

**TOWNSHIP OF WASHINGTON
FRANKLIN COUNTY, PENNSYLVANIA**

ORDINANCE NO. 131

THE ANTIETAM CREEK WATERSHED STORM WATER MANAGEMENT ORDINANCE

AN ORDINANCE ESTABLISHING STORM WATER MANAGEMENT REGULATIONS FOR THE ANTIETAM CREEK WATER SHED WHICH REGULATES THE RATE OF STORM WATER LEAVING A PARCEL OF LAND AND IMPLEMENTS THE PROVISIONS OF THE FRANKLIN COUNTY ANTIETAM CREEK STORM WATER MANAGEMENT PLAN, PROVIDING FOR THE REVIEW OF STORM WATER MANAGEMENT PLANS, THE COLLECTION OF FEES AND INSURING THE MAINTENANCE OF PERMANENT STORM WATER MANAGEMENT STRUCTURES.

CONTENTS

Note: This table of contents is for convenience only; its accuracy is not guaranteed as part of this Ordinance.

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
<u>ARTICLE 1</u>		
<u>GENERAL PROVISIONS</u>		
101	Statement of Findings	1
102	Purpose	1
103	Statutory Authority	2
104	Applicability	2
105	Repealer	3
106	Severability	3
107	Compatibility with other Ordinance Requirements	3
<u>ARTICLE II</u>		
<u>DEFINITIONS</u>		
201	Definitions	4
<u>ARTICLE III</u>		
<u>STORM WATER MANAGEMENT</u>		
301	General Requirements	8
302	Storm Water Management Performance Standards	9
303	Design Criteria for Storm Water Management Facilities	9
304	Calculation Methodology	12
<u>ARTICLE IV</u>		
<u>DRAINAGE PLAN REQUIREMENTS</u>		
401	General Requirements	16
402	Exemptions	16
403	Drainage Plan Contents	16
404	Plan Submission	18
405	Drainage Plan Review	19
406	Modification of Plans	20
407	Resubmission of Disapproved Drainage Plans	21
<u>ARTICLE V</u>		
<u>INSPECTIONS</u>		
501	Schedule of Inspections	22

ARTICLE VI
FEES AND EXPENSES

601	General	23
602	Expenses Covered By Fees	23

ARTICLE VII
MAINTENANCE RESPONSIBILITIES

701	Maintenance Responsibilities	24
-----	------------------------------	----

ARTICLE VIII
ENFORCEMENT AND PENALTIES

801	Right of Entry	26
802	Notification	26
803	Penalties	26
804	Other Remedies	26

ARTICLE IX
MISCELLANEOUS PROVISIONS

901	Appeals	28
902	Construction	28
903	Effective Date	28

TABLES

Table I	Acceptable Computation Methodologies	13
Table II	Rainfall Intensity/Duration	14
Table III	Inlet Capacity Reduction Factors	15
Table IV	"n" Values For Manning Formula	15

APPENDIX

Appendix 1	Antietam Creek Watershed Pre & Post Development Q	
Appendix 2	Antietam Creek Watershed Suburban Properties and Dimensions	
Appendix 3	Drawing 1 Antietam Creek Watershed Release Rate Map	

ARTICLE I

GENERAL PROVISIONS

SECTION 101. STATEMENT OF FINDINGS

The Supervisors of the Washington Township, Franklin County, find 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 down stream communities, reduces groundwater recharges, and threatens public health and safety.
- B. A comprehensive program of storm water management, including reasonable regulation of development, is fundamental to the public health, safety, welfare, and the protection of the people of the Washington Township, Franklin County, and of the Commonwealth, their resources, and the environment.

SECTION 102. PURPOSE

The purpose of this Ordinance is to promote health, safety, and welfare within that portion of the Antietam Creek Watershed which is within the political boundaries of Washington Township, Franklin County, as such is depicted upon the attached map, which has been marked Drawing 1, and is made a part hereof, by minimizing the damages described in Section 101.A of this Ordinance through provisions designed to:

- A. Manage accelerated runoff 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.
- D. Maintain existing flows and quality of streams and watercourses in Washington Township, Franklin County, 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 and regulated by this ordinance.
- G. Provide performance standards and design criteria for watershed-wide storm water management and planning.

SECTION 103. STATUTORY AUTHORITY

Washington Township 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 "Stormwater Management Act", and the Act of May 1, 1933 (P.L. 103, No. 69), Re-enacted and amended July 10, 1947 (P.L. 1481, No. 567) As Amended, the "Second Class Township Code".

SECTION 104. APPLICABILITY

This Ordinance shall only apply to those areas of Washington Township that are located within the Antietam Creek Watershed, as delineated on Drawing 1 of this Ordinance.

