

Upon motion by _____, seconded by _____, the following Ordinance was duly enacted, _____ voting in favor of enactment, _____ voting against enactment.

ORDINANCE 97 - 4
(As Amended by Ordinance 2003-5)

An Ordinance of the Township of Millcreek, Erie County, Pennsylvania establishing a stormwater ordinance consistent with the Lake Erie Watershed Stormwater Management Plan adopted by the County of Erie; establishing regulations governing management of stormwater as an Article of the Township's Subdivision and Land Development Ordinance; imposing duties upon developers of land; providing for filing and administration of plans, the implementation of regulations and imposition of fees for plan filing, review and administration; establishing penalties for violation and containing repealor and severability clauses.

WHEREAS, the Township of Millcreek, pursuant to authority conferred under the Stormwater Management Act and the Pennsylvania Municipalities Planning Code, enacted on October 9, 1990 Ordinance 90-28, entitled the Stormwater Ordinance, as Articles XIII through XIX of the Township's Subdivision Ordinance; and

WHEREAS, pursuant to the Storm Water Management Act, the County of Erie on June 18, 1996 adopted the Lake Erie Area Watershed Stormwater Management Plan; and

WHEREAS, the Lake Erie Area Watershed Stormwater Management Plan has been approved by the Pennsylvania Department of Environmental Protection; and

WHEREAS, the Storm Water Management Act requires that all municipalities within the Lake Erie Area Watershed adopt stormwater ordinances consistent with the Erie County Plan; and

WHEREAS, the Lake Erie Area Watershed Stormwater Management Plan includes provisions with which Millcreek Township Ordinance No. 90-28 does not comply; and

WHEREAS, the Board of Supervisors deems it necessary and in the best interest of the public health, welfare and safety to enact a Stormwater Ordinance which complies with the Lake Erie Area Watershed Stormwater Management Plan and addresses public concerns with stormwater management.

BE IT ENACTED AND ORDAINED by the Board of Supervisors of Millcreek Township, Erie County, Pennsylvania as follows:

**ARTICLE I
GENERAL PROVISIONS**

Section 101 - Purpose

These regulations have the following general purposes and objectives:

- A. To assure safe management of stormwater runoff resulting from land alteration and disturbance activities in accordance with watershed stormwater management plans adopted pursuant to the Pennsylvania Stormwater Management Act (Act 167 of 1978, as amended).
- B. To utilize and preserve the existing natural drainage systems and to preserve the flood-carrying capacity of streams.
- C. To encourage natural infiltration of rainfall to preserve groundwater supplies and stream flows.
- D. To provide for adequate maintenance of all permanent stormwater management structures in the municipality.

Section 102 - Statutory Authority

The Township of Millcreek is empowered to regulate land use activities that affect runoff by the authority of the Act of October 4, 1978, P.L. 864 (Act 167), "The Storm Water Management Act" as amended by Act 63, the "Pennsylvania Municipalities Planning Code," Act 247 of 1968 as amended, and the Second Class Township Code, as amended and restated by Act 60 of 1995.

Section 103 - Applicability

The following activities involving alteration or development of land are deemed to have possible effects upon stormwater runoff characteristics and are included within the scope of this Ordinance:

- A. Subdivision
- B. Land Development
- C. Construction of new or additional impervious or semi-pervious surfaces (driveways, parking lots, etc.)
- D. Diversion or piping of any natural or man-made stream channel
- E. Installation, replacement or substantial repair of stormwater systems or appurtenances
- F. Earth moving involving 1.5 or more acres

Section 104 - Common Name

This Ordinance shall be known and referred to as the Millcreek Township Stormwater Management Ordinance.

Section 105 - Incorporation Into Subdivision & Land Development Ordinance

- A. Article VIII, Section 10 of Ordinance No. 65-1, as amended, known as the Subdivision & Land Development Ordinance, is hereby amended to as to add as new Subsection B the following:
- “B. In addition to the requirements of this Ordinance, all subdivisions, land developments and other activities upon land to which it applies shall comply with the provisions of Ordinance No. 97-4, known as the Millcreek Township Stormwater Management Ordinance, which Ordinance is incorporated herein by reference.”
- B. Any future restatement or reenactment of the Millcreek Township Subdivision and Land Development Ordinance shall incorporate this Ordinance by reference or as an article of said ordinance.

Section 106 - Effective Date

This Ordinance shall become effective five (5) days after the date of its enactment.

Section 107 - Repealor

This Ordinance shall repeal all other ordinances, or parts thereof, which are contrary to or conflict with the provisions of this Ordinance to the extent necessary to give this Ordinance full force and effect. Ordinance 90-28 as enacted October 9, 1990 (the Stormwater Ordinance) is expressly repealed, except as its provisions may be restated in this Ordinance and to the extent its provisions may apply to development plans previously approved by Millcreek Township.

Section 108 -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 this Ordinance as a whole or any other part hereof; the parts or sections remaining shall remain in effect as if the part of the section declared unconstitutional had never been a part of this Ordinance.

