

SOUTH MIDDLETON TOWNSHIP
CUMBERLAND COUNTY, PENNSYLVANIA

ORDINANCE NO. 98-17
OF THE BOARD OF SUPERVISORS OF
SOUTH MIDDLETON TOWNSHIP, CUMBERLAND COUNTY, PENNSYLVANIA

AN ORDINANCE OF AND BY THE BOARD OF SUPERVISORS OF SOUTH MIDDLETON TOWNSHIP PROVIDING FOR A SPECIAL STORMWATER MANAGEMENT DISTRICT FOR THE HOGESTOWN RUN WATERSHED TO MINIMIZE DAMAGES FROM INCREASED FLOOD FLOWS AND VELOCITIES; EROSION AND SEDIMENTATION; OVERTAXING CARRYING CAPACITY OF EXISTING STREAMS AND STORM SEWERS; INCREASING COSTS OF PUBLIC STORMWATER MANAGEMENT FACILITIES; UNDERMINING FLOODPLAIN MANAGEMENT; REDUCING GROUNDWATER RECHARGE; AND THREATENING PUBLIC HEALTH AND SAFETY, THROUGH PROVISIONS DESIGNED TO MANAGE ACCELERATED RUNOFF AND EROSION AND SEDIMENTATION; UTILIZE AND PRESERVE EXISTING NATURAL DRAINAGE SYSTEMS; ENCOURAGE GROUNDWATER RECHARGE; PREVENT DEGRADATION OF GROUNDWATER QUALITY; MAINTAIN EXISTING FLOWS AND QUALITY OF STREAMS; PROVIDE PROPER MAINTENANCE OF ALL PERMANENT STORMWATER MANAGEMENT FACILITIES OF THE MUNICIPALITY AND PROVIDE PERFORMANCE STANDARDS AND DESIGN CRITERIA FOR STORMWATER MANAGEMENT AND PLANNING.

IT IS HEREBY ENACTED AND ORDAINED by the Board of Supervisors of South Middleton Township, Cumberland County, Pennsylvania, as follows:

SEVERABILITY

The provisions of this Ordinance shall be severable, and if any provision hereof shall be declared unconstitutional, illegal or invalid, such decision shall not affect the validity of any of the remaining provisions of this Ordinance. It is hereby declared as the legislative intent of the Township that this Ordinance would have been amended as if such unconstitutional, illegal or invalid provision or provisions had not been included herein.

REPEALER

All Ordinances or parts of Ordinances conflicting or inconsistent with the provisions of this Ordinance hereby are hereby repealed.

**ORDINANCE
SPECIAL STORMWATER MANAGEMENT DISTRICT
(SSM)**

**ARTICLE I
GENERAL PROVISIONS**

SECTION 101. STATEMENT OF FINDINGS

The governing body of the Municipality finds that:

- A. Inadequate management of accelerated storm water runoff resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of existing streams and storm sewers, greatly increases the cost of public facilities to convey and manage storm water, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces groundwater recharge, and threatens public health and safety.
- B. A comprehensive program of storm water management, including reasonable regulation of development and activities causing accelerated erosion, is fundamental to the public health, safety, welfare, and the protection of the people of the Municipality and all the people of the Commonwealth, their resources, and the environment.

SECTION 102. PURPOSE

The purpose of this Ordinance is to promote health, safety, and welfare within the Hogestown run watershed by minimizing the damages described in Section 101.A of this Ordinance through provisions designed to:

- A. Manage accelerated runoff and erosion and sedimentation problems at their source by regulating activities that cause these problems.
- B. Utilize and preserve the existing natural drainage systems.
- C. Encourage recharge of groundwater where appropriate and prevent degradation of groundwater quality.
- D. Maintain existing flows and quality of streams and watercourses in the Municipality and the Commonwealth.
- E. Preserve and restore the flood-carrying capacity of streams.

- F. Provide proper maintenance of all permanent storm water management facilities that are constructed in the Municipality.
- G. Provide performance standards and design criteria for storm water management and planning.

SECTION 103. STATUTORY AUTHORITY

The Municipality is empowered to regulate land use activities that affect runoff by the authority of the Act of October 4, 1978, P. L. 864 (Act 167), the "Storm Water Management Act," and Ordinance No. 12 of 1990, The South Middleton Township Subdivision and Land Development Ordinance.

SECTION 104. APPLICABILITY

General provisions relating to the Special Stormwater Management District are as follows:

- A. The authority for the administration and enforcement of this Ordinance shall be with the governing body of the Township, except as stated in Section 303. (Boundary Disputes).
- B. No area within the Special Stormwater Management District shall hereafter be used without full compliance with the terms of this Article and other applicable regulations.
- C. The Special Stormwater Management District established hereby shall be an overlay on any zoning district(s) now or hereafter enacted to regulate the use of land in South Middleton Township.
 - 1. The Special Stormwater Management District shall have no effect on the permitted uses in the underlying zoning district.
 - 2. In those areas of the Township where the Special Stormwater Management District applies, the requirements of the Special Stormwater Management District, if more restrictive, shall supersede the requirements of the underlying zoning district(s).
 - 3. The land use restrictions and the land development regulations set forth herein have been carefully determined through engineering and scientific study to be the minimum restriction or regulation necessary to protect the health, safety, and welfare of the citizens, as well as the future quality and quantity of this Township's groundwater supply. Therefore, there shall be no change in the underlying zoning districts or zoning regulations, such that density and impervious coverage limitations are affected, without further engineering and scientific study documenting that any such change

will not adversely affect this health, safety, and welfare and the future quality and quantity of this Township's groundwater.

4. In the event of a judicial decision(s) which modifies, changes, or reduces any: (1) restriction on the use or development of land, (2) boundary for the zones or Special Stormwater Management Districts, or (3) underlying zoning classifications within the Special Stormwater Management Districts, such modification, change or reduction shall be to the minimum extent necessary to satisfy both the judicial objection and the purpose of this Ordinance.
- D. The provisions hereof relating to the Special Stormwater Management District shall not repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where the provisions relating to the Special Stormwater Management district impose greater restrictions, such provisions shall prevail.
- E. The following activities and land uses are exempt from the provisions of this District:
1. Any Regulated Activity that would create 10,000 square feet or less of cumulative impervious area is exempt from the provisions of this Ordinance. This criteria shall apply to the total development even if development is to take place in phases. Exemption shall not relieve the applicant from providing adequate storm water management to meet the purpose of this Ordinance.
 2. Land disturbance associated with existing one and two family dwellings, subject to conditions described in 1. of this Section.
 3. Use of land for gardening for home consumption.
 4. Agriculture when operated in accordance with a conservation plan or erosion and sedimentation control plan prepared by the Conservation District. The agricultural activities such as growing crops, rotating crops, filling of soil and grazing animals and other such activities are specifically exempt from complying with the requirements of this Ordinance when such activities are conducted in accordance with a conservation plan prepared by the County Conservation District. The construction of buildings, parking lots or any activity that may result in impervious surface which increased the rate and volume of storm water runoff shall comply with the requirements of this Ordinance.
 5. Forest Management operations which are following the Department of environmental Resources' management practices contained in its publication "Soil Erosion and Sedimentation Control Guidelines for

Forestry” and are operating under an erosion and sedimentation control plan.

6. No exemption will be provided for Regulated Activities as defined in Section 104.H.5 and 104.H.6 of this Ordinance.
- F. This Ordinance shall only apply to permanent storm water management facilities constructed as part of any of the Regulated Activities listed in this Section. Storm water management and erosion and sedimentation control during construction activities are specifically not regulated by this Ordinance, but shall continue to be regulated under existing laws and ordinances.
- G. This Ordinance contains only storm water management performance standards and design criteria. Local storm water management design criteria (e.g. inlet spacing, inlet type, collection system details, outlet structure design, etc.) is contained in Ordinance No. 12 of 1990, The South Middleton Township Subdivision and Land Development Ordinance.
- H. The following activities are defined as “Regulated Activities” and shall be regulated by this Ordinance:
1. Land development.
 2. Subdivision.
 3. Construction of new or additional impervious or semi-pervious surfaces (driveways, parking lots, etc.).
 4. Construction of new buildings or additions to existing buildings.
 5. Diversion or piping of any natural or man-made stream channel.
 6. Installation of storm water management facilities or appurtenances thereto.

