LACKAWANNA RIVER WATERSHED

ACT 167

STORMWATER MANAGEMENT PLAN

ORDINANCE

ARARAT TOWNSHIP
SUSQUEHANNA COUNTY, PENNSYLVANIA

ARARAT TOWNSHIP
ORDINANCE NO. 1 - 95

STORM WATER MANAGEMENT ORDINANCE

ARTICLE I
GENERAL PROVISIONS

SECTION 101. STATEMENT OF FINDINGS

Ararat Township 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 flood plain 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 Ararat Township 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 ground water 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 applicable Municipal Ordinance, and the Municipalities Planning Code, Act 247 of 1968, as amended by Act 170 of 1988, as further amended by Act 209 of 1990 and Act 131 of 1992, 53 P. S. Section 10101.

SECTION 104. APPLICABILITY

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.

(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.) should be provided by municipal engineer).

The following activities are defined as "Regulated Activities" and shall be regulated by this Ordinance:

A. Land development.
B. Subdivision.
C. Construction of new or additional impervious or semi-pervious surfaces (driveways, parking lots, etc.).
D. Construction of new buildings or additions to existing buildings.
E. Diversion or piping of any natural or man-made stream channel.
F. 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 code, rule, act, or ordinance.

ARTICLE II
DEFINITIONS

For the purpose 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."

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 Susquehanna 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 semifluid, or a refuse bank, fill or structure for highway, railroad or other purposes which does or may impound water or another fluid or semifluid.

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 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 specified tract of land for which a Regulated Activity is proposed.

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 308.

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

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 as areas that comprise Group 13 soils, as listed in Appendix A of the Pennsylvania Department of "Environmental Resources (PA DER) Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by PA DER).

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 - (I) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more buildings, or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) any subdivision of land; (iii) 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.

Municipality - The Township of Ararat

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 drainageways, 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 outlines 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.

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 can 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, sand, 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.

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 re-division 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 or 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
STORM WATER MANAGEMENT REQUIREMENTS

SECTION 301. GENERAL REQUIREMENTS

A. Storm drainage systems shall be provided in order to permit unimpeded flow of natural watercourses except as modified by storm water detention facilities or open channels consistent with this Ordinance.

B. The existing points of concentrated drainage discharge onto adjacent property shall not be altered without written approval of the affected property owner(s).

C. Areas of existing diffused drainage discharge onto adjacent property shall be managed such that, at minimum, the peak diffused flow does not increase in the general direction of discharge, except as otherwise provided in this Ordinance. If diffused flow is proposed to be concentrated and discharged onto adjacent property, the developer must document that there are adequate downstream conveyance facilities to safely transport the concentrated discharge or otherwise prove that no harm will result from the concentrated discharge. Areas of existing diffused drainage discharge shall be subject to any applicable release rate criteria in the general direction of existing discharge whether they are proposed to be concentrated or maintained as diffused drainage areas.

D. Where a subdivision or land development is traversed by watercourses other than permanent streams, there shall be provided a drainage easement conforming substantially with the line of such watercourse. The width of the easement shall be adequate to provide for unimpeded flow of storm runoff based on calculations made in conformance with Section 304 for the 100-year return period runoff and to provide a freeboard allowance of one-half (0.5) foot above the design water surface level. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations which may adversely affect the flow of storm water within any portion of the easement. Also, periodic maintenance of the easement to ensure proper runoff conveyance shall be required.

E. Any drainage facilities required by this Ordinance that are located on State highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation.

F. When it can be shown that, due to topographic conditions, natural drainage swales on the site cannot adequately provide for drainage, open or closed channels may be constructed conforming substantially to the line and grade of such natural drainage swales. Capacities of open channels shall be calculated using the Manning equation.

G. Storm drainage facilities and appurtenances shall be so designed and provided as to minimize erosion in watercourse channels and at all points of discharge.

H. Consideration should be given to the design and use of volume controls for storm water management, where geology permits.

SECTION 302. STORM WATER MANAGEMENT DISTRICTS

For the purposes of Storm water management, Ararat Township is divided into the following Storm water districts:

A. The Lackawanna River Stormwater District - All land development occurring within the Lackawanna River Water shed within Ararat Township shall comply with the performance standards of the Lackawanna River Watershed Stormwater Management Plan and all other applicable provisions of this Ordinance.

