shall have appropriate positive overflow controls.

N. No sand, salt or other particulate matter may be applied to a porous surface material for winter ice conditions.

O. The following procedures and materials shall be required during the construction of all subsurface facilities:

1. Excavation for the Infiltration Facility shall be performed with equipment that will not compact the bottom of the seepage bed/trench or like facility.

2. The bottom of the bed and/or trench shall be scarified prior to the placement of aggregate.

3. Only clean aggregate with documented porosity, free of fines, shall be allowed.

4. The tops, bottoms and sides of all seepage beds, trenches, or like facilities shall be covered with drainage fabric. Fabric shall be non-woven fabric acceptable to the Municipal Engineer.

5. Stormwater shall be distributed throughout the entire seepage bed/trench or like facility and provisions for the collection of debris shall be provided in all facilities.

Section 305. Stream Channel Protection Requirements

For Regulated Activities involving New Development with one (1) or more acres of Earth Disturbance, the Applicant shall comply with the following stream channel protection requirements to minimize stream channel erosion and associated water quality impacts to the receiving waters:

A. The peak flow rate of the Post-construction two (2) year, twenty-four (24) hour design storm shall be reduced to the Predevelopment peak flow rate of the one (1) year, twenty-four (24) hour duration precipitation, using the SCS Type II distribution.

B. To the maximum extent practicable, and unless otherwise approved by the

Municipal Engineer, the Post-construction one (1) year, twenty-four (24) hour storm flow shall be detained for a minimum of twenty-four (24) hours and a maximum not to exceed seventy-two (72) hours from a point in time when the maximum volume of water from the one (1) year, twenty-four (24) hour storm is stored in a proposed BMP (i.e., when the maximum water surface elevation is achieved in the facility). Release of water can begin at the start of the storm (i.e., the invert of the orifice is at the invert of the proposed BMP).

C. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Subsection 307.D of this Ordinance.

D. The minimum orifice size in the outlet structure to the BMP shall be three (3") inches in diameter unless otherwise approved by the Municipal Engineer, and a trash rack shall be installed to prevent clogging. For Sites with small drainage areas contributing to the BMP that do not provide enough runoff volume to allow a twenty-four (24) hour attenuation with the three (3)-inch orifice, the calculations shall be submitted showing this condition.

E. When the calculated orifice size is below three (3") inches, gravel filters (or other methods) are recommended to discharge low-flow rates subject to the Municipal Engineer's satisfaction. When filters are utilized, maintenance provisions shall be provided to ensure filters meet the design function.

F. All proposed Stormwater Management Facilities shall make use of measures to extend the flow path and increase the travel time of flows in the facility.

G. When a Regulated Activity contains or is divided by multiple drainage areas, the peak flow rate control shall be separately addressed for each drainage area.

Section 306. Rate Controls

The Applicant shall comply with the following peak flow rate control requirements for all Regulated Activities including those that involve New Development and Redevelopment.

A. Post-construction peak flow rates from any Regulated Activity shall not exceed the Predevelopment peak flow rates as shown for each of the design storms specified in Table 306.1.

TABLE 306.1
Peak Rate Control Standards

(Peak Flow Rate of the Post-construction Design Storm
Shall be Reduced to the Peak Flow Rate of the Corresponding Predevelopment
Design Storm Shown in the Table)

POST-CONSTRUCTION DESIGN STORM FREQUENCY (24-Hour Duration)	PRE DEVELOPMENT DESIGN STORM	
	New Development Regulated Activities	Redevelopment Regulated Activities
2-Year	1-Year	2-Year
5-Year	5-Year	5-Year
10-Year	10-Year	10-Year
25-Year	25-Year	25-Year
50-Year	50-Year	50-Year
100-Year	100-Year	100-Year

B. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Subsection 307.D of this Ordinance.

C. For Regulated Activities involving only Redevelopment, no peak flow rate controls are required when and only if the total Proposed Impervious Surface area is at least twenty percent (20%) less than the total existing Impervious Surface area to be disturbed by the Regulated Activity. In all cases where this requirement is not met, the Redevelopment Regulated Activity shall achieve the peak flow rate controls presented in Table 306.1, using the Redevelopment Ground Cover Assumptions presented in Subsection 307.D. This design criterion for Redevelopment is only permitted with approval of Municipal Engineer. It shall result in no measurable impact on downstream properties.

D. Only the area of the proposed Regulated Activity shall be subject to the peak flow rate control standards of this Ordinance. Undisturbed areas for which the discharge point has not changed are not subject to the peak flow rate control standards.

E. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) that drain through a proposed Site are not subject to peak flow rate control requirements. Drainage facilities located on the Site shall be designed to safely convey flows from outside of the Site through the Site.

F. When a Regulated Activity contains or is divided by multiple drainage areas, the peak flow rate controls shall be separately addressed for each drainage area.

G. The effect of structural and non-structural stormwater management practices implemented as part of the overall Site design may be taken into consideration when calculating total storage volume and peak flow rates.

Section 307. Calculation Methodology

A. Stormwater runoff from all Regulated Activity Sites with a drainage area of greater than five (5) acres shall be calculated using a generally accepted calculation technique(s) that is based on the NRCS Soil Cover Complex Method. Table 307.1 summarizes acceptable computation methods. The method selected for use shall be based on the individual limitations and suitability of each method for a particular Site. The use of the Rational Method to estimate peak discharges for drainage areas greater than five (5) acres shall be permitted only upon approval by the Municipal Engineer.

TABLE 307.1
ACCEPTABLE COMPUTATION METHODOLOGIES FOR SWM SITE PLAN

METHOD	DEVELOPED BY	APPLICABILITY
TR-20 (or commercial computer package based on TR-20)	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary.
TR-55 (or commercial computer package based on TR-55)	USDA NRCS	Applicable for land development plans where limitations described in TR-55 are met.
HEC-1/HEC-HMS	US Army Corps of Engineers	Applicable where use of a full hydrologic computer model is desirable or necessary.
Rational Method (or commercial computer package based on Rational Method)	Emil Kuichling (1889)	For Sites up to five (5) acres, or as approved by the Municipality.
Other Methods	Varies	Other computation methodologies approved by the Municipality.

B. All calculations using the Soil Cover Complex Method shall use the appropriate design rainfall depths for the various return period storms consistent with this Ordinance. Rainfall depths used shall be obtained from NOAA Atlas 14 values consistent with a partial duration series. When stormwater calculations are performed for routing procedures or infiltration, water quality and runoff volume functions, the duration of rainfall shall be twenty-four (24) hours.

C. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times-of-concentration (duration) and storm events with rainfall intensities obtained from NOAA Atlas 14 partial duration series estimates, or the latest version of the PennDOT Drainage Manual (PDM Publication 584). Times-of-concentration shall be calculated based on the methodology recommended in the respective model used. Times of concentration for channel and pipe flow shall be computed using Manning's equation.

D. The Applicant shall utilize the following ground cover assumptions for all Predevelopment water quality and runoff volume, infiltration volume and peak flow rate calculations:

1. For Regulated Activities involving New Development, the following ground cover assumptions shall be used:

    a. For areas that are Woods (as defined in Article II of this Ordinance), Predevelopment calculations shall assume ground cover of "Woods in good condition".

    b. For all other areas (including all Impervious Surfaces), Predevelopment calculations shall assume ground cover of "meadow".