SECTION 105. REPEALER

Any ordinance of the Municipality inconsistent with any of the provisions of this Ordinance is hereby repealed to the extent of the inconsistency only.

SECTION 106. SEVERABILITY

Should any section or provision of this Ordinance be declared invalid by a court of competent jurisdiction, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

SECTION 107. COMPATIBILITY WITH OTHER ORDINANCE REQUIREMENTS

Approvals issued pursuant to this Ordinance do not relieve the Applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable Federal, State or local code, rule, act, or ordinance. Where more stringent requirements concerning the regulation of stormwater and erosions and sedimentation control are contained in another ordinance, regulation, act or code, the more stringent regulation shall apply.

SECTION 108. MUNICIPAL LIABILITY

The making of an administrative decision shall not constitute a representation, guarantee or warranty of any kind by (the Municipality) or safety of any proposed structure or use with respect to damage from erosion, sedimentation, storm water runoff or floods, and shall create no liability upon, or cause action against South Middleton Township, its officials or employees.

ARTICLE II DEFINITIONS

For the purposes of this chapter, 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 word “person” includes an individual, firm, association, organization, partnership, trust, company, corporation; or any other similar entity.
- D. The words “shall” and “must” are mandatory; the words “May” and “should” are permissive.
- E. The words “used or occupied” include the words “intended, designed, maintained, or arranged to be used or occupied.”

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

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

Applicant – A landowner or developer who has filed an application for approval to engage in any Regulated Activities as defined in Section 104 of this Ordinance.

Cistern – An underground reservoir or tank for storing rainwater.

Conservation District – The County Conservation District.

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

Dam – An artificial barrier, together with its appurtenant works, constructed for the purpose of impounding or storing water or another fluid or semi-fluid, or a refuse bank, fill or structure for highway, railroad or other purposes which does or may impound water or another fluid or semi-fluid.

Design Storm – The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g. an S-year storm) and duration (e.g. Z-hours), used in the design and evaluation of storm water management systems.

Detention Basin – An impoundment structure designed to manage storm water runoff by temporarily storing the runoff and releasing it at a predetermined rate.

Developer – A person, partnership, association, corporation, or other entity, or any responsible person therein or agent thereof, that undertakes any Regulated Activity of this Ordinance.

Development Site – the specific tract of land for which a Regulated Activity is proposed.

Drainage Easement – A right granted by a landowner to a grantee, allowing the use of private land for storm water management purposes.

Drainage Plan – The documentation of the storm water management system, if any, to be used for a given development site, the contents of which are established in Section 403.

Erosion – The movement of soil particles by the action-of-water, wind, ice, or other natural forces.

Floodplain – Any land area susceptible to inundation by water from any natural source or delineated by applicable Department of Housing and Urban Development, Federal Insurance Administration Flood Hazard Boundary Maps as being a special flood hazard area. Also included are areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania Department of Environmental Resources (PA DEP) Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by PA DEP).

Groundwater Recharge – Replenishment of existing natural underground water supplies.

Impervious Surface – A surface that prevents the percolation of water into the ground.

Infiltration Structures – A structure designed to direct runoff into the ground (e.g. French drains, seepage pits, seepage trench).

Land Development – The improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving

(a) a group of one or more building, residential or otherwise;

- (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features;
- (c) any subdivision of land;
- (d) any lot improvements regulated under the Municipal Zoning Regulations.

Land Disturbance – Any activity involving grading, tilling, digging, or filling of ground or stripping of vegetation or any other activity that causes an alteration to the natural condition of the land.

Minor Construction Projects – Projects involving the construction of accessory structures or extensions to residential buildings.

Municipality – South Middleton Township.

Open Channel – A drainage element in which storm water flows with an open surface. Open channels include, but shall not be limited to, natural and man-made drainage ways, swales, streams, ditches, canals, and pipes flowing partly full.

Plan Administrator – The entity set up specifically to review Drainage Plans, inspect storm water management structures, and otherwise enforce all regulations ‘as outlined in this “Storm Water Ordinance”.’

Peak Discharge – the maximum rate of storm water runoff from a specified storm event.

Pipe – A culvert, closed conduit, or similar structure (including appurtenances) that conveys storm water.

Probable Maximum Flood (PMF) – The flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonable possible in an area. The PMF is derived from the probably maximum precipitation (PMP) as determined on the basis of data obtained from the National Oceanographic and Atmospheric Administration (NOAA).

Regulated Activities – Actions or proposed actions that have an impact on storm water runoff and that are specified in Section 104 of this Ordinance.

Retention Basin – An impoundment in which storm water is stored and not released during the storm event. Stored water may be released from the basin at some time after the end of the storm.

Return Period – The average interval, in years, within which a storm event of a given magnitude to be expected to recur. For example, the 25-year return period rainfall would be expected to recur on the average once every twenty-five years.

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

SCS – U. S. Department of Agriculture, Soil conservation Service.

Sedimentation – The process by which mineral or organic matter is accumulated or deposited by the movement of water.

Sediment Basin – A barrier, dam, retention, or detention basin located and designed to retain rock, and, gravel, silt, or other material transported by water.

Seepage Pit/Seepage Trench – An area of excavated earth filled with loose stone or similar coarse material, into which surface water is directed for infiltration into the ground.

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

Storage Indication Method – A reservoir routing procedure based on solution of the continuity equation (inflow minus outflow equals the change in storage) with outflow defined as a function of storage volume and depth.

Storm Sewer – A system of pipes and/or open channels that convey intercepted runoff and storm water from other sources, but excludes domestic sewage and industrial wastes.

Storm water – The total amount of precipitation reaching the ground surface.

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

Storm Water Management Plan – The plan for managing storm water runoff.

Stream enclosure – A bridge, culvert or other structure in excess of 100 feet in length upstream to downstream which encloses a regulated water of this Commonwealth.

Subdivision – The division or redivision of a lot, tract, or parcel of land by any means into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate future, of lease, transfer of ownership, or building or lot development.

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

ARTICLE III
DESIGNATION AND INTERPRETATION OF DISTRICT BOUNDARY

SECTION 301. WATERSHED AREAS

- A. The Special Stormwater Management District consists of all lands located within the drainage areas established for the specified watersheds. These areas are described in detail below.
 - 1. **Hogestown Run** – Hogestown Run is the watershed area documented in the Hogestown Run/Trindle Spring Run Act 167 Stormwater Management Plan (March 1994), prepared for the Cumberland County Commissioners by Hartman & Associates, Inc. This study is incorporated here by reference.

SECTION 302. – BOUNDARY INTERPRETATION

- A. Each application for a regulated activity within the Special Stormwater Management District shall be submitted in accordance with such other provisions of the ordinances of South Middleton Township as are applicable thereto. Any area of the Special Stormwater Management District that falls within the subject lot or lots shall be shown on the site plan through shading of such area or areas.
- B. Any party seeking land development and/or subdivision approval in what might be a Special Stormwater Management District shall have the burden to present evidence of the boundaries of the District in the area in question. This presentation must include applicable geographic data with respect to the property and any other pertinent documentation for consideration. The municipal engineer, or other appointed agent, shall review the information and shall make determination regarding the boundaries of lands within a Wellhead Protection Area.
- C. In situations where a property may have parts lying within more than one Special Stormwater Management District, each part of the property shall be governed by the restrictions applicable to the Special Stormwater Management District in which that part of the property is located. The same rule shall apply to properties lying only partially within the Special Stormwater Management District.