This Ordinance shall only apply to permanent stormwater management facilities constructed as part of any of the Regulated Activities listed in this Section. Stormwater 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 the stormwater management performance standards and design criteria that are necessary or desirable from a watershed-wide perspective. Local stormwater management design criteria (e.g. inlet spacing, inlet type, collection system details, outlet structure design, etc.) shall continue to be regulated by the Washington Township's Subdivision and Land Development Ordinance and Ordinance #101, for those areas that are located outside of the Antietam Creek Watershed.

The following activities are defined a "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 in excess of 5,000 square feet (driveways, parking lots, etc.).
- D. Construction of new buildings or additions to existing buildings in excess of 5,000 square feet.
- E. Diversion or piping of any natural or man-made stream channel (see Section 303C.3).
- F. Installation of stormwater management facilities or appurtenances thereto.
- G. Forest Management Operations.
- H. Land disturbances in excess of 5,000 square feet but excluding those related with agricultural activities.

SECTION 105. REPEALER

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

This Ordinance shall repeal Ordinance 101 only with respect to those areas of Washington Township contained within the Antietam Creek Water Shed and shown on Drawing 1.

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 local, state and/or federal permits (such as DEP Chapter 105, 106, NPDES, etc.), or approvals for activities regulated by any other applicable code, rule, act, or ordinance.

ARTICLE II

DEFINITIONS

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

- A. Words used in present tense include the future tense; the singular number includes the plural number, 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 as 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".

Agricultural Activities - Growing crops, rotating crops, tilling of soil and grazing animals.

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 Franklin 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. a 5-year storm) and duration (e.g. 24-hours), used

in the design and evaluation of stormwater management systems.

Detention Basin - An impoundment structure designed to manage stormwater 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.

Township's Engineer - A person duly appointed by the Board of Supervisors of Washington Township or any consultant designated by the Board of Supervisors of Washington Township to review Drainage Plans.

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

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 Protection (PaDEP) Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by PaDEP).

Forest Management Operations - All activities connected with growing and harvesting of forest products including site preparation; cultivation and logging of trees and the construction and maintenance of roads.

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 - Any of the following activities:

(1) 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 residential or nonresidential buildings, whether proposed initially or cumulatively, or a single

nonresidential building on a lot or lots regardless of the number of occupants or tenure; or

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

(2) A subdivision of land.

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.

Open Channel - A drainage element in which stormwater flows with an open surface. Open Channels include, but shall not be limited to, natural and manmade drainageways, swales, ditches, canals, and pipes flowing partly full.

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

Pipe - A culvert, closed conduit, or similar structure (including appurtenances) that conveys stormwater.

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).

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

Release Rate - The percentage of the predevelopment peak rate of runoff from a subarea to which the postdevelopment peak of runoff must be reduced to protect downstream areas.

Retention Basin - An impoundment in which stormwater 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 stormwater from other sources, but excludes domestic sewage and industrial wastes.

Stormwater - The total amount of precipitation reaching the ground.

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

Stormwater Management Plan - The plan for managing stormwater runoff in the Antietam Creek Watershed adopted by Franklin County as required by the Act of October 4, 1978, P.L. 864 (Act 167), and known as the "Antietam Creek Watershed Act 167 Stormwater Management Plan".

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.

Subarea - The smallest drainage unit of a water shed for which stormwater management criteria have been established in the Stormwater Management Plan.

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 division of land including changes in existing lot lines for the purposes, whether immediate or future, or lease, partition by the court for distribution to heirs or devisees, transfer of ownership, or building or lot development: Provided, however, that the subdivision by lease of land for agricultural purposes into parcels of more than ten acres, not involving any new street or easement of access or any residential dwelling, shall be excepted.

Wetland - Those areas ruled to be wetlands by the applicable

Federal or State Agency.

ARTICLE III
STORMWATER MANAGEMENT

SECTION 301. 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 altered without the written consent and approval of the affected landowner and shall be subject to any applicable release rate criteria specified in this Ordinance.
- C. Areas of existing diffused drainage 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 conveyance facilities exist to safely transport the concentrated discharge, or otherwise prove that no flooding, or other harm will result from the concentrated discharge.