B. General Stormwater District - All areas of Ararat Township situated outside of the Lackawanna River Watershed shall comply with the following performance standards:

1. All land development shall insure that the post-development rate of runoff does not exceed the pre-development rate of runoff for both the 2 and 10 year 24 hour design storm, unless otherwise exempted from the provisions of this Ordinance.

SECTION 303. STORMWATER MANAGEMENT STUDY AREAS

Mapping of Stormwater Management Detail Study Areas - In order to implement the provisions of the Lackawanna River Storm Water Management Plan the Lackawanna River Watershed is hereby divided into 9 Detailed Study Areas (Subareas) consistent with the Lackawanna River Watershed Map presented in the Plan. The boundaries of the Subarea cross individual municipal boundaries as shown on the official map which is available for inspection the office of Ararat Township.

SECTION 304. STORM WATER MANAGEMENT DISTRICT IMPLEMENTATION PROVISIONS

A. Any storm water management controls required by this Ordinance and subject to release rate criteria shall meet the applicable release rate criteria, consistent with the calculation methodology specified in Section 304, as follows:

1. New land development controls are to incorporate infiltration of the first 1.5 inches of runoff (i.e.: one-half of the mean-annual event) from impervious surfaces. At a minimum, infiltration facilities design/overflow capacity should be for the 10-year event. Post-to-pre flow control should be provided for the design capacity of the receiving storm sewer systems, but in no case less than the 10-year storm event. This design criteria applies to small infill type developments i.e.: up to two single-family homes), or new driveways, additions or impervious surfaces less than 2,000 square feet total.

Where infiltration is not feasible, based on demonstration of site constraints and approved by the reviewing agency, post-to-pre control of the mean annual and 10-year events is required. Where the receiving storm sewer system is designed for the 25-year event, post-to-pre control for the mean annual and 25-year event shall prevail.

2. Unless qualified under #1 above, 100-year control with applied release rates is required in addition to the previous requirements.

B. The exact location of the Storm Water Management Detailed Area boundaries they apply to a given development site shall be determined by mapping the boundaries using the two-foot topographic contours provided as part of the Drainage Plan (refer to subarea maps in Appendix I under separate cover). The area boundaries as originally drawn coincide with the topographic divides or, in certain instances, are drawn from the intersection of the water course and a physical feature (such as the confluence with another watercourse of a potential flow obstruction e.g. road, culvert, bridge etc. to the topographic divide consistent with topography.

C. Any downstream capacity analysis conducted in accordance with this Ordinance shall use the following criteria for determining adequacy for accepting increased peak flow rates:

1. Natural or man-made channels or swales must be able to convey the increased runoff associated with a 2 year return period event within their banks at velocities consistent with protection of the channels from erosion. Acceptable velocities shall be based upon criteria included in the DER Soil Erosion and Sedimentation Control Manual (February, 1985) and presented in Appendix C under separate cover.

2. Natural or man-made channels or swales must be able to convey the increased 25 -year return period runoff peak within their banks or otherwise not create any hazard to persons or property.

3. Culverts, bridges, storm sewers or any other facilities which pass or convey flows from the tributary area must have sufficient capacity to pass or convey the increased flows associated with the 25-year return period runoff event, except for facilities located within a designated flood plain area which must be capable of passing or conveying the 100-year return period runoff. Any facilities which constitute stream enclosures per DER's Chapter 105 regulations shall be designed in accordance with the requirements of Chapter 105.

D. For a proposed development site with only one release rate category area, the total runoff from the site shall meet the applicable release rate criteria. For development sites with multiple points concentrated runoff discharge, individual drainage points may be designed for up to a 100% release rate so long as the total runoff from the site is controlled to the applicable release rate.

E. For a proposed development site located within two or more release rate category areas, the maximum peak rate of runoff that may be discharged at any point is limited to the predevelopment peak rate of runoff at that point multiplied by the applicable release rate. The control rates shall apply regardless of any grading modifications which may change the drainage area which discharges at a given point.

F. For proposed development sites located partially within a release rate category area and partially within a provisional no detention area, in no event shall a significant portion of the site area subject to the release rate control be drained to the discharge point(s) located in the no detention area.