SECTION 303. BOUNDARY DISPUTES

- A. Disputes regarding boundary designations of or within the Special Stormwater Management District or any zone shall be with the municipal

engineer and the Zoning Hearing Board. All other disputes, and the authority for the administration and enforcement of this Ordinance, shall be with the governing body of the Township.

- B. In any dispute arising under the provisions of this Ordinance, the burden of proof shall be on the person(s) challenging the Ordinance, or provisions therein, upon presentation of clear and convincing evidence. The governing body and the Zoning Hearing Board shall have the right to consult with independent consultants for purposes of testing, analysis, opinion, or the like. All costs associated with such consultation shall be shared equally by the parties to the dispute.

**ARTICLE IV
STORMWATER MANAGEMENT**

SECTION 401. GENERAL REQUIREMENTS

- A. Stormwater drainage systems shall be provided in order to permit unimpeded flow along natural watercourses, except as modified by stormwater management facilities or open channels consistent with this Ordinance.
- B. The existing points of concentrated drainage that discharge onto adjacent property shall not be relocated and shall be subject to any applicable release rate criteria specified in this Ordinance.
- C. Areas of existing diffused drainage discharge shall be subject to any applicable release rate criteria in the general direction of existing discharge, whether proposed to be concentrated or maintained as diffused drainage areas.

If diffused flow is proposed to be concentrated and discharged onto adjacent property, the developer must document that adequate downstream conveyance facilities exist to safely transport the concentrated discharge or otherwise prove that no erosion, sedimentation, flooding or other harm will result from the concentrated discharge.

- D. Where a Development Site is transversed by watercourses other than permanent streams, a drainage easement shall be provided conforming substantially to the line of such watercourse. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations that may adversely affect the flow of stormwater within any portion of the easement. Also, maintenance and mowing of vegetation within the casement shall be required.
- E. Any stormwater management facilities regulated by this Ordinance that would be located on State highway right-of-way shall be subject to approval by the Pennsylvania Department of Transportation (PENNDOT).
- F. Any stormwater management facilities required by this Ordinance that would be located in or adjacent to waters of the Commonwealth or potential wetlands shall be subject to approval by PA DEP through the Joint Permit Application process. When there is a question as to whether wetlands may be involved, it is the responsibility of the developer or his agent to show that the land in question cannot be classified as wetlands, otherwise approval to work in the area must be obtained by PA DEP.

- G. When it can be shown that, due to topography conditions, natural drainage ways on the site cannot adequately provide for drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainage ways.
- H. Sinkholes shall be protected as follows:
1. Stormwater from roadways, parking lots, storm sewers, roof drains or other concentrated runoff paths shall not be discharged directly into sinkholes.
 2. Sinkholes with sufficient capacity to receive appreciable amounts of stormwater shall be designated as such by posting on-site notices clearly visible at the sinkhole prohibiting any disposal of refuse, rubbish, hazards wastes, organic matter or soil into the sinkhole. Rock fill may be permitted in the sinkhole for the purpose of preventing dumping of said materials. The discharge of stormwater runoff to the subsurface using sinkholes shall be considered as potential pollution and prohibited unless the disposal method is designed so that the contaminants in the runoff will be absorbed in the soil mantle and be acted upon by the bacteria naturally present in the mantel before reaching the groundwater. Systems intended to meet this requirement shall be designed by a hydrogeologist.
 3. If increased or concentrated runoff is to be discharged into a sinkhole, including filtered discharge, a geologic assessment of the effects of such runoff on increased land subsidies and groundwater quality shall be prepared and the results submitted with the Drainage Plan. Such discharge shall be prohibited if the Municipal or Township Engineer determines that the discharge poses a hazard to life, property or groundwater resources.
- I. Geologic mapping shall be submitted with all subdivisions and land development proposals, except for minor construction projects, in areas where one or more of the following karst features is present:
1. Closed Depressions
 2. "Ghost Lakes" after rainfall events
 3. Open Sinkholes
 4. Outcrops of Bedrock
 5. Indicators of Seasonal High Water Table
 6. Surface Drainage Into the ground
 7. Unplowed Areas in Plowed Fields

The mapping shall be prepared by a registered professional geologist with a minimum of three years of experience in preparing such maps. Proof of

this experience shall be submitted with the mapping. This map shall be prepared from but not necessarily limited to a review of aerial photographs, soils maps, geologic and other similar related data. The Engineer shall also conduct a site inspection of the property.

Based upon the above preliminary work the engineer/geologist shall determine what further testing, if any, shall be performed by the developer to enable compliance with the geologic design standards set forth below. Testing methodology shall be reasonable and consistent under the circumstances, including (1) the scale of the proposed development and (2) the hazards revealed by examination of available data and site inspection.

The geologic mapping and test results shall be submitted as part of the overall subdivision and land development plan data. The report shall address the capability of the site to support the proposed development in a manner in which the risks attendant to development in carbonate areas are either eliminated or minimized. Recommendations for site development relating to stormwater management facilities shall be included.

Additional studies or testing as deemed necessary by the Municipal or Township Engineer in order to produce an adequate study given the scale of the proposal development and the hazards revealed, may be required of the developer.

J. Geologic Design Standards:

All stormwater management facilities and related structures shall be so situated, designed and constructed as to minimize the risk of structural damage from existing or future sinkholes.

Stormwater management facilities such as groundwater recharge pits, beds or trenches and detention ponds shall not be located within 100 feet of the karst feature identified above in Item #1 unless (1) the engineer/geologist demonstrates that a minimal risk of structural damage due to sinkhole will exist or (2) mitigating measures are taken to minimize the risk of structural damage. These mitigating measures shall be designed by the developer's engineer/geologist. Stormwater shall not be redirected into a sink hole.

SECTION 402. STORMWATER MANAGEMENT PERFORMANCE STANDARDS

Hogestown Run Watershed

The applicable performance standards for managing runoff from each subarea in the Hogestown Run watershed for the 2, 10 and 25 year design storm are provided in the release rate table on Plate 4 of the Hogestown Run/Trindle Spring Run Act 167 Stormwater Management Plan (March 1994). Post-development peak flows at the mouth of each of the subareas shown on Plate 4 must not exceed the arithmetic product of the applicable subarea release rate times the predevelopment peak flow from the particular site under consideration.

The peak discharge for each subarea in either watershed shall be calculated based upon the weighted CN which has been adjusted in accordance with the following equations:

Adjusted CN = (1.1 x weighted CN) – 10, for the 2 and 25 year events.

Adjusted CN = (1.2 x weighted CN) – 20, for the 10 year event.

Stormwater management facilities that reduce post development peak flows may not be required or be recommended for some subareas as specified on Plate 4 of this Ordinance. However, the capacity of existing drainage facilities in these subareas may be inadequate for conveying post-development peak flows. Where the existing drainage facilities are inadequate for conveying post development peak flows, the developer shall either release post development peak flows at 100 percent of the existing peak flow or increase the conveyance capacity of the inadequate drainage elements as specified in this Ordinance.

When post development peak flows are released at 100 percent of the predevelopment peak, significant changes in the timing of post development runoff shall not be permitted. The release of post development peak flows at 100 percent of the predevelopment peak flow may increase the duration of the peak discharge from a site and may in turn increase peak discharges in an area that is located downstream of the site. Increases in peak discharges at downstream locations resulting from releasing post development peaks at 100 percent of predevelopment peak flows shall not be permitted and an acceptable alternative stormwater management facility or technique or capacity improvements must be implemented as part of the development.