- D. Where a Development Site is traversed by watercourses other than permanent streams, a drainage easement shall be provided conforming substantially to the line of such watercourses. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations that may affect adversely the flow of stormwater within any portion of the easement. Also, maintenance and mowing of vegetation within the easement shall be required.
- E. Any stormwater management facilities regulated by this Ordinance that would be located on State highway right-of-ways shall be subject to approval by the Pennsylvania Department of Transportation (PennDOT).
- F. Any stormwater management facilities regulated by this Ordinance that would be located in or adjacent to waters of the Commonwealth or wetlands shall be subject to approval by PaDEP through the Joint Permit Application process, or, where deemed appropriate by PaDEP, the General Permit process. When there is a question whether wetlands may be involved, it is the responsibility of the Developer to show that the land in question cannot be classified as wetlands by the applicable Federal or State agency, otherwise approval to work in the area must be obtained from PaDEP.
- G. When it can be shown that, due to topographic conditions, natural drainageways on the site cannot adequately provide for

drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainageways. Work within natural drainageways shall be subject to approval by PaDEP, through the General Permit process.

H. Sinkholes shall be protected as follows:

1. Stormwater from roadways, parking lots, stormsewers, roof drains, or other concentrated runoff paths shall not be discharged directly into sinkholes.

2. 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 subsidence and groundwater quality shall be prepared and the results submitted with the Drainage Plan. Such discharge shall be prohibited if Washington Township determines that the discharge poses a hazard to life, property, or groundwater resources.

SECTION 302. STORMWATER MANAGEMENT PERFORMANCE STANDARDS

Predevelopment runoff hydrographs shall be computed for both the 2 and 10-year storm events. Postdevelopment runoff hydrographs for both the 2 and 10-year storm events shall then be compared with the predevelopment hydrographs. If the postdevelopment hydrograph is less than or equal to the predevelopment hydrograph, then no controls are required.

Where site conditions are acceptable, infiltration practices shall be employed to control the increase in postdevelopment hydrographs.

Where infiltration practices are not practical or feasible, detention facilities shall be provided solely or in combination with the infiltration facilities to achieve the following standard:

Stormwater Management Control Facilities - The primary outlet shall be equal to the arithmetic product of the release rate percentage shown on Drawing 1 and the 2-year predevelopment rate. Secondary outlet control shall be provided for the 10-year storm event level and shall be controlled at the arithmetic product of the release rate percentage shown on Drawing 1 and the 10-year predevelopment rate.

SECTION 303. DESIGN CRITERIA FOR STORMWATER MANAGEMENT FACILITIES

A. Any stormwater management facilities required or regulated by this Ordinance shall be designed to meet the performance standards enumerated above. Compensatory stormwater management facilities shall not be permitted.

B. Any stormwater management facilities required or regulated by this Ordinance that conveys a post development flow of more than 19 cfs shall be designed to provide a minimum 1.0 foot of free board above the maximum 25-year water surface elevation for postdevelopment conditions. Where storage ponding is

proposed, all ponds shall include in their design an emergency spillway capable of passing the 100-year postdevelopment storm event. Should any stormwater management facilities qualify as a dam under PaDEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety.

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 postdevelopment runoff from a 10-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 PaDEP Erosion and Sediment Pollution Control Program Manual (as amended or replaced from time to time by PaDEP).

2. Open channels conveying a postdevelopment flow of more than 19 cfs shall have a minimum 1.0 foot of freeboard and not create a hazard to any persons or property.

3. Any regulated activity under PaDEP Chapter 105 (e.g. culverts, bridges, outfalls, channel modifications or stream enclosures), and any work involving wetlands as described in PaDEP Chapter 105 regulations (as amended or replaced from time to time by PaDEP), shall be designed in accordance with Chapter 105 and will require a permit from PaDEP. Any other drainage conveyance facility that doesn't fall under Chapter 105 regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the 25-year design storm with a minimum 1.0 foot of free board measured below the lowest point along the top of the roadway. Any facility that requires a dam safety permit must be designed in accordance with PaDEP Chapter 105 Regulations. Any facility located within a PennDOT right-of-way must meet PennDOT minimum design standards and permit submission requirements.

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

5. Storm sewer inlet spacing and road cross-section design must ensure that postdevelopment runoff resulting from a 10-year design storm does not flood more than one half of a driving lane.