G. Regional or Sub-regional Detention Alternatives - For certain areas within the watershed, it may be more cost-effective to provide one control facility for an entire subarea, group of subareas, or portion of a subarea incorporating more than one development site than to provide an individual control facility for each development site. The initiative and funding for any regional or sub-regional runoff control alternatives are the responsibility of prospective developers. The design of any regional control basins must incorporate reasonable development of the entire upstream watershed. The peak outflow of a regional basin would be determined on a case-by-case basis using the hydrologic model of the watershed consistent with protection of the downstream watershed areas. "Hydrologic model" refers to the calibrated Lackawanna River version of the Penn State Runoff Model as developed for the Storm Water Management Plan.

H. Capacity Improvements - In certain instances, primarily within the provisional no detention areas, local drainage conditions may dictate more stringent levels of runoff control than those based upon protection of the entire watershed. In these instances, if the developer could prove that it would be feasible to provide capacity improvements to relieve the capacity deficiency in the local drainage network, then capacity improvements could be provided by the developer in lieu of runoff controls on the development site. Any capacity improvements would be designed based upon development of all areas tributary to the proposed improvements and the capacity criteria specified in Section 303.C.

In addition, all new development upstream of a proposed capacity improvement shall be assumed to implement the applicable runoff controls consistent with this Ordinance except that all new development within the subarea(s) within the proposed development site is located shall be assumed to implement the developer's proposed discharge control, if any.

Capacity improvements may also be provided as necessary to implement any regional or subregional detention alternatives or to implement a modified no harm option which proposed specific capacity improvements to document the validity of a less stringent discharge control which would not create any harm downstream.

I. Waiver of Runoff Control Based on Minimum Additional Imperious Cover - Any proposed Regulated Activity, except those defined in Sections 104.E. and 104.F., which would create 10,000 square feet or less of impervious cover would be exempt from meeting the runoff control provisions of this Ordinance. For developments which are to take place in stages, the entire development plan must be used in determining conformance to this criteria. Additional impervious cover shall include, but not be limited to, any roof, parking or driveway areas and any new streets and sidewalks constructed as part of or for the proposed development. Any areas which may be designed to initially be semi-pervious (e.g. gravel crushed stone, porous pavement, etc.) shall be considered impervious for the purposes of waiver evaluation.

No waiver shall be provided for any Regulated Activities as defined in Sections 104.E and 104.F.

SECTION 305. CALCULATION METHODOLOGY

A. Storm water runoff from all development sites shall be calculated using a method acceptable to the review agency, either the Rational Method or a Soil-covered Complex Methodology.

B. The design of any detention basin intended to meet the requirements of this Ordinance shall be verified by routing the design storm hydrograph through the proposed basin. For basins designed using the modified rational method technique, the detention volume shall, at minimum, equal the volume derived from the approximate routing process as contained in SCS Technical Release Number 55 (TR55, 1986) Chapter 6 (Figure 6-1).

C. All storm water detention facilities shall provide a minimum 1.0 foot freeboard above the maximum pool elevation associated with the 2-through 25-year runoff events. An emergency spillway shall be designed to pass the 100-year runoff event with a minimum 0.5 foot freeboard.

D. 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 period to be used consistent with this Ordinance are taken from the PennDOT Intensity Duration - Frequency Field Manual (May 1986)

E. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration and return periods and the Intensity - Duration - Frequency Curves as presented in Appendix B under separate cover.

F. Runoff Curve Numbers (CN's) to be used in the soil-cover-complex method shall be based upon the matrix presented in Appendix A under separate cover.

G. Runoff coefficients for use in the Rational Method shall be based upon the table presented in Appendix A under separate cover.

H. The Manning equation shall be used to calculate the capacity of watercourses. Manning 'n' values used in the calculations shall be consistent with the table presented in Appendix A under separate cover. Pipe capacities shall be determined by methods acceptable to the municipal engineer.

I Any detention basin, or other structure, intended to meet the requirements of this Ordinance which required a Dam Safety Permit from DER shall be designed consistent with the provisions of the Dam Safety and Encroachments Act and the DER Chapter 105 Rules and regulations.

ARTICLE IV
DRAINAGE PLAN REQUIREMENTS

SECTION 306. 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 Plan Administrator.

SECTION 307. EXEMPTIONS

A. Any regulated activity that would create 10,000 square feet or less of impervious area is exempt from the Drainage Plan preparation 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.

B. Land disturbance associated with existing one and two family dwellings, subject to conditions described in A. of this Section.