Within those watershed areas designated as “Provisional No Detention” the developer may discharge post development peak runoff directly into existing conveyance systems (detention facilities need not be considered) provided there is no adverse affect on the total watershed peak flow. In certain instances, however, the “local” runoff conveyance facilities, which transport runoff from the site to the main channel, may not have adequate capacity to safely transport increased peak flows associated with not providing detention for a proposed development. In those instances, the developer shall either use a 100% release rate control or provide increased capacity of downstream drainage elements to convey increased peak flows consistent with Section 403. In determining if adequate capacity exists in the existing local watershed drainage network, the developer must assume that the entire local watershed is developed per current zoning and that all new development would use the runoff controls specified by

this ordinance. Similarly, any capacity improvement must be designed to convey runoff from development of all areas tributary to the improvement consistent with the capacity criteria specified in Section 403.C.

SECTION 403. DESIGN CRITERIA FOR STORMWATER MANAGEMENT FACILITIES

- A. Incorporate stormwater management techniques into the design to reduce the runoff volume and rate of discharge. (These techniques may include minimizing impervious surfaces, planting flat grassed waterways and using any other means to increase the time of concentration and filtration of the runoff.) Then compute and compare pre and post development runoff hydrographs at each point-of-interest for the 2, 10 and 25 year events. When analysis indicates that the post development hydrographs and volumes, are less than or equal to the predevelopment hydrographs in peak and volume, additional stormwater controls are not required for the portion of the site draining to the point-of-interest. Stormwater detention facilities will be required, in addition to the stormwater management reduction techniques, when analysis illustrates that post development peak runoff rates and volumes are greater than the predevelopment runoff rates and volumes. Design the detention facilities and related structures to release the 2, 10 and 25 year events in accordance with the performance standards found in Section 402 of this Ordinance.
- B. The Pennsylvania DEP, Chapter 106, Rules and Regulations, apply to the construction, modification, operation or maintenance of both existing and proposed dams, water obstructions and encroachments throughout the watershed. Inquiries on permit requirements or other concerns should be addressed to the Southcentral Regional Office, 909 Elmerton Avenue, Harrisburg, PA 17110.

Any stormwater management facility required or regulated by this Ordinance shall be designed to provide an emergency spillway to handle flow up to the 100 year post development conditions. The height of embankment must be set as to provide a minimum of 1.0 foot of freeboard above the maximum pool elevation computed when the facility functions for the 100 year post development inflow. However, criteria for design and construction of stormwater management facilities are not the same criteria that are used in permitting of dams under the Dam Safety Program. Depending upon the physical characteristics of a dam, a dam permit may be required and the design will have to meet the provisions of Chapter 105 of the Dam Safety and Encroachments Act. Depending on the physical characteristics of a dam, the design could require that anywhere from a 50 year to a probable maximum flood storm event be considered.

- C. Any hydraulic capacity analysis conducted in accordance with this Ordinance shall use the following criteria to determine if adequate hydraulic capacity exists:
1. Open channels must be able to convey post development runoff from a 2-year design storm within their banks at velocities that would not erode the channel bed or banks. Acceptable velocities shall be based on criteria included in the PA DEP Soil Erosion and Sediment Control Manual (as amended or replaced from time to time by PA DEP) and presented in Table A-4 in the Appendix of this Ordinance.
 2. Where open channels, or systems of conveyance facilities are provided, a water surface profile analysis shall be submitted showing the anticipated, post development 100-year water surface profile. Open channels must be able to convey post development runoff from a 100-year design storm within their banks with a minimum 1.0 foot of freeboard and not create hazard to any persons on the property.
 3. Any other drainage conveyance facility that does not fall under Chapter 105 regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the 25-year storm with a minimum 1.0foot of freeboard measured below the lowest point along the top of the roadway. Any facility located within a PENN DOT right-of-way must meet PENN DOT minimum design standards and permit submission requirements.
 4. Storm sewer inlet spacing and road cross-section design must ensure that post development runoff resulting from 10-year design storm of five (5) minute duration does not flood more than one half (1/2) of a traffic lane, i.e. excluding the parking lane.
 5. Storm sewers must be able to convey post-development runoff from a 25-year design storm without surcharging inlets. Prevent the exfiltration of stormwater from storm sewer pipes by providing a water tight seal at all pipe section junctions and at inlet boxes.
- D. Easements along open channels shall be provided. The minimum width of the required easement shall be equal to the width of the 100-year water surface (for post-development conditions), including a minimum 1.0 foot of freeboard.
- E. In sub-areas where individual stormwater management facilities would be provided for each development site, the individual stormwater management facilities shall be designed to ensure that the post-development peak discharge at the mouth of the sub-area does not exceed the arithmetic product of the applicable release rate, specified on Plate 4 of this Ordinance

and the predevelopment peak flow from the particular site under consideration.

- F. For development sites that would be located in two (2) or more sub-areas, the applicable release rates for the portions of the site located in different sub-areas shall be based on natural sub-area drainage boundaries. The natural drainage boundaries between sub-areas shall not be modified, nor shall drainage from a development site be diverted or otherwise conveyed from one sub-area to another sub-area, except where runoff naturally crosses sub-areas drainage boundaries.
- G. “No Harm Option” – For any proposed development site not located in a provisional no detention sub-area, the developer has the option of using a less restrictive runoff control (including no detention) if the developer can prove that “no harm” would be caused by discharging at a higher runoff rate than that specified by the plan. Proof of “no harm” would have to be shown from the development site through the remainder of the downstream drainage network to the confluence of the Hogestown Run with the Conodoguinet Creek. Proof of “no harm” must be shown using the capacity criteria specified in Section 403.C if downstream capacity analysis is a part of the “no harm” justification.

Attempts to prove “no harm” based upon downstream peak flow versus capacity analysis shall be governed by the following provisions:

1. The peak flow values to be used for downstream areas for the design return period storms (2, 10 and 25 year) shall be the values from the calibrated Hogestown Run Watershed. These flow values will be supplied to the developer by the Municipal/Township Engineer upon request.
2. Any available capacity in the downstream conveyance system as documented by a developer may be used by the developer only in proportion to his development site acreage relative to the total upstream undeveloped acreage from the identified capacity (i.e. if the site is 10% of the upstream undeveloped acreage, the developer may use up to 10% of the documented available capacity).
3. Developer proposed construction generating increased peak flow rates at documented storm drainage problem areas would, by definition, be precluded from successful attempts to prove “no harm”, except in conjunction with proposed improvements for the problem areas consistent with this Ordinance. These problem areas are depicted on Plate 5 of the Plan.

4. The developer must assume that the entire sub-area in which the site is located is developed in accordance with the zoning in effect at the time the project is approved for development.

Any “no harm” justifications shall be submitted by the developer as part of the drainage plan submission per Article IV.

- H. Regional or Sub-Regional Stormwater Management Facilities – For certain areas within the watershed, it may be cost-effective to provide one (1) stormwater management facility for the entire sub-area, ground of sub-areas or portion of a sub-area incorporating more than one (1) development site. The initiative and funding for any regional or sub-regional stormwater management alternatives are the responsibility of prospective developers and will be approved by the Municipality of township on a case-by-case basis. The design of any regional stormwater management facilities must assume development of the entire area that would drain to the regional facility. The type and amount of development that the developer(s) must consider shall be based on current Township or Municipal zoning. The peak outflow from a regional stormwater management facility must be consistent with the Hogestown Run Watershed, Act 167 “Stormwater Management Plan” using a model which is acceptable to the Municipal or Township Engineer. When regional or sub-regional stormwater management facilities are utilized, the effect of phased growth on stormwater runoff flows must be considered. At no time from the initial phase through ultimate development shall the peak runoff flows exceed the predevelopment peak multiplied by the applicable release rate.
- I. Capacity Improvements – If the developer can prove that it would be feasible to provide capacity improvements to relieve the capacity deficiency in the existing drainage network, then adequate capacity improvements can be provided by the developer in lieu of stormwater management facilities on the development site. Any capacity improvements would be designed based on development of all areas tributary to the improvement and the capacity criteria specified in this Ordinance. The type and amount of development that the developer must consider shall be based on current zoning and existing land uses. It shall be assumed that all new development upstream of a proposed capacity improvement would implement applicable stormwater management techniques, consistent with this Ordinance.
- J. Erosion protection shall be provided along all open channels and at all points of discharge. Design erosion protection in accordance with Erosion and Sediment Pollution control Program Manual, as amended, published by the PA DEP.
- K. Existing and proposed ponds and other similar open water features that are not designed as stormwater management facilities shall be designed in

accordance with the United States Department of Agriculture, Soil Conservation Service (SCS), Ponds – Planning, Design, Construction (as amended or replaced from time to time by (SCS) and shall be treated as impervious surfaces for stormwater runoff computations.