6. The maximum allowable spacing between structures to be used for inspecting and cleaning storm sewers (manholes, on-line inlets, risers and terminal cleanouts) shall be based on the pipe size and spacing as follows:

<u>Size of Pipe (inches)</u>	<u>Maximum Allowable Spacing (feet)</u>
15	400
18 - 36	500
42 - 60	700
66 or larger	Unlimited

- 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 postdevelopment conditions) or 25 ft. which ever is larger.
- E. In subareas where individual stormwater management facilities would be provided for each development site, the individual stormwater management facilities shall be designed to ensure that the postdevelopment peak discharge at the mouth of the subarea does not exceed the arithmetic product of the applicable release rate, specified in Appendix 1 and on Drawing 1 of this Ordinance, and the predevelopment peak discharge at the mouth of the subarea.
- F. For development sites, that would be located in two or more subareas, the applicable release rate for the portions of the site located in different subareas shall be based on natural subarea drainage boundaries. The natural drainage boundaries between subareas shall not be modified, nor shall drainage from a development site be diverted or otherwise conveyed from one subarea to another subarea, except where runoff naturally crosses subarea drainage boundaries.
- G. Regional or Sub-Regional Stormwater Management Facilities - For certain areas within the watershed, it may be more cost effective to provide one stormwater management facility for an entire subarea, group of subareas, or portions of a subarea incorporating more than one development site than to provide an individual stormwater management facility for each development site. The initiative and funding for any regional or sub-regional stormwater management alternatives are the responsibility of prospective developer(s). 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 either based on current zoning or on projections established by the Franklin County Planning commission, whichever results in a greater amount of imperviousness. The peak outflow from a regional stormwater management facility would be determined on a case-by-case basis using The Penn State Runoff Method (PSRM), as developed for the Antietam Creek Watershed Act 167 Stormwater Management Plan. When regional or sub-regional stormwater management facilities are utilized, the effect of phased growth on stormwater runoff flows must be corrected. 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.
- H. Capacity Improvements - If the Developer could prove that it would be feasible to provide capacity improvements to relieve the capacity deficiency in the existing drainage network, then adequate capacity improvements could 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 improvements and the capacity criteria specified in this Ordinance. The type and amount of development that the Developer must consider shall be either based on current zoning or on projections established by the Franklin County Planning Commission, whichever results in a greater amount of imperviousness. It shall be assumed that all new development upstream of a proposed capacity improvement would implement applicable stormwater management techniques, consistent with this Ordinance.

- I. Adequate erosion protection shall be provided along all open channels, and at all points of discharge.
- J. The design of all stormwater management facilities shall incorporate sound engineering principles and practices. Washington Township 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 304. CALCULATION METHODOLOGY

- A. Any 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. Table I below summarizes acceptable computation methods. All methods shall be selected by the design professional based on the individual limitations and suitability of each method for a particular site. The Washington Township Engineer may approve the use of the Rational Method to estimate peak discharges from drainage areas that contain less than 20 acres.

**TABLE I
ACCEPTABLE COMPUTATION METHODOLOGIES FOR
STORMWATER MANAGEMENT PLAN**

METHOD	DEVELOPER	APPLICABILITY
TR-20 (or commercial package based on TR-20)	USDA SCS	Applicable where use of full hydrology computer model is desirable or necessary.
TR-55 (or commercial computer package based on TR-55)	USDA SCS	Applicable for land development plans within limitations described in TR-55
HEC-1	US Army Corps of Engineers	Applicable where use of full hydrologic computer model is desirable or necessary
PSRM	Penn State Univ.	Applicable where use of a hydrologic computer model is desirable or necessary; simpler than TR-20 or HEC-1.
Rational Method (or commercial computer package based on the Rational Method)	Emil Kuichking (1889)	For sites less than 20 acres, or as approved by the Township's Engineer.
Other Methods	Varies	Other computation methodologies approved by the Township's Engineer.

- B. The design of any stormwater detention facilities intended to meet the performance standards of this Ordinance shall be verified by routing the design storm hydrograph using the Storage-Indication Method. For drainage areas greater than 20 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. The Township's Engineer may approve the use of any generally accepted full hydrograph approximation technique which uses a total volume that is consistent with the volume from a method that produces a full hydrograph.
- C. All calculations consistent with this Ordinance using the soil cover complex methods shall use the appropriate design rainfall depths in inches for the various return period storms presented in Table II of this Ordinance. If a hydrologic computer model such as PSRM or HEC-1 is used for stormwater runoff

calculations, then the duration of rainfall shall be 24-hours.

TABLE II
ANTIETAM CREEK WATERSHED
RAINFALL INTENSITY/DURATION - FREQUENCY

Storm Event (Years)	Duration (hours)					
	1	2	3	6	12	24
2	1.18	1.35	1.55	1.75	2.00	2.38
10	2.11	2.55	2.80	3.25	3.75	4.45
25	2.49	2.95	3.25	3.85	4.60	5.20
50	2.79	3.50	3.75	4.40	5.15	5.78
100	3.08	3.70	4.10	4.75	5.55	6.32