2. For Regulated Activities involving Redevelopment, the following ground cover assumptions shall be used:

    a. For areas that are Woods (as defined in Article II of this Ordinance), Predevelopment calculations shall assume ground cover of "Woods in good condition".

    b. For areas that are not Woods or not Impervious Surfaces, Predevelopment calculations shall assume ground cover of "meadow".

    c. For areas that are Impervious Surfaces, Predevelopment calculations shall assume at least twenty percent (20%) of the existing Impervious Surface area to be disturbed as "meadow" ground cover.

3. The Applicant shall determine which stormwater standards apply to the proposed Regulated Activity as follows:

    a. Stormwater standards for New Development shall apply to all proposed Regulated Activities that involve only New Development activities as defined in this Ordinance.

b. Stormwater standards for Redevelopment shall apply to all proposed Regulated Activities that involve only Redevelopment activities as defined in this Ordinance.

c. At the discretion of the Municipal Engineer, Regulated Activities that involve a combination of both New Development and Redevelopment activities, as defined in this Ordinance, may either:

i. Apply the stormwater standards (Redevelopment or New Development) that are associated with the activity that involves the greatest amount of land area; or

ii. Apply the Redevelopment and New Development stormwater standards to the corresponding Redevelopment and New Development portions of the proposed Regulated Activity.

E. Runoff curve numbers (CN) for both Predevelopment and proposed (Post-construction) conditions to be used in the Soil Cover Complex Method shall be obtained from Table C-1 in Appendix B of this Ordinance.

F. Runoff coefficients (C) for both Predevelopment and proposed (Post-construction) conditions for use in the Rational Method shall be obtained from Table C-2 in Appendix B of this Ordinance.

G. Weighted averaging of runoff coefficients shall not be used for manual computations or input data for water quality and runoff volume calculations.

H. Hydraulic computations to determine the capacity of pipes, culverts, and storm sewers shall be consistent with methods and computations contained in the Federal Highway Administration Hydraulic Design Series Number 5 (Publication No. FHWA-NHI-01- 020 HDS No. 5, as amended). Hydraulic computations to determine the capacity of open channels shall be consistent with methods and computations contained in the Federal Highway Administration Hydraulic Engineering Circular Number 15 (Publication No. FHWA-NHI-05-114 HEC 15, as amended). Values for Manning's roughness coefficient (n) shall be consistent with Table C-3 in Appendix B of the Ordinance.

I. Runoff calculations shall include the following assumptions:

1. Average antecedent moisture conditions (for the Soil Cover Complex Method only for example, TR-55, TR-20).

2. A type II distribution storm (for the Soil Cover Complex Method only for example, TR-55, TR-20).

Section 308. Other Requirements

A. Any stormwater basin required or regulated by this Ordinance designed to store runoff and requiring a berm or earthen embankment shall be designed to provide an emergency spillway to safely convey flow up to and including the one hundred (100)- year proposed conditions. The height of embankment shall provide a minimum one (1.0) foot of Freeboard above the maximum pool elevation computed when the facility functions for the one hundred (100) year proposed conditions inflow. Should any BMP require a dam safety permit under PA Chapter 105 regulations, the facility shall be designed in accordance with and meet the regulations of PA Chapter 105 concerning dam safety. PA Chapter 105 may require the safe conveyance of storms larger than one hundred (100) year event.

B. Any drainage Conveyance facility and/or channel not governed by PA Chapter 105 regulations shall be designed to convey, without damage to the drainage facility or roadway, runoff from the twenty-five (25) year storm event. Larger storm events (fifty (50) year and one hundred (100) year storms) shall also be safely conveyed in the direction of natural flow without creating additional damage to any drainage facilities, nearby structures, or roadways.

C. Conveyance facilities to or exiting from stormwater management facilities (i.e., detention basins) shall be designed to convey the design flow to or from the facility.

D. Roadway crossings or structures located within designated floodplain areas shall be able to convey runoff from a 100-year design storm consistent with Federal Emergency Management Agency National Flood Insurance Program - Floodplain Management Requirements.

E. Any Stormwater Management Facility located within a PennDOT right-of-way shall comply with PennDOT minimum design standards and permit submission and approval requirements.

F. Adequate erosion protection and energy dissipation shall be provided along all open channels and at all points of discharge. Design methods shall be consistent with the Federal Highway Administration Hydraulic Engineering Circular Number 11 (Publication No. FHWA-IP-89-016, as amended) and the PADEP Erosion and Sediment Pollution Control Program Manual (Publication No. 363-2134-008, as amended), or other design guidance acceptable to the Municipal Engineer.

Section 309. 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. Riparian Buffer Easement Agreements shall be submitted to the Municipality's Solicitor for review and approval prior to recording.

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 drainfields and sewage disposal systems shall not be permitted within the Riparian Buffer Easement and shall comply with setback requirements established under 25 Pa. Code Chapter 73.

Section 310. Permit Requirements by Other Governmental Entities

The following permit or other regulatory requirements may apply to certain Regulated Activities and shall be met prior to (or as a condition of) final approval by the Municipality of the SWM Site Plan and prior to commencement of any Regulated Activities, as applicable:

A. All Regulated Activities subject to permit or regulatory requirements by PADEP under regulations at Title 25 Pennsylvania Code Chapter 102, or erosion and sediment control requirements of the Municipality.

B. Work within natural drainage ways subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.

C. Any BMP or Conveyance that would be located in or adjacent to surface Waters of the Commonwealth, including wetlands, subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.

D. Any BMP or Conveyance that would be located on or discharge to a State highway right-of-way, or require access to or from a State highway and be subject to approval by PennDOT.

E. Culverts, bridges, storm sewers, or any other facilities which must pass or convey flows from the tributary area and any facility which may constitute a dam subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.

Section 311. Water Quality and Runoff Volume Requirements

To control Post-construction stormwater impacts from Regulated Activities and meet State water quality requirements, BMPs shall be provided in the Site design that replicate Predevelopment stormwater infiltration and runoff conditions, such that Post-construction stormwater discharges do not degrade the physical, chemical, or biological characteristics of the receiving waters. The green infrastructure and Low Impact Development (LID) practices provided in the PA BMP Manual, as well as the guidance on green infrastructure LID and Conservation Design (CD) provided in Appendix B, shall be utilized for all regulated activities wherever possible. The Applicant shall comply with the following water quality and runoff volume requirements for all Regulated Activities, including all New Development and Redevelopment activities:

A. The Post-construction total runoff volume shall not exceed the Predevelopment total runoff volume for all storms equal to or less than the two (2) year, twenty-four (24) hour duration precipitation (design storm) or a minimum of one and one half (1.5") inches of runoff from all Regulated Impervious Surfaces shall be managed, whichever volume to be managed is greater. The water quality and runoff volume to be managed shall consist of any runoff volume generated by the proposed Regulated Activity over and above the Predevelopment total runoff volume and shall be captured and permanently retained or infiltrated on the Site. Permanent retention options may include, but are not limited to, reuse, evaporation, transpiration, and infiltration.

B. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Subsection 307.D of this Ordinance.

C. The design of the Stormwater Management Facility outlet shall provide for protection from clogging and unwanted sedimentation.

D. BMPs that moderate the temperature of stormwater shall be used to protect the temperature of receiving waters.

E. Water quality improvement shall be achieved in conjunction with achieving the infiltration requirements of Section 303. The infiltration volume required under Section 303 may be included as a component of the water quality volume. If the calculated water quality and runoff volume is greater than the volume infiltrated, then the difference between the two (2) volumes shall be managed for water quality and runoff volume control through other techniques or practices but shall not be discharged from the Site.

F. Runoff from the Disturbed Area shall be treated for water quality prior to entering existing waterways or water bodies. If a stormwater management practice does not provide water quality treatment, then water quality BMPs shall be utilized to provide pre-treatment prior to the runoff entering the stormwater management practice.

G. The Municipality may require additional water quality and runoff control measures for stormwater discharging to special management areas such as those listed in Subsection 301.R.

H. When the Regulated Activity contains or is divided by multiple drainage areas, the water quality and runoff volume shall be separately addressed for each drainage area.

I. Weighted averaging of runoff coefficients shall not be used for manual computations or input data for water quality and runoff volume calculations.

J. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) may be excluded from the calculation of the water quality and runoff volume requirements.

Section 312. Other Requirements

A. Any BMP intended to hold standing water for four (4) days or longer shall be designed to incorporate biologic controls consistent with the West Nile Guidance found in Appendix D, PADEP document 363-0300-001 "Design Criteria – Wetlands Replacement/Monitoring" (as amended), (or contact the Pennsylvania State Cooperative Wetland Center or the Penn State Cooperative Extension Office for design information.)

B. Any stormwater basin required or regulated by this Ordinance designed to store runoff and requiring a berm or earthen embankment shall be designed to provide an emergency spillway to safely convey flow up to and including the one hundred (100)-year proposed conditions. The height of embankment shall provide a minimum one (1.0) foot of Freeboard above the maximum pool elevation computed when the facility functions for the one hundred (100)-year proposed conditions inflow. Should any BMP require a dam safety permit under PA Chapter 105 regulations, the facility shall be designed in accordance with and meet the regulations of PA Chapter 105 concerning dam safety. PA Chapter 105 may require the safe conveyance of storms larger than one hundred (100)-year event.

C. Any drainage Conveyance facility and/or channel not governed by PA Chapter 105 regulations shall be designed to convey, without damage to the drainage facility or roadway, runoff from the twenty-five (25)-year storm event. Larger storm events (fifty (50)-year and one hundred (100)-year storms) shall also be safely conveyed in the direction of natural flow without creating additional damage to any drainage facilities, nearby structures, or roadways.

D. Conveyance facilities to or exiting from stormwater management facilities (i.e., detention basins) shall be designed to convey the design flow to or from the facility.

E. Roadway crossings or structures located within designated floodplain areas shall be able to convey runoff from a 100-year design storm consistent with Federal Emergency Management Agency National Flood Insurance Program – Floodplain Management Requirements.

F. Any Stormwater Management Facility located within a PennDOT right-of-way shall comply with PennDOT minimum design standards and permit submission and approval requirements.

G. Adequate erosion protection and energy dissipation shall be provided along all open channels and at all points of discharge. Design methods shall be consistent with the Federal Highway Administration Hydraulic Engineering Circular Number 11 (Publication No. FHWA-IP-89-016, as amended) and the PADEP Erosion and

Sediment Pollution Control Program Manual (Publication No. 363-2134-008, as amended), or other design guidance acceptable to the Municipal Engineer.

Section 313. Conveyance and System Design Standards

A. Stormwater Management System Design Criteria for Selected Best Management Practices.

1. Infiltration devices shall be selected based on suitability of soils and site conditions. Suitability of soils shall be determined by soil infiltration testing, with suitability defined as having minimum percolation rates of 0.5 inches per hour at the elevation of the bottom of the facility (lower rates may be acceptable, upon Borough review of the reasons as presented).

2. Soil infiltration testing shall be performed for all proposed infiltration areas; soil testing shall include evaluation of appropriate soil horizons with deep pits and percolation measurements, making sure to assess percolation rates at the proposed infiltration device bed bottom. Soil testing, including the frequency and locations of the tests, may be subject to review by the Borough with the result that additional tests may be required. Unless the engineer-of- record submits reasons for more aggressive testing, soil infiltration testing shall be in accordance with ASTM D3385-03. Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring I nil ltrometer.

3. The lowest elevation of the infiltration area shall be at least two (2) feet above the Seasonal High Water Table (SHWT) and bedrock, except in the case of limestone formations (Carbonate District), in which case the distance shall be four (4) feet.

4. All roof drains which discharge to infiltration systems shall have appropriate measures to prevent clogging by vegetation and to prevent sinkhole formation. Emergency overflow risers shall be provided for each individual roof drain pipe.

5. All infiltration systems shall have appropriate positive overflow controls within one (**I**) foot of the finished surface or grade.

6. All infiltration systems shall have a minimum setback of fifteen (15) feet from all residential structures and property lines. A greater setback may be required by the engineer-of-record. Negative impacts associated with adjacent below ground structures shall be evaluated and prevented.

7. All infiltration systems shall be designed to infiltrate the stored volume within forty-eight (48) hours.

8. All surface inflows shall be designed to minimize the discharge of sediment into the infiltration system in order to prevent sediment accumulation, which reduces

stormwater storage capacity and ultimately clogs the infiltration mechanism.

9. Special provisions are required when using infiltration BMPs in carbonate, limestone, karst formations in order to avoid groundwater contamination and ground subsidence.

    a. Because potential for these problems to develop increases as soil thickness decreases, the soil mantle should be determined to be a minimum of four feet in thickness, in order to both remove pollutants and uniformly disperse groundwater movement, which is important to avoid solution channel formation.

    b. In carbonate areas, BMPs which disperse stormwater over the largest feasible area should be used (e.g.. subtle berms and level spreaders) so as not to significantly modify the natural hydrologic regime. Use of infiltration BMPs which result in significant increases (more than a 100 percent increase) over the pre-development rate of infiltration per unit area should be avoided in carbonate areas, unless a detailed geologic evaluation demonstrates that the potential for sinkhole formation is minimal.

10. Stormwater runoff from significant pollutant producing sources {so called "hot spots" such as industrial uses, gas stations, fast food and other uses as may be determined by the Borough) shall be filtered and/or pretreated using a water quality BMP or other environmentally effective device before being discharged into the groundwater (infiltration) or in to the municipal separate storm sewer system.The engineer-of-record shall assess the need to undertake a detailed geologic evaluation of the project sitc in order to determine the suitability for recharge, including both the potential for groundwater contamination and potential for sinkhole formations and karst related ground subsidence. The evaluation shall be performed by a registered professional geologist licensed in the Commonwealth of Pennsy lvania and/or any other qualified design professional. At a minimum, the evaluation shall address soil permeability, depth to bedrock, susceptibility of sinkhole formations and karst related ground subsidence, and subgrade stability.