- L. The design of all stormwater management facilities shall incorporate sound engineering principles and practices. The Municipal or township engineer shall reserve the right to disapprove any design that would result in the occurrence or perpetuation of an adverse hydrologic or hydraulic condition within the watershed.

SECTION 404. CALCULATION METHODOLOGY

- A. Stormwater runoff calculations involving drainage areas greater than 20 acres, including on and off-site areas; shall use any generally accepted calculation technique that is based on the SCS soil cover complex method.

Use the Rational Method to estimate peak discharges from drainage areas that contain less than 20 acres.

- B. Design stormwater detention facilities to meet the performance standards of this Ordinance by routing the design storm hydrograph through these facilities using the Storage-Indication Method. For drainage areas greater than 20 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. For drainage areas containing less than 20 acres calculate the full hydrograph using approximate techniques.

- C. All calculations using the soil cover complex method shall use the Soil Conservation Service Type II 24-hour rainfall distribution. The 24-hour rainfall depths for the various return periods to be used with this ordinance are (taken from rainfall duration frequency tables for Pennsylvania, PA DEP) as follows:

<u>Return Period</u>	<u>24-Hour Rainfall Depth</u>
2-Year	2.6 Inches
10-Year	3.7 Inches
25-Year	4.4 Inches
100-Year	5.3 Inches

- D. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration for overland flow and return period published by PENNDOT in Design Manual 2, as amended. Times of concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watersheds, SCS TR-55 (as amended or replaced from time to time SCS). Times of concentration for channel and pipe flow shall be computed using Manning’s Equation.

- E. Runoff Curve Numbers for both existing and proposed conditions to be used in the soil cover complex method shall be obtained from Table A-1 or Figure A-1 in the Appendix of this Ordinance.
- F. Runoff coefficients © for both existing and proposed conditions to be used in the Rationale Method shall be obtained from Table A-1 or Figure A-1 in the Appendix of this Ordinance.
- G. Where uniform flow is anticipated, the Manning equation shall be used for hydraulic computations and to determine the capacity of open channels, pipes and storm sewers. Where non-uniform flow is anticipated, the hydraulic effects of “backwater” caused by hydraulic obstructions (e.g. culverts, bridges, dams, reservoirs, etc.) shall be evaluated using the standard step method for determining water surface profiles. Values for Manning’s roughness coefficient (n) shall be consistent with Table A-3 in the Appendix of this Ordinance. Permissible velocities for channels shall be no more than the values indicated in Table A-4 of the Appendix.
- H. Outlet structures for stormwater management facilities shall be designed to meet the performance standards of this Ordinance using any generally accepted hydraulic analysis technique or method.

ARTICLE V DRAINAGE PLAN REQUIREMENTS

SECTION 501. GENERAL REQUIREMENTS

For any of the activities regulated by this Ordinance, the final approval of subdivision and/or land development plans, the issuance of any building or occupancy permit, or the commencement of any land disturbance activity may not proceed until the Property Owner or Developer or his/her agent has received written approval of a Drainage Plan from the Township Engineer.

SECTION 502. DRAINAGE PLAN CONTENTS

The Drainage Plan shall consist of all applicable calculations, maps, and plans. A note on the maps shall refer to the associated computations and erosion and sedimentation control plan by title and date. The cover sheet of the computations and erosion and sedimentation control plan shall refer to the associated maps by title and date. All Drainage Plan materials shall be submitted to the Plan Administrator in a format that is clear, concise, legible, neat, and well organized; otherwise, the Drainage Plan shall be disapproved and returned to the Applicant.

The following items shall be included in the Drainage Plan:

A. General

1. General description of project.
2. General description of permanent storm water management techniques, including construction specifications of the materials to be used for storm water management facilities.
3. Complete hydrologic, hydraulic, and structural computations for all storm water management facilities.

B. Map(s) of the project area shall be submitted on 24-inch x 36-inch or 30-inch x 42-inch sheets and shall be prepared in a form that meets the requirements for recording the offices of the Recorder of Deeds of Cumberland County. The contents of the map(s) shall include, but not limited to:

1. The location of the project relative to highways, municipalities or other identifiable landmarks.
2. Existing contours at intervals of two feet. In areas of steep slopes (greater than 15 percent), five-foot contour intervals may be used.

3. Existing streams, lakes, ponds, or other bodies of water within the project area.
4. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, areas of natural vegetation to be preserved, and the total extent of the upstream area draining through the site.
5. The locations of all existing and proposed utilities, sanitary sewers, and water lines within 50 feet of property lines.
6. An overlay showing soil names and boundaries.
7. Proposed changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added.
8. Proposed structures, roads, paved areas, and buildings.
9. Final contours at intervals of two feet. In areas of steep slopes (greater than 15 percent), five-foot contour intervals may be used.
10. The name of the development, the name and address of the owner of the property, and the name of the individual or firm preparing the plan.
11. The date of submission.
12. A graphic and written scale of one (1) inch equals no more than fifty (50) feet; for tracts of twenty (20) acres or more, the scale shall be one (1) inch equals no more than one hundred (100) feet.
13. North arrow.
14. The total tract boundary and size with distances marked to the nearest foot and bearings to the nearest degree.
15. Existing and proposed land use(s).
16. Key map showing all existing man-made features beyond the property boundary that would be affected by the project.
17. Horizontal and vertical profiles of all open channels, including hydraulic capacity.
18. Overland drainage paths.
19. A twenty-foot wide access easement around all storm water management facilities that would provide ingress from and egress to a public right-of-way.

20. A note on the plan indicating the location and responsibility for maintenance of storm water management facilities that would be located off-site. All off-site facilities shall meet the performance standards and design criteria specified in this Ordinance.
21. A construction detail of any improvements made to sinkholes and the location of all notices to be posted, as specified in this Ordinance.
22. A statement, signed by the landowner, acknowledging the storm water management system to be a permanent fixture that can be altered or removed only after approval of a revised plan by the Plan Administrator.
23. The following signature block for the Plan Administrator: "I, (Plan Administrator), on this date (date of signature), have reviewed and hereby certify that the Drainage Plan meets all design standards and criteria of the Storm Water Management Ordinance."
24. The location of all erosion and sedimentation control facilities.

C. Supplemental Information

1. A written description of the following information shall be submitted.
 - a. The overall storm water management concept for the project.
 - b. Storm water runoff computations as specified in this Ordinance.
 - c. Storm water management techniques to be applied both during and after development.
 - d. Expected project time schedule.
2. A soil erosion and sedimentation control plan, including all reviews and approvals, as required by PA DEP.
3. A geologic assessment of the effects of runoff on sinkholes as specified in this Ordinance.
4. The effect of the project (in terms of runoff volumes and peak flows) on adjacent properties and on any existing municipal storm water collection system that may receive runoff from the project site.
5. A Declaration of Adequacy and Highway Occupancy Permit from the PENNDOT District Office when utilization of a PENNDOT storm drainage system is proposed.