- D. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration for overland flow and return periods from the Design Storm Curves in Figure 1 of this Ordinance. Times of concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watershed, SCS, TR-55 (as amended or replaced from PennDOT Design Manual #2, Region 4 for watershed tributary to the East Branch and Region 3 for watershed tributary to the West Branch). Times of concentration for channel and pipe flow shall be computed using Manning's equation.
- E. Runoff Curve Numbers (CN) for both existing and proposed conditions to be used in the soil cover method shall be obtained from Table 2-2 of the USDA SCS TR-55, except that all agricultural predevelopment conditions shall be considered good with the best conservation practices assumed to be employed.
- F. Runoff coefficients (c) for both existing and proposed conditions for use in the Rational Method shall be obtained from Table 4.2 of the DER Erosion and Sediment Pollution Control Program Manual and shall be subject to the approval of the Township's Engineer.
- G. Where uniform flow is anticipated, the Manning equation shall be used for hydraulic computations, and to determine the capacity of open channels, pipes, and storm sewers. Values of roughness coefficient "n" for use in the Manning Formula are shown in Table V. 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.
- 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 approved by the Township's Engineer.

**TABLE III
INLET CAPACITY REDUCTION FACTORS
ASSUMING PARTIAL CLOGGING**

<u>Condition</u>	<u>Inlet Type</u>	<u>Reduction Factor*</u>
Sump	Side Opening	0.80
Sump	Grate	0.50
Sump	Combination	0.65
Continuous Grade	Side Opening	0.80
Continuous Grade	Side Opening with Deflector	0.75
Continuous Grade	Longitudinal Bars	0.60
Continuous Grade	Transverse Bars	0.50
Continuous Grade	Combination	0.60

*Percentage of theoretical capacity

**TABLE IV
"n" VALUES FOR MANNING FORMULA**

<u>Type of Pipe</u>	<u>"n" Value*</u>
Asbestos Cement	0.013
Concrete Culvert Pipe	0.013
Concrete Sewer Pipe	0.013
Cast Iron	0.013
Corrugated Metal (plain)	0.024
Corrugated Metal (coated)	0.021
Plastic	0.011
Vitrified Clay	0.013

*Adjustments for specific conditions shall be based on engineering experience and judgement and submitted to the Township Engineer for approval.

ARTICLE IV

DRAINAGE PLAN REQUIREMENTS

SECTION 401. 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 Washington Township.

The drainage plan shall be designed and certified by individuals registered in the Commonwealth of Pennsylvania to perform such duties.

SECTION 402. EXEMPTIONS

- A. Any Regulated Activity that would create 5,000 square feet or less of 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. The developer shall be responsible to ensure that exempted activities shall maintain sound building and construction practices such that the quantity, velocity and direction of the resulting stormwater runoff will adequately protect hearth, safety, or other property from possible injury.
- 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. Agricultural activities when operated in accordance with a conservation plan or erosion and sedimentation control plan prepared by the conservation district are specifically exempt from complying with the requirements of this Ordinance. The construction of buildings, parking lots or any activity that results in more than 5,000 square feet of impervious surface shall comply with the requirements of this Ordinance.

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

SECTION 403. 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 plans 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 Township's Engineer 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 stormwater management techniques, including construction specifications of the materials to be used for stormwater management facilities.
3. Complete hydrologic, hydraulic, and structural computations for all stormwater 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 at the office of the Recorder of Deeds of Franklin 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 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. 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 preparing the plan and a certification that the Drainage Plan meets all the design standards and criteria of the Antietam Creek Watershed Act 167 Stormwater Management Ordinance.
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 with distances marked to the nearest foot and bearings to the nearest degree.
15. Existing and proposed land use(s).
16. A key map showing all existing man-made features beyond

the property boundary that would be affected by the project.

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

18. Overland drainage paths.

19. A twenty-foot access easement to all stormwater management facilities that provides ingress from and egress to a public right-of-way shall be provided. The easement shall be shown on the subdivision or land development plan.

20. A note on the plan indicating the location and responsibility for maintenance of stormwater management facilities that would be located off site. All off site facilities shall meet the performance standards and design criteria specified in this Ordinance.

21. A statement, signed by the landowner, acknowledging the stormwater management system to be a permanent fixture that can be altered or removed only after approval of a revised plan by Washington Township.

C. Supplemental Information

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

a. The overall stormwater management concept for the project.

b. Stormwater runoff computations as specified in this Ordinance.

c. Stormwater management techniques to be applied both during and after development.

d. Expected project time schedule.