B. Basins, Storm Sewers, Culverts, Bridges and other Structural Installations

1. Basins, storm sewers, culverts, bridges and other structural installations shall be provided to safely accommodate stormwater, where natural non-structural practices are not feasible and where stormwater flows otherwise would have an adverse impact on the environment and the general welfare of the Borough and the residents and occupants of the Borough, in order to:

    a. Maintain natural hydrologic regimes of streams and watercourses. Such flows may be redirected as required, subject to the approval of PA DEP.

2. Promote drainage of all low points along the line of streets. Overflow sw ales shall be designed to convey the full one hundred (100) year storm flows away from all street low points. These swales shall be located to prevent flooding.

3. Intercept storm w ater runoff along streets at intervals reasonably related to the extent and grade of the area drained, and to prevent substantial flow of water across intersections and flooding of intersections during the design storm as stipulated elsewhere in this Ordinance.
4. Insure adequate and unimpeded How of stormwater under driveways in. near, or across natural watercourses or drainage swales. Suitable pipes or other waterway openings shall be provided as necessary.

C. Design of Basins (Detention and Retention), Storm Sewers, Culverts, Bridges and Other Structural Installations

1. Standards for conventional basins shall meet requirements listed in this Ordinance including the following:

   a. Basins shall be installed prior to any earthmoving or land disturbances that they will serve. The phasing of their construction shall be noted in the Erosion and Sedimentation Control Plan. Permanent vegetation shall be established prior to denuding any other land, unless the basin functions as an erosion and sedimentation control device.

   b. Energy dissipaters and/or level spreaders shall be installed at points where pipes or drainage ways discharge from basins. Multiple outlet structures and multiple outlet piping from the basin may be required in order to reduce the impact of point discharges. Basin discharges directed to Little Buck Run shall be conveyed by way of rock-lined channels with sinuous horizontal alignments as required to minimize velocities.

   c. The following slope restrictions shall apply to basins:

      1. Exterior slopes of compacted soil shall not exceed one (1) foot vertical for three (3) feet horizontal, and may be further reduced, based on the recommendations of the engineer-of- record. if the soil has unstable characteristics.

      2. Interior slopes of the basin shall not exceed one (1) foot vertical in three (3) feet horizontal, unless unauthorized entry and use is prevented by means designed by the engineer-of- record, such as permanent fencing and signage.

      3. The minimum bottom slope shall be three (3) percent for grass, and three-quarter (0.75) percent for concrete paving. One (1) percent may be used for grass if an underdrain system is provided. A concrete low flow channel may be required for basins where the distance from the inlet pipe to the outlet

structure exceeds one hundred (100) feet, depending upon site conditions. The minimum channel width shall be four (4) feet. The channel shall be constructed of six (6) inch thick concrete (3.300 psi 28-day strength) over four (4) inches of PA DOT No. 2A stone.

d. Basins shall also be designed to meet the following requirements:

1. The minimum top of berm width shall be eight (8) feet.

2. Outlet pipes shall have a minimum diameter of twelve (12) inehes. For pipe lengths exceeding one hundred (100) feet, the minimum diameter shall be fifteen (15) inches.

3. Properly spaced anti-seep collars shall be installed on all basin outlet pipes.

4. All basins shall be constructed with a compacted relatively impervious (Unified Soil Classification CL-ML or CL) key trench and core. The key trench shall extend at least two (2) feet into undisturbed subgrade (non topsoil) material.

5. The minimum bottom width of the trench shall be six (6) feet and the minimum top width of the core shall be four (4) feet. The side slopes of the compacted core and trench shall not exceed one (1) horizontal to one (1) vertical, and the top elevation of the core shall be set at or above the twenty-five (25) year design water elevation. Based on the recommendations of the engineer-of-record. an impermeable liner may be installed up to the one hundred (100) year design water surface elevation.

6. Provisions for safety to prevent potential events of drowning and hypothermia.

e. Basin outlet structures and emergency spillways

1. Outlet structures within basins which will control peak discharge flows and distribute the flows by pipes to discharge areas shall be constructed primarily of concrete or masonry material and shall have child-proof, non-clogging trash racks overall design openings, except those openings designed to carry perennial stream flows. Trash rack material shall be epoxy coated galvanized or stainless steel. Other materials are subject to acceptance by the Borough.

2. Six (6) inches of freeboard shall be provided between the crest of the primary outlet structure and the invert of the emergency spillway.

3. Emergency spillways shall be constructed in undisturbed earth wherever possible. When constructed in fill. sod. pre-cast concrete paving blocks,

concrete or permanent erosion control matting shall be used. When using sod. it shall be applied along the inside slope above the 25-year water surface elevation, along the face and sides of the spillway and down the outside slope to existing grade. Emergency spillways shall be designed to safely convey the one hundred (100) year basin inflow hydrograph through the basin assuming the principal outlet is completely blocked and the basin water surface elevation is equal to the spillway invert elevation.

f. Basin inlet and outlet structures shall be located at maximum distances from one another. The engineer-of-record shall design a rock filter berm or rock-filled gabions between the inlet and outlet areas when the distance is deemed insufficient for sediment trappings.

g. Permanent grasses or stabilization measures shall be established on the sides of all earthen basins by hydroseeding within five (5) days of initial construction {or conversion from sediment basin or sediment trap). Jute or erosion control matting shall be installed inside the basin and on the basin embankment.

h. Stormwater runoff shall discharge to a suitable natural drainage course or storm sewer system. Where not possible or not permitted, level spreading devices or other suitable facilities shall be designed with sufficient capacity to convey the 100-year storm event without creating any safety, flooding, erosion, or property damage or hazardous conditions. Securing of necessary drainage easements for this purpose shall be required and shall be the sole responsibility of the applicant/developer.

i. As required, the engineer-of-record shall obtain soil samples from the site to be analyzed to determine if the soils are suitable for berm embankment construction. If the soils are found to be unsuitable, the developer shall import suitable soils for constructing the basin.

2. Swale Design

a. Grass swales not specifically designed as BMP devices shall have a minimum bottom slope of two (2) percent and their depth shall be deep enough to convey the 25-year storm event with a minimum of one (1.0) foot of freeboard. Swale linings shall be designed based on the 25-year velocity or greater if required for consistency with the assumptions for detention. Swales shall have sufficient capacity to convey the 100-year storm discharge without creating any safety or property hazard.

b. Swales, when located outside of the Borough right-of-ways, shall be located within an easement not less than twenty (20) feet wide, but of sufficient width to allow access for maintenance and to convey all storms up to and including the

100-year storm. A note on the plan shall indicate that the easement allows the Borough the right for stormwater drainage (drainage easement) and the right, though not the responsibility, to perform needed maintenance and/or repairs and backcharge the maintainer or lien the property of the maintainer.