D. Storm Water Management Facilities

1. All storm water management facilities must be located on a map and described in detail.
2. When groundwater recharge methods such as seepage pits, beds or trenches are used, the locations of existing and proposed septic tank infiltration areas and wells must be shown.
3. All calculations, assumptions, and criteria used in the design of the storm water management facilities must be shown.

SECTION 503. PLAN SUBMISSION

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

- A. The Drainage Plan shall be submitted by the Developer as part of the Preliminary Plan submission for the Regulated Activity.
- B. Four (4) copies of the Drainage Plan shall be submitted.
- C. Distribution of the Drainage Plan will be as follows:
 1. Two (2) copies to the Municipality accompanied by the requisite Municipal Review Fee, as specified in this Ordinance.
 2. Two (2) copies to the Plan Administrator accompanied by the requisite Plan Administrator Review Fee as specified in this Ordinance.

SECTION 504. DRAINAGE PLAN REVIEW

- A. The Plan Administrator shall review the Drainage Plan. The Plan Administrator shall require receipt of a complete plan, as specified in this Ordinance.
- B. The Municipal Engineer shall review the Drainage Plan for any subdivision or land development against the municipal subdivision and land development ordinance provisions not superseded by this Ordinance.
- C. For activities regulated by this Ordinance, the Plan Administrator shall notify the Municipality in writing, within 90 calendar days, whether the Drainage Plan is

consistent with this Storm Water Management Ordinance. Should the Drainage Plan be determined to be inconsistent with this Storm Water Management Ordinance, the Plan Administrator will forward a disapproval letter to the Municipal Secretary and Developer citing the reason(s) for the disapproval. Any disapproved Drainage Plans may be revised by the Developer and resubmitted consistent with this Ordinance.

- D. For Regulated Activities specified in Sections 104.H.3 and 104.H.4 of this Ordinance, the Plan Administrator shall notify the Municipal Building Permit Officer in writing, within a time frame consistent with the Municipal Building code, whether the Drainage Plan is consistent with this Storm Water Management Ordinance and forward a copy of the approval/disapproval letter to the Developer. Any disapproved drainage plan may be revised by the Developer and resubmitted consistent with this Ordinance.
- E. For Regulated Activities requiring a PADEP Joint Permit Application, the Plan Administrator shall notify PADEP whether the Drainage Plan is consistent with this Storm Water Management Ordinance and forward a copy of the review letter to the Municipality and the Developer. PADEP may consider the Plan Administrator's review comments in determining whether to issue a permit.
- F. The Municipality shall not approve any subdivision or land development for Regulated Activities specified in Sections 104.H.1 and 104.H.2 of this Ordinance if the Drainage Plan has been found to be inconsistent with this Storm Water Management Ordinance, as determined by the Plan Administrator, or without considering the comments of the Municipal Engineer. All required permits from PADEP must be obtained prior to approval.
- G. The Municipal Building Permit Office shall not issue a building permit for any Regulated Activity specified in Section 104.H.3 and 104.H.4 of this Ordinance if the Drainage Plan has been found to be inconsistent with this Storm Water Management Ordinance, as determined by the Plan Administrator, or without considering the comments of the Municipal Engineer. All required permits from PADEP must be obtained prior to issuance of a building permit.
- H. The Developer shall be responsible for completing an "As-Built survey" of all storm water management facilities included in the approved Drainage Plan. The As-Built Survey and an explanation of any discrepancies with the design plans shall be submitted to the Plan Administrator for final approval. In no case shall the Plan Administrator approve the As-Built Survey until the Plan Administrator receives a copy of an approved Declaration of Adequacy, Highway Occupancy Permit from the PENNDOT District Office, and any applicable permits from PADEP.
- I. The Plan Administrator's approval of a Drainage Plan shall be valid for a period not to exceed one (1) year. This one-year time period shall commence on the

date that the Plan Administrator signs the approved Drainage Plan. If storm water management facilities included in the approved Drainage Plan have not been constructed, or if an As-Built Survey of these facilities has not been approved within this one-year time period, then the Plan Administrator may consider the Drainage Plan disapproved and may recommend that the Municipality revoke any and all permits. Drainage Plans that are considered disapproved by the Plan Administrator shall be resubmitted in accordance with Section 506 of this Ordinance.

SECTION 505. MODIFICATION OF PLANS

A modification to a submitted Drainage Plan for a development site that involves a change in storm water management facilities or techniques, or that involves the relocation or re-design of stormwater management facilities, or that is necessary because soil or other conditions are not as stated on the Drainage Plan (as determined by the Plan Administrator or the Municipal Engineer), shall require a resubmission of the modified Drainage Plan consistent with Section 503 of this Ordinance and be subject to review as specified in Section 504 of this Ordinance.

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

SECTION 506. RESUBMISSION OF DISAPPROVED DRAINAGE PLANS

A disapproved Drainage Plan may be resubmitted; with the revisions addressing the Plan Administrator's concerns documented in writing, to the Plan Administrator in accordance with Section 503 of this Ordinance and be subject to review as specified in Section 504 of this Ordinance. The applicable Plan Administrator Review Fee must accompany a resubmission of a disapproved Drainage Plan.

**ARTICLE VI
INSPECTIONS**

SECTION 601. SCHEDULE OF INSPECTIONS

- A. The Plan Administrator or his assignee shall inspect all phases of the installation of the permanent storm water management facilities.

- B. During any stage of the work, if the Plan Administrator determines that the permanent storm water management facilities are not being installed in accordance with the approved plans, the Municipality shall revoke any existing permits until a revised Drainage Plan is submitted and approved as specified in this Ordinance.

ARTICLE VII FEES AND EXPENSES

SECTION 701. GENERAL

The fees required by this Ordinance are the Municipal Review Fee and the Plan Administrator Review Fee. The Municipal Review Fee shall be established by the Municipality to defray review costs incurred by the Municipality and the Municipal Engineer. The Plan Administrator Review Fee shall be established by the Plan Administrator to defray the Plan Administrator's review costs. All fees shall be paid by the Applicant.

SECTION 702. PLAN ADMINISTRATOR DRAINAGE PLAN REVIEW FEE

The Plan Administrator shall establish a Review Fee Schedule based on the size of the Regulated Activity and based on the Plan Administrator's costs for reviewing Drainage Plans. The Plan Administrator shall periodically update the Review Fee Schedule to ensure that review costs are adequately reimbursed.

SECTION 703. EXPENSES COVERED BY FEES

The fees required by this Ordinance shall at a minimum cover:

- A. The review of the Drainage Plan by the Plan Administrator and the Municipal Engineer.
- B. The site inspection.
- C. The inspection of storm water management facilities and drainage improvements during construction.
- D. The final inspection upon completion of the storm water management facilities and drainage improvements presented in the Drainage Plan.
- E. Any additional work required to enforce any permit provisions regulated by this Ordinance, correct violations, and assure proper completion of stipulated remedial actions.

**ARTICLE VIII
MAINTENANCERESPONSIBILITIES**

SECTION 801. MAINTENANCE RESPONSIBILITIES

- A. The storm water management plan for the development site shall contain an operation and maintenance plan prepared by the developer and approved by the municipal engineer. The operation and maintenance plan shall outline required routine maintenance actions and schedules necessary to insure proper operation of the facility (&).
- B. The storm water management plan for the development site shall Establish responsibilities for the continuing operating and maintenance of all proposed storm water control facilities, consistent with the following principals:
- C. If a development consists of structures or lots which are to be separately owned and in which streets, sewers and other public improvements are to be dedicated to the municipality, storm water control facilities should also be dedicated to and maintained by the municipality.
- D. If a development site is to be maintained in a single ownership or if Sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of storm water control facilities should be the responsibility of the owner or private management entity.
- E. The governing body, upon recommendation of the municipal engineer, shall make the final determination on the continuing maintenance responsibilities prior to final approval of the storm water management plan. The governing body reserves the right to accept the ownership and operation responsibility for any or all of the storm water management controls.