C. Use of land for gardening for home consumption.

D. 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 Susquehanna County Conservation District. The construction of buildings, parking lots or any activity that may result in impervious surface which increases the rate and volume of storm water runoff shall comply with the requirements of this Ordinance.

E. 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" are operating under an erosion and sedimentation control plan.

No exemption shall be provided for Regulated Activities as defined in Section 104.E and 104.F of this Ordinance.

SECTION 308. 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 in the offices of the Recorder of Deeds of Susquehanna 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 or two feet. In areas of steep slopes (greater than 15 percent), five-feet 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) the five-feet 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. A North arrow.

14. The total tract boundary and size and distances marked to the nearest foot and bearings to the nearest degree.

15. Existing and proposed land use(s).

16. A key map showing all existing man-made features beyond the property boundary that would be affected by the project.

17. Horizontal and vertical profiles of all open channels, including hydraulic capacity.

18. Overland drainage paths.

19. A twenty-feet 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 posed, 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 reviewed and approvals, as required by PA DER.

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 PA DOT District Office when utilization of a PA DOT 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 ground water recharge methods such as seepage pits, beds or trenches are used, the locations of existing and proposed septic tank infiltration area 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 309. PLAN SUBMISSION

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

1. The Drainage Plan shall be submitted by the Developer as part of the Preliminary Plan Submission for the Regulated Activity.

2. Four (4) copies of the Drainage Plan shall be submitted.

3. Distribution of the Drainage Plan will be as follows:

   a. One (1) copy to the Municipality accompanied by the requisite Municipal Review Fee, as specified in this Ordinance.

   b. One (1) copy to the Municipal Engineers.

   c. Two (2) copies to the Plan Administrator accompanied by the requisite Plan Administrator Review Fee as specified in this Ordinance.

SECTION 310. 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 consistent with this Storm Water Management Ordinance, the Plan Administrator will forward an approval letter to the Municipal Secretary with a copy to the developer.
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.C and 104.D 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. The Regulated Activities requiring a PA DER joint Permit Application, the Plan Administrator shall notify PA DER 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. PA DER 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.A and 104.B 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 PA DER , 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.C and 104.D 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 PA DER 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 PA DOT District Office, and any applicable permits from PA DER.

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 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 312 of this Ordinance.

SECTION 311. 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 storm water 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 309 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 312. 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 309 of this Ordinance and be subject to review as specified in Section 310 of this Ordinance. The applicable Plan Administrator Review Fee must accompany a resubmission of a disapproved Drainage Plan.

ARTICLE V
INSPECTIONS

SECTION 401. 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 VI
FEES AND EXPENSES

SECTION 501. 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 the Plan Administrator's review costs. All fees shall be paid by the applicant.

SECTION 502. 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 503 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 VII
MAINTENANCE RESPONSIBILITIES

SECTION 601. 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(ies).

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 principles:

1. 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.

2. 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.

C. 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 operating responsibility for any or all of the storm water management controls.

SECTION 602. 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 603.A, 2 and 3 and Section 604 B and C.

SECTION 603. 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 information 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 604. 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 expense of the municipality.

2. If the storage facility is to 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 VIII
ENFORCEMENT AND PENALTIES

SECTION 701. 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 702. 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 hereunder, 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 703. 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 Three Hundred Dollars ($300.00) plus costs of suit. Each day that a violation occurs shall constitute a separate offense. All fines shall be paid to the Township of Ararat for itsuse.

B. In addition, Ararat Township 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 801. ADOPTION

This Storm Water Management Ordinance shall take full force and effect Thirty (30) days from the date of adoption.

ENACTED AND ORDAINED into an Ordinance this 1st day of August, 1995 by the Board of Supervisors or Ararat Township in lawful session duly assembled.

ARARAT TOWNSHIP
BOARD OF SUPERVISORS

Donald M Stone
Chairman

Richard D. Colwell

Harry Thorn

CERTIFICATION OF ADOPTION

I hereby certify the foregoing to be an exact copy of an Ordinance adopted by Ararat Township Board of Supervisors at a regular meeting held on August 1, 1995.

Irene Jeney
Secretary

APPENDIX A

Table 1b. - Runoff curve numbers for cultivated agricultural lands

Cover description			Curve numbers for hydrologic soil group--			
Cover type	Treatment	Hydrologic condition	A	B	C	D
Fallow	Bare soil	--	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
	C&T + CR	Poor	65	73	79	81
		Good	61	70	77	80
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
	C&T + CR	Poor	60	71	78	81
		Good	58	69	77	80
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
		Good	51	67	76	80

From - Urban Hydrology for Small Watersheds, USDA, Soil Conservation Service, TR-55, June, 1986.