3. Storm Sewer Design

a. Where storm sewer pipe and in lets are required, they shall be placed immediately in front of the curb within the right-of-way. Any storm sewer pipe which outlets on private residential property may only discharge to the rear yard and must be a minimum of 50 feet beyond habitable structures.

b. Storm sewers shall have a minimum diameter of fifteen (15) inches and consist of either reinforced cement concrete pipe or SL-HDPE double wall pipe. The minimum grade of the pipe shall be one-half (1/2) percent.

c. All storm sewer, sanitary sewers, water pipes, and other utilities beneath a paved surface shall be bedded with AASHTO No. 57 crushed stone, and backfilled with PA DOT No. 2A stone, or when acceptable to the Borough for certain applications. 2RC material. This backfill shall be placed in six (6) inch lifts and compacted to 95% maximum dry weight density at optimum moisture content.

d. In carbonate, limestone areas, watertight pipe connections are required and appropriate specifications shall be provided on the plans.

e. Headwalls. endwalls. or end sections shall be required on all open pipes, and shall be of concrete construction and shall be set on a minimum of twelve (12) inches of AASHTO No. 57 (PA DOT 2B) coarse aggregate. All headwalls. endwalls and end sections shall have wings (wingwalls) as well as other provisions necessary to minimize incidental erosion. Child-proof grates shall be provided on all openings. Grates shall have features for removal for maintenance purposes. Grates and anchorages shall be epoxy coated galvanized materials.

f. All storm sewers shall be constructed per the latest PennDOT specifications as outlined in the *408 Specifications*, the *Design Manual, Part 2, Highway Design,* and the *Standards for Roadway Construction, RC-Series,* as well as other applicable requirements as determined by the engineer-o(-record.

g. Any changes in alignment shall be straight sections connected by inlets or manholes.

h. When there is a change in pipe size through an inlet, the top inside elevation of the outlet pipe shall be at or below the top inside elevations of all incoming pipes.

i. Storm sewer sizes shall be determined based upon the following design storm frequencies:

1. Twenty-five (25) years for all subdivisions and land developments.

2. One-hundred (100) years for drainage areas routing into detention and/or retention facilities. The design of storm sewer systems within the drainage area of detention or retention facilities shall be analyzed for adequate capacity for the 100-year storm, including the effects of the control facility tail water. This may require a hydraulic grade line analysis. Inlet capacities shall be designed accordingly.

j. Storm sewer design shall be based upon PennDOT design methods. Inlet efficiency and bypass flow shall be determined for all inlets, and the gutter flow spread shall not exceed one-half (1/2) the travel lane width or to a maximum of eight (8) feet where parking is permitted. The engineer-of-record shall provide a hydraulic grade line analysis of the storm sewer systems where applicable.

k. Culverts shall be evaluated for inlet and outlet control restrictions. Discharges into Little Buck Run and other tributaries shall account for the effects of backwater. Hydraulic analyses shall be performed to evaluate the backwater conditions.

l. Hydraulic design data, provided by the Pennsylvania Department of Transportation and/or manufacturers of storm drainage structures may be used for design purposes when consistent with the provisions of this Ordinance.

m. Manholes and/or inlets shall not be more than three-hundred (300) feet apart on pipe sizes up to twenty-four (24) inches, and not more than three-hundred-fifty (350) feet apart on larger sizes.

n. Inlets, manholes, covers and frames shall conform to Pennsylvania Department of Transportation specifications. At street intersections, inlets shall be located in the tangent sections, and not in the curved section of the street curbing.

o. When precast concrete inlets or manholes are used within a street, a minimum of two (2) courses of brick masonry or grade ring shall be placed to bring the grate or cover to proper elevation. If brick is used, even third vertical joint shall be left open; if grade rings are used, the horizontal joints shall be left open to facilitate drainage of the base course. Geotextile fabric shall be wrapped around the outside of the brick masonry or grade rings to prevent the washing of fines into the inlets and manholes.

4. Roof Drains

a. Storm water roof drains shall not discharge water directly over a sidewalk or into any sanitary sewer line.

b. Proposed roof drains and collector locations shall be shown on the Stormwater Management and Drainage Plan. Roof drains and collectors shall conform to the

Borough Building Code.

5. Design of Bridges and Culverts

a. Bridges and culverts shall have adequately sized waterway openings in order to carry the design flows, based on a minimum storm frequency of fifty (50) years, unless a larger design flow is required by PADEP. One hundred (100) year water depths shall not exceed six (6) inches above the roadway centerline elevation. Bridge and/or culvert construction shall be in accordance with the PennDOT specifications and shall meet the requirements of the PADEP. The appropriate permits and approvals must be acquired by the applicant prior to final plan approval.

b. Culverts shall be provided with wing wails and constructed for the full width of the right-of- way. If the Borough determines that the character of the street is expected to change in the future, the cartway of the bridge shall be made to anticipate this condition. On each side of the bridge cartway, the bridge parapet shall be set back from the edge of the final cartway for purposes of sidewalks and/or pedestrian trails.

c. Structural design of the bridges and culverts shall be provided, in accordance with the design criteria of the latest version of PennDOT **Design Manual 4.** The design shall be the responsibility of the engineer-of-record.

D. Miscellaneous Requirements

1. Procedures for protecting soils and geologic structures (with water supply potential) from contamination by surface water or other disruption by construction activity shall be provided by the engineer-of-record. Such soils shall include, at the minimum, those underlain by carbonate limestone formations. The engineer-of-record shall determine whether control facilities are to be provided on existing or proposed storm water management systems within or adjacent to the project site.

2. Provisions for protecting existing wells or other water supplies shall be established.

3. Graded slopes shall not be steeper than three (3) horizontal units to one (1) vertical unit. Where slopes are steeper than three (3) horizontal units to one (1) vertical unit, provide interceptor swales to collect sheet flow' runoff.

4. A minimum of four (4) inches of topsoil shall be provided on all disturbed areas prior to final seeding and mulching.

5. Mature healthy trees of at least eight (8) inches DBH and other significant existing vegetation within the limits of earth disturbance shall be located in the

field and shown on the Stormwater Management and Drainage Plan, and shall be retained and protected. Such trees shall not be removed except as provided for on the Borough accepted plans. The filling of soil over the roots of trees to be preserved is prohibited. Roots are presumed to extend out from the tree as far as the tree's branches extend outward.

6. Retention facilities shall address issues related to the effects the West Nile virus and possible mosquito breeding areas. Include an evaluation of locations where standing water is anticipated for a period of time greater than 48 hours. The retention basin shall be of sufficient size to allow the appropriate aquatic community needed to maintain healthy pond ecology and avoid mosquitoes capable of carrying West Nile Virus and other diseases. The Chester County Health Department. Pennsylvania Fish and Boat Commission, or other qualified professionals shall be consulted during the design of these facilities in order to ensure the health of aquatic communities and in order to minimize the risk of creating mosquito breeding areas.

7. Detailed operations, maintenance and inspection procedures shall be documented that assure proper implementation for all stormwater management facilities. Infiltration facilities shall address clogging issues related to random debris, sediment, tree leaves, roadway salts, and other tines. Schedules shall be established for routine inspection and preventative maintenance tasks.
8. Stormwater shall be effectively directed away from buildings and other similar structures.