SECTION 802. MAINTENANCE AGREEMENT FOR STORM WATER FACILITIES DEDICATED TO THE MUNICIPALITY

Any storm water facility dedicated to the municipality shall comply with the provisions of Section 704 A, 2 and 3 and Section 704 8 and C.

SECTION 803. MAINTENANCE AGREEMENT FOR PRIVATELY OWNED STORM WATER FACILITIES

- A. Prior to final approval of the site's storm water management plan, the property owner shall sign and record a maintenance agreement covering all storm water

control facilities which are to be privately owned. The agreement shall stipulate that:

1. The owner shall maintain all facilities in accordance with the approved maintenance schedule and shall keep all facilities in a safe and attractive manner.
 2. The owner shall convey to the municipality easements and/or rights-of-way to assure access for periodic inspections by the municipality and maintenance, if required.
 3. The owner shall keep on file with the municipality the name, address and telephone number of the person or company responsible for maintenance activities; in the event of a change, new formation will be submitted to the municipality within ten (10) days of the change.
 4. If the owner fails to maintain the storm water control facilities following due notice by the municipality to correct the problem(s), the municipality may perform the necessary maintenance work or corrective work and the owner shall reimburse the municipality for all costs.
- B. Other items may be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities. The maintenance agreement shall be subject to the review and approval of the municipal solicitor and governing body.

SECTION 804. MUNICIPAL STORM WATER MAINTENANCE FUND

- A. Persons installing storm water storage facilities shall be required to pay a specified amount to the Municipal Storm Water Maintenance Fund to help defray costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:
1. If the storage facility is to be privately owned and maintained, the deposit shall cover the cost of periodic inspections performed by the municipality for a period of ten (10) years, as estimated by the municipal engineer. After that period of time, inspections will be performed at the expenses of the municipality.
 2. If the storage facility is to be owned and maintained by the municipality, the deposit shall cover the estimated costs for maintenance and inspections for ten (10) years'. The municipal engineer will establish the estimated costs utilizing information submitted by the applicant.
 3. The amount of the deposit to the fund shall be converted to present worth of the annual series values. The municipal engineer shall determine the

present worth equivalents which shall be subject to the approval of the governing body.

- B. If a storage facility is proposed that also serves as a recreation facility (e.g., ball field, lake), the municipality may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purposes.
- C. If at some future time a storage facility (whether publicly or privately owned) is eliminated due to the installation of storm sewers or other storage facility, the unused portion of the maintenance fund deposit will be applied to the cost of abandoning the facility and connecting to the storm sewer system or other facility. Any amount of the deposit remaining after the costs of abandonment are paid will be returned to the depositor.

ARTICLE IX ENFORCEMENT AND PENALTIES

SECTION 901. RIGHT-OF-ENTRY

Upon presentation of proper credentials, duly authorized representatives of the municipality may enter at reasonable times upon any property within the municipality to investigate or ascertain the condition of the subject property in regard to any aspect regulated by this Ordinance.

SECTION 902. NOTIFICATION

In the event that a person fails to comply with the requirements of this Ordinance, or fails to conform to the requirements of any permit issued there under, the municipality shall provide written notification of the violation. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violation(s). Failure to comply within the time specified shall subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative and resort by the municipality from pursuing any and all other remedies. It shall be the responsibility of the owner of the real property on which any Regulated Activity is proposed to occur, is occurring, or has occurred, to comply with the terms and conditions of this Ordinance.

SECTION 903. PENALTIES

- A. Any person who or which has violated any provisions of this Ordinance, shall, upon a judicial determination thereof, be subject to civil judgment for each such violation of not more than 500.00 and 00/Dollars, plus costs of suit. Each day that a violation occurs shall constitute a separate offense. All fines shall be paid to the for its use.
- B. In addition, the may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

SECTION 904. APPEALS

- A. Any person aggrieved by any action of the governing body or its designee may appeal to the municipality's governing body within thirty (30) days of that action.
- B. Any person aggrieved by any decision of the governing body may appeal to the County Court of Common Pleas within thirty (30) days of that decision.

TABLE A-1
Runoff Curve Numbers and Average Imperviousness
For Various Land Uses By Hydrologic Soil Group

Cover Description Land Use/Cover Type	Average Imperviousness Percent	Curve Number For Hydrologic Soil Group			
		A	B	C	D
Open Space (Lawns, Parks, Golf Courses, Cemeteries, etc.) Poor Condition (Grass Cover < 50%) Fair Condition (Grass Cover 50% to 75%) Good Condition (Grass Cover > 75%)	N/A *	68 49 39	79 69 61	86 79 74	89 84 80
Impervious Areas: Paved Parking Lots, Roofs, Driveways, etc. (excluding Right-of-Way)	N/A	98	98	98	98
Streets & Roads: Paved; curbs & storm sewers (excluding Right-of-Way)	N/A	98	98	98	98
Paved; open ditches (including Right-of-Way)	N/A	83	89	92	93
Urban Districts: Commercial & Business Industrial	85 72	89 81	92 88	94 91	95 93
Residential Districts By Average Lot Size: 1/8 Acre or Less (Townhouse) 1/4 Acre 1/3 Acre 1/2 Acre 1 Acre 2 Acres	65 38 30 25 20 12	77 61 57 54 51 46	85 75 72 70 68 65	90 83 81 80 79 77	92 87 86 85 84 82
Pasture, Grassland or Range - Continuous Forage for Grazing ¹	Poor Fair Good	68 49 39	79 69 61	86 79 74	89 84 80
Meadow - Continuous Grass, Protected From Grazing and Generally Mowed for Hay	—	30	58	71	78
Brush - Brush-Weed-Grass Mixture with Brush the Major Element ²	Poor Fair Good	48 35 30	67 56 48	77 70 65	83 77 73
Woods ³	Poor Fair Good	45 36 30	66 60 55	77 73 70	83 79 77

TABLE A-1 - Continued
Runoff Curve Numbers and Average Imperviousness
For Various Land Uses By Hydrologic Soil Group

Cover Description Land Use/Cover Type	Average Imperviousness Percent	Curve Number For Hydrologic Soil Group			
		A	B	C	D
Farmsteads - Buildings, Lanes, Driveways and Surrounding Lots	---	59	74	82	86
Agriculture:					
Row Crops	---	56	76	82	86
Small Grain	---	62	73	82	85
No Till:					
Row Crops	---	65	77	85	87
Small Grain	---	62	73	82	85
Legumes	---	60	72	80	84

- 1
 - Poor <50% Ground Cover or Heavily Grazed With no Mulch
 - Fair 50% to 75% Ground Cover and Not Heavily Grazed
 - Good >75% Ground Cover and Lightly or Only Occasionally Grazed

- 2
 - Poor <50% Ground Cover
 - Fair 50% to 75% Ground Cover
 - Good >75% Ground Cover

- 3
 - Poor Forest Litter, Small Trees and Brush are Destroyed by Heavy Grazing or Regular Burning
 - Fair Woods are Grazed but not Burned and Some Forest Litter Covers the Soil
 - Good Woods are Protected From Grazing and Litter and Brush Adequately Cover the Soil