2. A soil erosion sedimentation control plan, including all reviews and approvals, as required by PaDEP.

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 stormwater 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. Stormwater Management Facilities

1. All stormwater 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 stormwater management facilities must be shown.

SECTION 404. PLAN SUBMISSION

For all activities regulated by this Ordinance, the steps below shall be followed for submission. For any activities that require a PaDEP Joint Permit Application and are regulated under Chapter 105 (Dam Safety and Waterway Management) or Chapter 106 (Floodplain

Management) of PaDEP'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.

1. The Drainage Plan shall be submitted by the Developer as part of a Subdivision Preliminary Plan or a Land Development Plan submission for the Regulated Activity.

2. Six (6) copies of the Drainage Plan and calculations shall be submitted to the Township no less than ten (10) calendar days prior to the next regular monthly meeting of the Washington Township Planning Commission. The Township will distribute one copy to the Township's Consulting Engineer and one copy to the Washington Township Planning Commission.

SECTION 405. DRAINAGE PLAN REVIEW

- A. The Washington Township Planning Commission shall review the Drainage Plan for consistency with this Ordinance of Washington Township and shall make its recommendations to the Board of Supervisor of Washington Township within forty-five (45) days after official submission. The Washington Township Planning Commission shall require receipt of a complete plan, as specified in this Ordinance.
- B. The Township's Engineer shall review the Drainage Plan for any subdivision or land development against the Township's Subdivision and Land Development Ordinance provisions not superseded by this Ordinance.
- C. For activities regulated by this Ordinance, the Washington Township Engineer shall notify the Township and Developer, in writing, within 90 calendar days after official submission, whether the Drainage Plan is consistent with this Ordinance. Should the Drainage Plan be determined to be consistent with the this Ordinance, the Township's Engineer will forward an approval letter to the Township who will notify the Developer. Should the Drainage Plan be determined to be inconsistent with this Ordinance, the Township's Engineer will forward a disapproval letter to the Township and Developer citing the reason(s) for the disapproval. Any disapproved Drainage Plan may be revised by the Developer and resubmitted consistent with this Ordinance.
- D. For Regulated Activities specified in Section 104.C and 104.D of this Ordinance, the Washington Township Engineer shall notify the Township's Code Enforcement Officer, in writing within a time frame consistent with other Township Ordinances, whether the Drainage Plan is consistent with this 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 Township's Engineer shall notify PaDEP whether the Drainage Plan is consistent with the Stormwater Management Ordinance of Washington Township and forward a copy of the review letter to the Washington Township Planning Commission and Board of Supervisors of Washington Township and the Developer. PaDEP may consider the Township's Engineer review comments in determining whether to issue a permit.

- F. The Board of Supervisors of Washington Township shall not approve any subdivision or land development for Regulated Activities specified in Section 104.A and 104.B of this Ordinance if the Drainage Plan has been found to be inconsistent with this Ordinance or without considering the comments of the Franklin County Planning Commission, the Franklin County Conservation District and the Washington Township Planning Commission. All required permits from PaDEP must be obtained prior to approval.
- G. Washington Township's Code Enforcement Officer 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 Ordinance, as determined by the Township 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 stormwater management facilities included in the approved Drainage Plan. The "As-Built Survey" and an explanation of any discrepancies with the design plan shall be submitted to the Township's Engineer for final approval.
- I. The approval by the Board of Supervisors of Washington Township 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 Board of Supervisors of Washington Township approved the Drainage Plan. If stormwater 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 Washington Township may consider the Drainage Plan disapproved and may revoke any and all permits. Drainage Plans that are considered disapproved by the Board of Supervisors of Washington Township shall be resubmitted in accordance with Section 407 of this Ordinance.

SECTION 406. MODIFICATION OF PLANS

A modification to a submitted Drainage Plan for a development site that involves a change in stormwater 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 Township's Engineer), shall require a resubmission of the modified Drainage Plan consistent with Section 404 of this Ordinance and be subject to review as specified in

Section 405 of this Ordinance.

A modification to an already approved or disapproved Drainage Plan shall be submitted to the Township, accompanied by the applicable Review Fee.

SECTION 407. RESUBMISSION OF DISAPPROVED DRAINAGE PLANS

A disapproved Drainage Plan may be resubmitted, with the revisions addressing the Township's Engineer concerns documented in writing, to the Township's Engineer in accordance with Section 404 of this Ordinance and be subject to review as specified in Section 405 of this Ordinance. The applicable Review Fee must accompany a resubmission of a disapproved Drainage Plan.

ARTICLE V

INSPECTIONS

SECTION 501. SCHEDULE OF INSPECTIONS

A. The Township's Engineer or his assignee shall inspect all phases of the installation of the permanent stormwater management facilities including, but not limited to:

1. Completion of preliminary site preparation including stripping or vegetation, stockpiling of topsoil, and construction of temporary storm water management and erosion control facilities.