9. All stormwater management facilities shall be designed in a manner that satisfies the purposes of this Ordinance.

10. As part of a regulated activity, the existing vegetation of the riparian buffers shall be evaluated by a registered landscape architect and upgraded/restored in accordance with the provisions of this Ordinance.

11. Stormwater management designs shall prevent drainage swales, concentrated runoff, and increased flows from discharging onto sidewalks, pedestrian trails, streets, parking lots, driveways, and neighboring properties.

12. Stormwater inlets shall be provided at the upgradient side of street intersections and the ponding points of street bulb-outs (bump-outs).

13. Stormwater inlets shall be Penn DOT Type *'C" or Type "M"\ Double stormwater inlets are not permitted. All adjacent stormwater inlets shall be separated by a minimum of five (5) feet.

14. Provide maintenance access to all stormwater facilities.

15. Stormwater facilities not located within Borough right-of-ways shall be owned, operated and maintained by either a property owner or homeowners* association. The applicant shall obtain direction from the Borough regarding the requirement to establish a homeowners' association. The Borough shall have a drainage easement across all properties where stormwater facilities are located. The drainage easement shall provide the Borough the right to convey stormwater from Borough right-of-ways through the stormwater facilities, and shall permit the Borough the right, but not the responsibility, to enter the associated properties in order to perform maintenance and upgrades to the stormwater facilities. Easments shall be defined by metes and bounds.

16. Where existing stormwater systems are subject to increased stormwater flows, the conveyance capacity of the existing systems shall be evaluated by the applicant from the point of the introduction of increased flows through to the point of outfall.

17. Additional design criteria shall include the information from the Chester County Stormwater Model Ordinance and the PADEP Draft Guidelines for BMPs.

E. Floodplain Methodology

1. All existing and proposed one hundred (100) year floodplains shall be delineated on the Stormwater Management and Drainage Plan in accordance with the provisions of this Ordinance. If the 100-year floodplain is not mapped by the Federal Emergency Management Agency as part of the National Flood Insurance Program, the horizontal and vertical limits of the floodplain shall be determined utilizing the standard step method (i.e.. HEC- RAS or a similar approved computer model). If the FIEC-RAS model is used, the applicant shall submit a computer disc containing all input Files for the calculations, in order to expedite the floodplain review. If the watershed area is less than fifteen (15) acres, the Mannings Equation may be used as a substitute for the HECRAS. upon prior acceptance by the Borough.

2. The methods below shall be used to compute the design flow(s) in the drainage course although other methods may be used upon advance acceptance by the Borough. A conservative average of two (2) methods shall be used, and the design How subject to review by the Borough.

    a. The graphical and tabular methods in TR-55. The graphical method may be used for streams whose drainage area at the point of interest is no larger than two thousand (2.000) acres, and the tabular hydrograph method may be used for drainage areas up to twenty (20) square miles (12.800 acres).

    b. The Rational Method may be used for streams whose drainage areas at the point of interest are no larger than fifteen (1 5) acres.

c. The method in Water Resources Bulletin Number 13. Floods in Pennsylvania, issued by the Pennsylvania Department of Environmental Resources (now Protection) may be used for streams whose drainage area at the point of interest is larger than two (2) square miles.

d. The "Procedure PSU-IV for Estimating Design Flood Peaks on Ungaged Pennsylvania Watersheds."

e. The Penn State Runoff Model (PSRM).

ARTICLE IV – STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

Section 401. Plan Requirements

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

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

B. The Municipality shall not approve any SWM Site Plan that is deficient in meeting the requirements of this Ordinance. At its sole discretion and in accordance with this Article, when a SWM Site Plan is found to be deficient, the Municipality may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the Municipality may accept submission of modifications.

C. Provisions for permanent access or maintenance easements for all physical SWM BMPs, such as ponds and infiltration structures, as necessary to implement the Operation and Maintenance (O&M) Plan discussed in paragraph E.9 below.

D. The following signature blocks:

1. "I, (Borough Official [Engineer]), on this date (Signature Date), has reviewed and hereby certifies that the SWM Site Plan meets all design standards and criteria of the Parkesburg Borough Stormwater Management Ordinance."

2. A statement, signed by all Landowners, acknowledging that the stormwater BMPs are fixtures that cannot be altered or removed without prior approval by the Borough.

   "Acknowledgment of Permanence of BMPs:

   I, the undersigned hereby represent that no person shall modify, remove, fill, landscape, or alter any Stormwater Management BMPs, facilities, areas, or structures without the written approval of Parkesburg Borough.

   _____ _____

   Date Landowner"

3. A statement, signed by all Landowners, referencing the Operation and Maintenance (O&M) Agreement and stating that the O&M Agreement is part of the stormwater management site plan.

4. The following signature block for the Qualified Professional preparing the Stormwater Management Plan:

"I _____, hereby certify that the Stormwater Management Site Plan meets all design standards and criteria of the Parkesburg Borough Stormwater Management Ordinance.

_____ _____
Date Qualified Professional Signature"

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

1. Maps or Plan Sheets

Map(s) or plan sheets of the Site shall be submitted on minimum twenty-four (24)-inch by thirty-six (36)-inch sheets and shall be prepared in a form that meets the requirements for recording at the Chester County Office of the Recorder of Deeds and the requirements of the Operation and Maintenance (O&M) Plan and O&M Agreement (Article VII). If the SALDO has additional or more stringent criteria than this Ordinance, then the SALDO criteria shall also apply. Unless otherwise approved by the Municipal Engineer, the contents of the maps or plan sheets shall include, but not be limited to:

a. A listing of all regulatory approvals required for the proposed project and the status of the review and approval process for each. Final approval or adequacy letters must be submitted to the Municipality prior to (or as a condition of) the Municipality's issuing final approval of the SWM Site Plan. Proof of application or documentation of required permit(s) or approvals for the programs listed below shall be part of the SWM Site Plan, if applicable:

i. NPDES Permit for Stormwater Discharges Associated with Construction Activities;

ii. PADEP permits as needed:

1. PADEP Joint Permit Application,

2. Chapter 105 (Dam Safety and Waterway Management),

3. Chapter 106 (Floodplain Management);

b. PennDOT Highway Occupancy Permit;

c. Erosion and Sediment Control Plan letter of adequacy; and

d. Any other permit under applicable State or Federal regulations.

2. A location map, with a scale of one (1) inch equals two thousand (2,000') feet or greater, showing the Site location relative to highways, municipal boundaries, or other identifiable landmarks.

3. The name of the project, tax parcel number(s), and the names, addresses and phone numbers of the owner of the property, the Applicant, and firm preparing the plan.

4. Signature and seal of the qualified Licensed Professional(s) responsible for preparation of the maps and plan sheets.

5. The date of SWM Site Plan submission and revision dates, as applicable.

6. A graphic and written scale of one (1) inch equals no more than fifty (50') feet.

7. A north arrow.

8. Legal property boundaries, including:

    a. The total project property boundary and size with distances marked to the nearest foot and bearings to the nearest degree.

    b. Boundaries, size and description of purpose of all existing easements and deed- restricted areas of the project property, with distances marked to the nearest foot and bearings to the nearest degree.