Table 2. - Runoff coefficients for use with the Rational Equation

Description of Area	Runoff Coefficients
Business	
Downtown areas	0.70-0.95
Neighborhood areas	0.50-0.70
Residential	
Single-family areas	0.30-0.50
Multiunits, detached	0.40-0.60
Multiunits, attached	0.60-0.75
Residential (suburban)	0.25-0.40
Apartment dwelling areas	0.50-0.70
Industrial	
Light areas	0.50-0.80
Heavy areas	0.60-0.90
Parks, cemeteries	0.10-0.25
Playgrounds	0.20-0.35
Railroad yard areas	0.20-0.40
Unimproved areas	0.10-0.30
Streets	
Asphaltic	0.70-0.95
Concrete	0.80-0.95
Brick	0.70-0.85
Drives and walks	0.75-0.85
Roofs	0.75-0.95
Lawns: Sandy soil	
Flat 2%	0.05-0.10
Average 2-7%	0.10-0.15
Steep 7%	0.15-0.20
Lawns: Heavy soil	
Flat 2%	0.13-0.17
Average 2-7%	0.18-0.22
Steep 7%	0.25-0.35

From ASCE [1972] and Viessman et al. [1977].

APPENDIX B

DRAINAGE PLAN PERMIT APPLICATION

DRAINAGE PLAN PERMIT APPLICATION

Application is hereby made for review of the stormwater management plan and related data as submitted herewith in accordance with the _____ Watershed Stormwater Management Ordinance.

Date of Submission_____

Submission No._____

Local Governing Body_____ (Name of Township or Borough)

1. Name of Subdivision or Development_____

2. Name of Applicant_____

_____

Telephone No._____

(If Corporation,list the Corporations name and the names of two officers of the Corporation).

Corporation_____
Name_____
Name_____
Telephone No._____
Address_____
_____
_____

Applicant's interest in subdivision or development
(If other than property owner give owners name and address).

3. Name of Property Owner_____
Telephone No._____
Address_____
_____
_____

4. Name of Engineer_____
Telephone No._____
Address_____
_____
_____

5. Type of subdivision or development proposed:

_____	Single-family lots	_____	Mobile-home park
_____	Two-family lots	_____	Campground
_____	Multi-family lots	_____	Other (_____)
_____	Cluster type lots	_____	Commercial (multi-lot)
_____	Planned residential development	_____	Commercial (one-lot)
_____	Townhouses	_____	Industrial (multi-lot)
_____	Garden apartments	_____	Industrial (one-lot)

6. Lineal feet of new road proposed?_____L.F.

7. Area of existing and proposed impervious area on entire tract.

   A. Existing (to remain) _____ S.F.

   B. Proposed _____ S.F.

8. Stormwater

   A. Does the peak rate of runoff from proposed conditions exceed that flow which occurred for pre-development conditions for the designated design storm?_____

   _____

   B. Method of determining runoff rates._____

   _____

   C. Is the proposed runoff reduced to the allowable release rate for the subarea in which the site is located for the 2-, 10-, and 25-year design storm?_____

   _____

   D. Subarea Number from Appendix _____ of the Watershed Stormwater Management Ordinance._____

   E. Type of proposed runoff control facilities or infiltration measures._____

   _____

   _____

   F. Does the proposed stormwater control criteria meet the requirements/guidelines of the stormwater ordinances?_____

   _____

   G. Does the plan meet the requirements of Article III and IV of the stormwater ordinance?

   _____

   _____

   H. Is a hydraulic routing through the stormwater control structure submitted?_____

   _____

   I. Is a construction schedule or staging attached?_____

   _____

   J. Is a recommended maintenance program attached?_____

   _____

   K. Who will have the maintenance responsibility of the stormwater control facilities?_____

   _____

9. EROSION AND SEDIMENTATION POLLUTION CONTROL (E&SC)

   A. Has the Erosion and Sedimentation Control Plan been submitted to the county conservation district?_____

   _____

   B. Total area of earth disturbance_____

C. Is the Erosion and Sedimentation Pollution Control Plan approval letter attached?_____

10. WETLANDS

A. Are wetlands encountered on the site?_____

B. Have the wetlands been delineated by someone trained in wetland delineation?_____

(If yes, list the names and addresses of persons delineating the wetlands)