2. Completion of rough grading, but prior to placing topsoil, permanent drainage or other site development improvements and ground covers.

3. During construction of the permanent storm water facilities at such times specified by Township's Engineer or their designee.

4. Upon completion of permanent storm water management facilities, including established ground covers and plantings.

5. Upon completion of any final grading, vegetative control measures or other site restoration work done in accordance with the approved plan and permit.

B. It shall be the responsibility of the developer to notify the Township 48 hours in advance of the completion of each identified phase of construction so that it can be inspected.

C. During any stage of the work, if the Township's Engineer or his assignee determines that the permanent stormwater management facilities are not being installed in accordance with the approved Stormwater Management Ordinance of Washington Township, the Township's Code Enforcement Officer 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 601. GENERAL

The fees required by this Ordinance are the Washington Township Review Fees. Washington Township Review Fee shall be established by Resolution by the Board of Supervisors Washington Township to defray any review and inspection costs incurred by Washington Township and/or the Township's Engineer. All fees shall be paid by the Applicant. Permits to begin any work on any project shall not be issued until the required fees have been paid. The fee schedule may be amended by the Supervisors from time to time.

SECTION 602. EXPENSES COVERED BY FEES

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

- A. The review of the Drainage Plan by the Township's Engineer.
- B. The site inspection.
- C. The inspection of stormwater facilities and drainage improvements during construction.
- D. The final inspection upon completion of the stormwater 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.
- F. Legal Fees.
- G. Engineering Fees.

ARTICLE VII

MAINTENANCE RESPONSIBILITIES

SECTION 701. MAINTENANCE RESPONSIBILITIES

- A. Following final approval of the As-Built Survey by the Washington Township Supervisors, the Developer shall dedicate the permanent stormwater management facilities to the specific entity responsible for the overall maintenance and control of the stormwater management facilities. Any such designated entity, other than Washington Township, shall be approved by Washington Township as an acceptable and duly authorized organization to carry on the responsibility and obligations of maintenance upkeep and be bound by this Ordinance. Such responsible entities shall be set up as legal organizations bound by the laws of the Commonwealth of Pennsylvania and Washington Township. In addition to Washington Township ownership, such entities can be Homeowner's Associations, Corporations, or individual lot owners.
- B. In instances where the permanent control facilities are owned by a private entity (such as a homeowner's association), such entity shall be responsible for maintenance of the facility. In such case, approval of storm water management facility plans shall be conditioned upon the private entity agreeing to be responsible for all maintenance of the storm water management facility. Any such agreement shall be in writing, shall be in recordable form, and shall, in addition to any other terms deemed necessary by the Township, contain a provision permitting inspection at any reasonable time by Washington Township or its designee of all such facilities deemed critical to the public welfare. Such an agreement shall be executed by the entity responsible for the maintenance and the Developer and shall be submitted by the Developer to the Township for approval.
- C. In instances when any storm water management facility is located on an individual lot, and when maintenance thereof is the responsibility of that landowner, a description of the facility or systems and the terms of the required maintenance shall be incorporated on a plat of the property. The plat shall be recorded with the Franklin County Recorder of Deeds within ninety (90) days following Township approval. In addition, the Township may require as a condition of approval that any deed conveying any interest in such lot contain language indicating that the conveyance is subject to an express covenant by the grantee that the grantee will maintain the storm water management facility.
- D. In all instances, the Developer shall post financial security in an amount sufficient to cover the present worth of maintenance of the facilities for a ten year period. The financial security shall be based on the estimated annual maintenance cost for the facilities submitted by the Developer

and prepared by a Professional Engineer/Surveyor licensed as such in this Commonwealth and certified by such Engineer/Surveyor to be a fair and reasonable estimate of such cost. Washington Township, upon the recommendation of the Township's Engineer, may refuse to accept such estimate for good cause shown. If the Developer and the Township are unable to agree upon an estimate, then the estimate shall be recalculated and recertified by another Professional Engineer/Surveyor licensed as such in this Commonwealth and chosen mutually by the Township and the Developer. The estimate certified by the third Engineer/Surveyor shall be presumed fair and reasonable and shall be the final estimate. In the event that a third Engineer/Surveyor is so chosen, fees for the services of said Engineer/Surveyor shall be paid equally by Washington Township and the Developer.