9. Existing natural resources and natural or man-made hydrologic features that are located within the Site or receiving discharge from, or that may otherwise be impacted by, the proposed Regulated Activity, including but not limited to:

    a. All existing natural resources, hydrologic features and drainage patterns including natural waterways, water bodies, wetlands, streams (intermittent and perennial), ponds, lakes, vernal pools, etc., natural infiltration areas and patterns, areas of significant natural evapotranspiration, and other water features and aquatic resources.

    b. Any existing man-made drainage features, BMPs, Conveyances, facilities, open channels, swales, drainage patterns, or other flood, stormwater or drainage control features.

    c. For the Site, discharge points and locations of concentrated flows and their drainage areas.

    d. For named waters, show names and their watershed boundaries within the Site.

    e. Special management areas (as per Subsection 301.Q).

    f. For the water bodies, streams and wetlands identified in Subsection

402.B.8.a, label or otherwise show the following attributes, if applicable:

i. The Designated Use as determined by PADEP (25 PA Code Chapter 93);

ii. Impairments listed on the PADEP "Integrated List" (as updated) and the listed source and cause of impairment;

iii. Name, date, and target pollutant(s) for any approved Total Maximum Daily Load (TMDL); and

iv. Drainages to water supply reservoirs.

g. Areas that are part of the Pennsylvania Natural Diversity Inventory (PNDI) and a list of potential impacts and clearances received (for Regulated Activities involving one (1) acre or more proposed Earth Disturbance).

h. Woods, vegetated riparian buffers and other areas of natural vegetation.

i. Topography using contours (with elevations based on established bench marks) at intervals of two (2') feet. In areas of slopes greater than fifteen (15) [or other at option of Municipality] percent five (5)-foot contour intervals may be used. The datum used and the location, elevation and datum of any bench marks used shall be shown.

j. Areas classified by the Municipality as steep slopes.

k. Soil names and boundaries, general type of soils with Hydrologic Soil Group noted, and in particular note areas most conducive to infiltration BMPs, such as groups A and B, etc., estimated permeabilities in inches per hour, and location and other results of all soil tests and borings.

l. If present, areas with underlying carbonate geologic units, existing sinkholes, subsidence or other Karst features, and any associated groundwater recharge areas with increased vulnerability to contamination.

m. Any contaminated surface or subsurface areas of the Site.

n. Water supply wells -

i. Location of existing well(s) on the project property and delineation of the(ir) recharge area(s) (if known), or a fifty (50) foot diameter assumed recharge area;

ii. Location of existing well(s) within fifty (50') feet beyond the boundary of the project property boundary (if public water supply is proposed for the

Regulated Activity); and

o. Current FEMA one hundred (100) year floodplain boundaries, elevations, and Floodway boundaries for any Special Flood Hazard Areas on or within one hundred (100') inches of the property.

Section 402. Plan Submission

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

1. One (1) physical and electronic copy to the Municipality.

2. One (1) physical and electronic copy to the municipal engineer.

3. One (1) copy to the Chester County Conservation District (when applicable).

4. One (1) copy to the Chester County Planning Commission/Office (when applicable).

Section 403. Plan Review

A. SWM Site Plans shall be reviewed by the Municipality for consistency with the provisions of this Ordinance.

B. The Municipality shall notify the Applicant in writing within 45 days whether the SWM Site Plan is approved or disapproved. If a project requires both a SWM Site Plan and a Subdivision and Land Development Plan, the notification shall occur within the time period allowed by the Municipalities Planning Code (90 days,), unless an extension for and approval of the SWM Site Plan, the Subdivision and Land Development Plan or both, has been granted by an Applicant. If a longer notification period is provided by other statute, regulation, or ordinance, the Applicant will be so notified by the Municipality.

C. For any SWM Site Plan that proposes to use any BMPs other than green infrastructure and/or 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/or LID practices are not practicable.

D. If the Municipality disapproves the SWM Site Plan, the Municipality will state the reasons for the disapproval, including citations to this Ordinance, in writing. The Municipality also may approve the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing.

Section 404. Modification of Plans

A modification to a submitted SWM Site Plan that involves a change in SWM BMPs or techniques, or that involves the relocation or redesign of SWM BMPs, or that is necessary because soil or other

conditions are not as stated on the SWM Site Plan as determined by the Municipality shall require a resubmission of the modified SWM Site Plan in accordance with this Article.

Section 405. Resubmission of Disapproved SWM Site Plans

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

Section 406. Authorization to Construct and Term of Validity

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

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

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

B. The as-built submission shall include a certification of completion signed by a qualified professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications. The latitude and longitude coordinates for all permanent SWM BMPs must also be submitted, at the central location of the BMPs. If any licensed qualified professionals contributed to the construction plans, then a licensed qualified professional must sign the completion certificate.

C. After receipt of the completion certification by the Municipality, the Municipality may conduct a final inspection.

ARTICLE V – OPERATION AND MAINTENANCE

Section 501. Responsibilities of Developers and Landowners

A. The Municipality shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan. The Municipality may, but shall not be required to accept, dedication of such facilities as part of the requirements for approval of the SWM Site Plan. Such a requirement is not an indication that the Municipality will accept the facilities. The Municipality reserves the right to accept or reject the ownership and operating responsibility for any portion of the stormwater management controls.

B. Facilities, areas, or structures used as SWM BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or conservation easements that run with the land.

C. The O&M Plan and Stormwater Plan shall be recorded by the Applicant as a restrictive deed covenant that runs with the land.

D. The Municipality may take enforcement actions against an owner for any failure to satisfy the provisions of this Article.

Section 502. Operation and Maintenance Agreements

A. Prior to final approval of the SWM Site Plan, the property owner shall sign and record an Operation and Maintenance (O&M) Agreement (see Appendix A) covering all stormwater control facilities which are to be privately owned.

   1. The Landowner, successor and assigns, shall maintain all facilities in accordance with the approved maintenance schedule in the O&M Agreement.

   2. The Landowner shall convey to the Municipality easements to assure access for periodic inspections by the Municipality and maintenance, as necessary.

   3. The Landowner, successors and assigns, shall keep on file with the Municipality the name, address, and telephone number of the person or company responsible for maintenance activities required by the O&M Agreement; in the event of a change, new information shall be submitted by the Landowner to the Municipality within ten (10) working days of the change.

B. The Landowner is responsible for operation and maintenance (O&M) of the SWM BMPs. If the Landowner, successors and assigns, fail to adhere to the O&M Agreement, the Municipality may perform the services required and the Landowner shall reimburse the Municipality for the costs of such services so provided, plus an administrative fee of ten (10%) percent. The Municipality may seek to collect reimbursement of such costs, administrative fee and the costs of collection from the Landowner is such fees are not paid within thirty (30) days

of the date of the invoice issued by the Municipality to Landowner for such fees. Further, the Municipality may file a lien against the property on which the services were provided.

Section 503. Financial Security

A. For SWM Site Plans that involve subdivision and land development or an NPDES permit, the Applicant shall provide financial security 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 MPC.