Name_____
Telephone No._____
Address_____

C. Have the wetlands been verified by a state or federal permitting authority?_____

D. Have the wetlands been surveyed?_____

E. Total acreage of wetlands within the property._____

F. Additional Supporting Documentation_____

11. FILING

A. Has the requirement fee been submitted?_____

Amount_____

B. Has the proposed Schedule of Construction and Inspections to be performed by the applicant or their engineer been submitted?_____

C. Name of individual(s) who will be making the inspections_____

12. ADDITIONAL COMMENTS

CERTIFICATE OF OWNERSHIP AND ACKNOWLEDGEMENT OF APPLICATION

On this ________ day of ______________, 19________, before me, the undersigned officer, the applicant verifies that this application was made with knowledge and direction of the ____________ Watershed Act 167 Stormwater Management Plan and the provisions set forth within the ____________ Stormwater Management Ordinance.

____
Signature of Property Owner Date

____
Signature of Property Owner Date

____
Signature of Applicant Date

____
Signature of Local Governing Body Official Date

= =

INFORMATION BELOW THIS LINE TO BE COMPLETED BY
THE LOCAL GOVERNING BODY

Date complete application received ______________________________

Plan Number ______________________________

Fees ______________________________

Date Fees Paid ______________________________

Check Number ______________________________

Received By ______________________________

SCHEDULE OF FEES

Stormwater Management Plan Name_____
Submission Number_____
Owner_____
Engineer_____ Date_____

1. FILING FEE $_____

2. LAND USE

Residential Subdivisions, Campgrounds, Mobile Home Parks, Multi-Family Dwelling Units, and Special Single Family Residence $_____

Commercial or Industrial $_____

3. TYPE OF DEVELOPMENT AND AMOUNT OF IMPERVIOUS AREAS CREATED (optional)

Residential

Less than 10,000 s.f. $_____
10,000 s.f. - 50,000 s.f. $_____
50,000 s.f. - 100,000 s.f. $_____
100,000 s.f. - 150,000 s.f. $_____
150,000 s.f. and up $_____

Commercial or Industrial and Other $_____

4. STORMWATER CONTROL MEASURES (optional)

Detention facilities which require hydraulic routing ($_____/ Facility). $_____

Infiltration facilities $_____/ Facility). $_____

5. SITE INSPECTION (if governing body determines necessary)

$_____/ Inspection) $_____

TOTAL $_____

All subsequent reviews shall be the amount of the initial review fee unless a new application is required as per Section _____ of the Watershed Stormwater Management Ordinance.

STORMWATER MANAGEMENT OCCUPANCY PERMIT

Date _____

Plan Number _____

Local Governing Body _____

Property Owner _____

Address _____

_____

_____

Location _____

Type of Use _____

Name of Business (If applicable) _____

Address _____

_____

_____

The applicant attests that he/she has complied with all of the Township/Borough ordinances prior to construction of the proposed development.

The engineer attests that he/she has complied with all of the Township/Borough ordinances prior to construction of the proposed development.

The following ordinances have been complied with:

Subdivisions Ordinance	YES	NO	DO NOT APPLY
Land Development Ordinance	YES	NO	DO NOT APPLY
Zoning Ordinance	YES	NO	DO NOT APPLY
Building Permit Ordinance	YES	NO	DO NOT APPLY
Stormwater Management Ordinance	YES	NO	DO NOT APPLY
Street and Road Occupancy Permit	YES	NO	DO NOT APPLY

Has the Erosion and Sedimentation Control Plan been approved by the county conservation district?

YES NO PENDING

_____

Signature of Applicant Date

_____

Signature of Engineer Date

_____

Signature of Issuing Agent Date

ARARAT TOWNSHIP
BOARD OF SUPERVISORS
R.R.#1
THOMPSON, PA 18465

IRENE SENEY
SECRETARY
RR#1 BOX 23E
THOMPSON, PA 18465

November 7, 1995

Law Library
Susquehanna County Court House
Montrose, PA 18801

Enclosed is a copy of the Storm Water Ordinance which was adopted at a recent meeting of Ararat Township Board of Supervisors.

Irene Seney,
Township Secretary