- E. Financial security shall be posted with a Bonding Company or Federal or Commonwealth chartered lending institution chosen by the Party posting the financial security, provided said Bonding Company or bonding institution is authorized to conduct said business within the Commonwealth. In lieu of a bond, the developer may deposit cash or other acceptable securities with Washington Township or with a bank or trust company to guarantee performance of said contract and to secure completion of the improvements under an escrow agreement approved by Washington Township's Solicitor and the Board of Supervisors of Washington Township. The amount of the bond or other guarantee shall be sufficient to cover the cost of required improvements as estimated by the Engineer. The escrow agent for the deposits of such cash or securities shall be designated and selected by the Board of Supervisors of Washington Township.
- F. Such bond or other security shall provide for and secure to the public, the maintenance cost of the facilities which may be required for a ten year period.
- G. Federal or Commonwealth chartered lending institutions irrevocable letters of credit and restrictive or escrow accounts in such lending institutions are acceptable forms of financial security which may be utilized by a Developer to comply with the requirements of this Article.
- H. If Washington Township determines at any time that any permanent stormwater management control facilities have been eliminated, altered or improperly maintained, the responsible entity shall be advised of corrective measures required and given a reasonable period of time to take necessary action. If such action is not taken by the responsible entity, Washington Township may cause the work to be done and assess all costs plus ten percent (10%) against the property of the responsible entity or collect same by an appropriate action of law.
- I. The failure of any person, individual lot owner or private entity to properly maintain any storm water management facility shall be construed to be a violation of this Ordinance and is

declared to be a public nuisance, subject to Article VIII,
Enforcement and Penalties.

ARTICLE VIII

ENFORCEMENT AND PENALTIES

SECTION 801. RIGHT OF ENTRY

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

SECTION 802. 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, Washington Township shall provide written notification of the violation(s). Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violation(s). Failure to fully comply within the time specified shall subject such person to the penalty provisions of the Ordinance. All such penalties shall be deemed cumulative and resort to such by Washington Township shall not prevent Washington Township from pursuing any and all other remedies. It shall be the responsibility of the owner and developer 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 803. PENALTIES

Any person who fails to comply with this Ordinance within the period stated in the notice of the Code Enforcement Officer shall, upon conviction thereof, be guilty of a summary offense, and shall be sentenced to pay a penalty of not less than two hundred (\$200.00) dollars nor more than one thousand (\$1,000.00) dollars plus costs of suit. All fines shall be paid to Washington Township for its use. Each and every day of continued violation shall constitute a separate violation.

SECTION 804. OTHER REMEDIES

- A. **Nuisance.** Any activity conducted in violation of the provisions of this Ordinance or of any regulations adopted under this Ordinance is hereby declared to be a public nuisance.

- B. **Lawsuits.** Suits to restrain, prevent or abate violations of this Ordinance may be instituted in equity or at law by the Township or by any aggrieved person. Except in cases of emergency where, in the opinion of the court, the circumstances of the case require immediate abatement of the unlawful conduct, the court may, in its decree, fix a reasonable time during which the person responsible for the unlawful conduct shall correct or abate the same. The expense of such

proceedings shall be recoverable from the violator in such a manner as may now or hereafter be provided by law.

- C. Remedies Cumulative. The collection of any penalty under the provisions of this Ordinance shall not be construed as estopping the Commonwealth, the County of Franklin, Washington Township or any aggrieved person from proceeding in courts of law or equity to abate nuisances under existing law or to restrain at law or in equity, violation of this Ordinance. It is the purpose of this Ordinance to provide additional and cumulative remedies to abate nuisances.

- D. Corrective Measures by Township; Costs. In the event that the owner, developer, occupant, applicant, property manager or other person responsible fails to comply with the terms of this Ordinance within the time specified by the Code Enforcement Officer, the Municipality may take any actions necessary to remove the public nuisance. The costs of removal of the violation shall be in addition to any penalties for violations for failure to comply.

- E. Municipal Lien. The cost of removal, fine, and penalties hereinabove mentioned may be entered by the Municipality as a lien against such property in accordance with existing provisions of the law.

ARTICLE IX
MISCELLANEOUS PROVISIONS

SECTION 901. APPEALS

Any person aggrieved by any action of the Township's Engineer may appeal to the Board of Supervisors of Washington Township within thirty (30) days of that action.

SECTION 902. CONSTRUCTION

The various headings used throughout this Ordinance are intended only as an aid in its organization, in order to facilitate ease of reading, and are not to be considered a substantive part of this Ordinance.

SECTION 903. EFFECTIVE DATE

This Ordinance shall be in full force and effect from and after the 18th day of August, 1995.

ENACTED AND ORDAINED into an Ordinance this 7th day of August, 1995.

Board of Supervisors
Washington Township
Franklin County, Pennsylvania

ATTEST

Juanita L. Cushman
Secretary

Paul G. Benchoff
Paul G. Benchoff, Chairman