B. The amount of financial security to be posted for the completion of the required improvements shall be equal to 110% of the cost of completion

C. The amount of financial security required shall be based upon an estimate of the cost of completion of the required improvements, submitted by an Applicant or developer and prepared by a professional engineer licensed as such in this Commonwealth and certified by such engineer to be a fair and reasonable estimate of such cost. The Municipality, upon the recommendation of the municipal engineer, may refuse to accept such estimate for good cause shown.

D. For stormwater management site plans that are required to have an NPDES permit and a financial security to the Municipality is required, evidence of the NPDES permit's executed notice of termination shall be provided to the Municipality prior to the release of the financial security

ARTICLE VI – FEES AND EXPENSES

Section 601. General

The Municipality may include all costs incurred in the review fee charged to an Applicant.

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

1. Administrative/clerical processing;

2. Review of the SWM Site Plan, agreements, covenants or restrictions required by the Ordinance by the Municipality, the Municipal Engineer and other Municipal Consultants, including the Municipal Solicitor;

3. Coordination and meetings with the Applicant;

4. The inspection of erosion and sediment control measures, BMPs, Conveyances and other related improvements during construction;

5. Review of project communications, reports, and additional supporting information;

6. Other Site inspections;

7. The final inspection upon completion of the BMPs, Conveyances, and other stormwater management facilities and related improvements presented in the4 SWM Site Plan; and

8. Review of final As-Built Plan submission and revised calculations, and inspections as needed

B. The Applicant shall also reimburse all expenses incurred by the Municipality for any additional work or Municipal consultant fees required to enforce any permit provisions regulated by this Ordinance, correct violations, and ensure proper completion of remedial actions.

ARTICLE VII – PROHIBITIONS

Section 701. Prohibited Discharges and Connections

A. Any drain or conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter a regulated small MS4 or to enter the surface waters of this Commonwealth is prohibited.

B. No person shall allow, or cause to allow, discharges into a regulated small MS4, or discharges into waters of this Commonwealth, which are not composed entirely of stormwater, except (1) as provided in paragraph C below and (2) discharges authorized under a state or federal permit.

C. The following discharges are authorized unless they are determined to be significant contributors to pollution a regulated small MS4 or to the waters of this Commonwealth:

1. Discharges or flows from firefighting activities.

2. Discharges from potable water sources including water line flushing and fire hydrant flushing, if such discharges do not contain detectable concentrations of Total Residual Chlorine (TRC).

3. Non-contaminated irrigation water, water from lawn maintenance, landscape drainage and flows from riparian habitats and wetlands.

4. Diverted stream flows and springs.

5. Non-contaminated pumped ground water and water from foundation and footing drains and crawl space pumps.

6. Non-contaminated HVAC condensation and water from geothermal systems.

7. Residential (i.e., not commercial) vehicle wash water where cleaning agents are not utilized.

8. Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.

9. Recording fees and miscellaneous expenses incurred by the Municipality in the recording of any plans or materials required by this Ordinance.

D. In the event that the Municipality or DEP determines that any of the discharges identified in Subsection C significantly contribute pollutants to a regulated small MS4 or to the waters of this Commonwealth, the Municipality or DEP will notify the responsible person(s) to cease the discharge.

Section 702. Roof Drains and Sump Pumps

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

Section 703. Alteration of SWM BMPs

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

ARTICLE VIII – ENFORCEMENT AND PENALTIES

Section 801. Right-of-Entry

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

Section 802. Inspection

The Landowner or his/her/its designee (including the Municipality for dedicated and owned facilities) shall inspect SWM BMPs, facilities and/or structures installed under this Ordinance according to the following frequencies, at a minimum, to ensure the BMPs, facilities and/or structures continue to function as intended:

1. Annually for the first five (5) years.

2. Once every three (3) years thereafter.

3. During or immediately after the cessation of a ten (10) year or greater storm.

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

Section 803. Enforcement

A. It shall be unlawful for a person to undertake any regulated activity except as provided in an approved SWM Site Plan, unless specifically exempted in Section 302.

B. It shall be unlawful to violate Section 703 of this Ordinance.

C. Inspections regarding compliance with the SWM Site Plan are the responsibility of the Municipality.

Section 804. Suspension and Revocation

A. Any approval or permit issued by the Municipality pursuant to this Ordinance may be suspended or revoked for:

1. Non-compliance with or failure to implement any provision of the approved SWM Site Plan or O&M Agreement.

2. A violation of any provision of this Ordinance or any other applicable law, ordinance, rule, or regulation relating to the Regulated Activity.

3. The creation of any condition or the commission of any act during the Regulated Activity which constitutes or creates a hazard, nuisance, pollution, or endangers the life or property of others.

B. A suspended approval may be reinstated by the Municipality when:

1. The Municipality has inspected and approved the corrections to the violations that caused the suspension.

2. The Municipality is satisfied that the violation has been corrected.

C. An approval that has been revoked by the Municipality cannot be reinstated. The Applicant may apply for a new approval under the provisions of this Ordinance.

D. If a violation causes no immediate danger to life, public health, or property, at its sole discretion, the Municipality may provide a limited time period for the owner to correct the violation. In these cases, the Municipality will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the allowed time period, the Municipality may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

Section 805. Penalties

A. Any person who violates or permits a violation of this Ordinance shall, upon conviction in a summary proceeding brought before a Magisterial District Judge under the Pennsylvania Rules of Criminal Procedure, be guilty of a summary offense and shall be punishable by a fine of not more than $600.00, plus all costs of prosecution, including, but not limited to, attorneys' fees. The establishment of a violation for purposes of setting fines or penalties for such violation shall be in accordance with a citation to a magisterial district judge with jurisdiction and venue over the location of the violation and such an action will be subject to the procedures provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure. Each day that such violation continues or is permitted to continue shall constitute a separate offense, and each section of this Ordinance that is violated shall also constitute a separate offense. Penalties for each separate offense shall be cumulative.

B. In addition, the Municipality may, through its solicitor, 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. Such relief shall permit the award of costs, fees, and charges incurred by the Borough, including the Borough's attorney's fees and engineering fees (charged at the hourly rate approved by the Borough of Parkesburg) and other costs as may be permitted by law.

Section 806. Appeals

A. Any person aggrieved by any action of the Borough or its designee, relevant to the provisions of this Ordinance, may appeal to the Borough Council within 30 days of that action in writing pursuant to any procedures adopted by Resolution of Borough Council addressing such appeals and the costs for same.

B. Any person aggrieved by any decision of the Municipality, relevant to the provisions of this Ordinance, may appeal to the County Court of Common Pleas in the county where the activity has taken place within 30 days of the Municipality's decision pursuant to the Local Agency Law as found at 2 Pa. C.S.A. § 101 et seq.

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/.

Effective date

This Ordinance shall be effective upon passage in accordance with the requirements of the Borough Code.

DULY ENACTED AND ORDAINED this 19th day of September, 2022, by the Borough Council of Parkesburg Borough, Chester County, Pennsylvania, at a meeting duly assembled.

ATTEST:

Rebecca Durnall, Secretary

PARKESBURG BOROUGH

By: _____
Sharon L. Wolf, Council President

(SEAL)

Approved this 19th day of September, 2022.

_____
John P. Hagan, II, Mayor