Table A-3 (continued)
Manning Roughness Coefficients

	Manning's n range	Manning's n range
VI. Natural Stream Channels:		
A. Minor streams (surface width at flood stage less than 100 feet):		
1. Fairly regular sections:		
a. Some grass & weeds, little or no brush	0.030-0.035	
b. Dense growth of weeds, depth of flow materially greater than weed height ..	0.035-0.050	
c. Some weeds, light brush on banks	0.035-0.050	
d. Some weeds, heavy brush on banks	0.050-0.070	
e. Some weeds, dense willows on banks	0.060-0.080	
f. For trees within channel with branches submerged at high stage, increase all above values by	0.010-0.020	
2. Irregular sections, with pools, slight channel meander; increase values given in 1-a about	0.010-0.020	
3. Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stage:		
a. Bottom of gravel, cobbles and few boulders	0.040-0.050	
b. Bottom of cobbles, with large boulders	0.050-0.070	
8. Flood plains (adjacent to natural streams):		
1. Pasture, no brush:		
a. Short grass	0.030-0.035	
b. High grass	0.035-0.050	
2. Cultivated areas:		
a. No crop	0.030-0.040	
b. Mature row crops	0.035-0.045	
c. Mature field crops	0.040-0.050	
3. Heavy weeds, scattered brush ..	0.050-0.070	
4. Light brush and trees:		
a. Winter	0.050-0.060	
b. Summer	0.060-0.080	
5. Medium to dense brush:		
a. Winter	0.070-0.110	
b. Summer	0.100-0.150	
6. Dense willows, summer, not bent over by current		
	0.150-0.200	
7. Cleared land w/tree stumps, 100-150 per acre:		
a. No stumps	0.040-0.050	
b. With heavy growth of stumps	0.060-0.080	
8. Heavy stand of timber, a few down trees, little undergrowth:		
a. Flood depth below branches ..	0.100-0.120	
b. Flood depth reaches branches	0.120-0.150	
C. Major streams (surface width at flood stage more than 100 ft.): Roughness coefficient is usually less than for minor streams of similar description on account of less effective resistance offered by irregular banks or vegetation on banks. Values of n may be somewhat reduced. Follow recommendation in publication cited if possible. The value of n for larger streams of most regular section, with no boulders or brush, may be in the range of		
	0.025-0.035	

Source: Chow, V.T., 1959, "Open Channel Hydraulics," McGraw Hill, New York.

Table A-1
Permissible Velocities for Channels

Channel Lining	Permissible Channel Velocity ^a (feet per second)
Vegetation	
Alfalfa	2.5
Bermudagrass	4
Crookgrass	2.5
Crownvetch	1
Kentucky Bluegrass	4
Kentucky 31 Tall Fescue	2.5
Red Clover or Red Fescue	2.5
Reed Canary	4
Ryegrass	2.5
Small Grains	4
Smooth Brome	2.5
Sudan Grass or Timothy	4
Soft Earth, Easily Eroded	
Fine Sand	1.5
Sand Loam	1.75
Silt Loam or Alluvial Silts, Loose	2
Fluv. Loam	2.25
Soft Earth, Erosion Resistant	
Fine Gravel	2.5
Stiff Clay or Alluvial Silts, Firm	3
Loam to Cobbles (graded)	3.75
Silt to Cobbles (graded or Coarse Gravel)	4
Cobbles and Stones or Shales and Hardpan	8
Quartzite Bedrock	8
Other	
Plastic	4
6" Rip Rap	6
Asphalt	7
9" Rip Rap	8
12" Rip Rap or Wood	9
Concrete or Steel	12

^a These values, if applied to uniform, straight channels, may be considered in accordance with Chapter 102.12 of the Erosion Control Rules and Regulations. However, slope, soil condition, climate and management must be considered in channel design. If different channel linings exist in a channel, and size and slope do not change, design the channel for the lining with the lower velocity listed. Where velocity ranges are listed, the lower velocity is for design with easily eroded soils and slopes greater than 10%. The higher velocity is for design with erosion resistant soils and slopes less than 5%. Filtration and/or sedimentation in the channel is encouraged. However, this must be considered for velocity determination in the design of the channel cross-section.

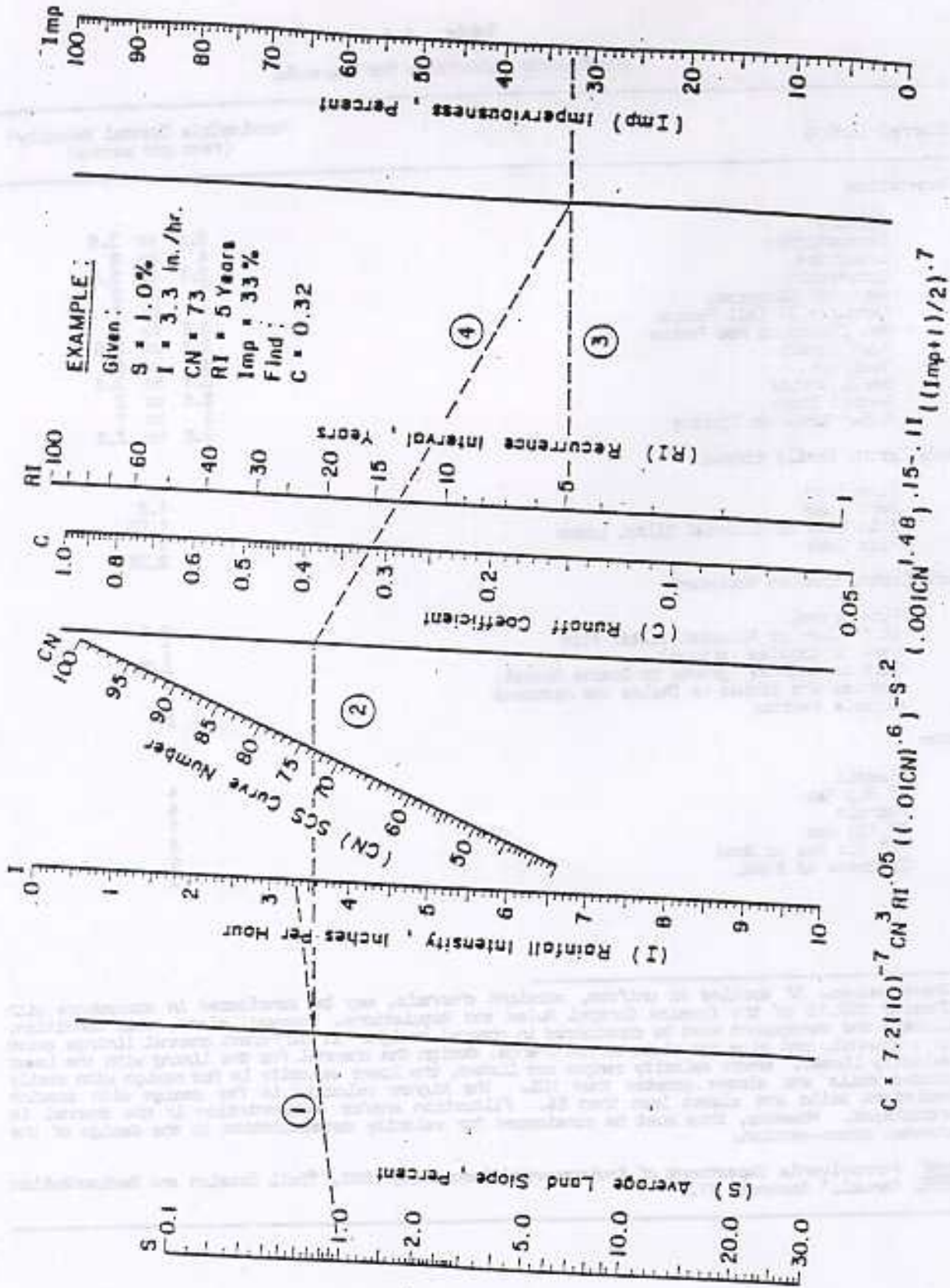


Figure A-1 Nomograph for estimating runoff coefficient C-factor in the Rational Formula.

ENACTED AND ORDAINED this 24th day of September, 1998.

BOARD OF SUPERVISORS



R. DUFF MANWEILER
CHAIRMAN

ATTEST:



BARBARA A. WILSON, SECRETARY