Section 109 - Liability Disclaimer

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

ARTICLE II DEFINITIONS

Section 201 - Specific Terms Defined

When used in this Ordinance, the following terms shall be defined as set forth below:

Act: The Storm Water Management Act (Act of October 4, 1978, P.L. 864 No. 167; 32 P.S. Sections 680.1-680.17, as amended by Act of May 24, 1984, No. 63).

Applicant: A landowner or developer who has filed an application for development including his/her heirs, successors and assigns.

Channel: A perceptible natural or artificial waterway which periodically or continuously contains moving water or which forms a connecting link between two bodies of water. It has a definite bed and banks which confine the water.

County: Erie County, Pennsylvania

County Conservation District: The Erie County Conservation District.

Culvert: A closed conduit for the free passage of surface drainage under a highway, railroad, canal or other embankment.

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

Design Criteria: (1) Engineering guidelines specifying construction details and materials. (2) Objectives, results, or limits which must be met by a facility, structure, or process in performance of its intended functions.

Detention: The slowing, dampening or attenuating of runoff flows entering the natural drainage pattern or storm drainage system by temporarily holding water on a surface area in a detention basin or within the drainage system.

Detention Pond or Basin: A basin or reservoir, usually small, constructed to impound or retard surface runoff temporarily.

Developer: The person, persons, or any corporation, partnership, association, or other entity or any responsible person therein or agent therefor that undertakes the activities associated with changes in land use. The term "developer" is intended to include but not necessarily be limited to the term "subdivider", "owner", and "builder" even though the individuals involved in successive stages of a project may vary.

Development: Any activity, construction, alteration, change in land use or practice that affects stormwater runoff characteristics.

Discharge: The flow or rate of flow from a canal, conduit, channel or other hydraulic structure.

Drainage: In general, the removal of surface water from a given area. Commonly applied to surface water and ground water.

Drainage Area: (1) The area of a drainage basin or watershed, expressed in acres, square miles, or other unit of area. Also called catchment area, watershed, river basin. (2) The area served by a sewer system receiving storm and surface water, or by a watercourse.

Drainage Easement: A right granted by the owner of property to use private land of another for stormwater management purposes.

Encroachment: Any structure or activity which in any manner changes, expands or diminishes, the course, current or cross section of any watercourse, floodway or body of water.

Erosion: Wearing away of the lands by running water, glaciers, winds and waves.

Erosion Control: The application of measures to reduce erosion of land surfaces.

Ground Cover: Materials covering the ground surface,

Ground Water: Subsurface water occupying the saturation zone, from which wells and springs are fed.

Ground Water Recharge: Replenishment of ground water naturally by precipitation or runoff or artificially by spreading or injection.

Impervious: Not allowing or allowing only with great difficulty the movement of water; impermeable.

Infiltration: (1) The flow or movement of water through the interstices or pores of a soil or other porous medium. (2) The absorption of liquid by the soil.

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 non-residential buildings, whether proposed initially or cumulatively, on a lot or lots, regardless of the number of occupants or tenure; or (b) a single non-residential building on a lot or lots regardless of the number of occupants or tenure; or (C) 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;

(3) development in accordance with Section 503 (1.1) of the Pennsylvania Municipalities Planning Code.

Land Disturbance: Any activity involving the changing, grading, transportation, fill and any other activity which causes land to be exposed to the danger of erosion.

Maintenance: The upkeep necessary for efficient operation of physical properties.

Municipality/Township: The Township of Millcreek, Erie County, Pennsylvania.

Municipal Engineer/Township Engineer: A professional engineer licensed in the Commonwealth of Pennsylvania, duly appointed by the Township of Millcreek. This term shall apply to any engineer or engineering firm retained by the Board of Supervisors pursuant to this Ordinance.

Natural Stormwater Runoff Regime: A watershed where natural surface configurations, runoff characteristics and defined drainage conveyances have attained the conditions of equilibrium.

Outfall: (1) The point, location or structure where drainage discharges from a sewer, drain or other conduit. (2) The conduit leading to the ultimate discharge point.

Outlet Control Structure: The means of controlling the relationship between the headwater elevation and the discharge, placed at the outlet or downstream end of any structure through which water may flow.

Performance Standard: A standard which establishes an end result or outcome which is to be achieved but does not prescribe specific means for achieving it.

Peak Flow: Maximum flow.

Pennsylvania DEP: Pennsylvania Department of Environmental Protection.

Predevelopment Conditions: Predevelopment conditions shall be assumed to be those which existed on the site at the time prior to commencement of any development activities. Where a site has been developed previously and is proposed to be redeveloped, the predevelopment coefficient for the developed portion of the site shall be based upon an assumed fifty percent (50%) native land cover (i. e., grass, trees, etc.) and fifty percent (50%) developed land cover (e. g., buildings, pavement, etc.). *[Added by Ordinance 2003-5]*

Public and Private Improvements Code: The Millcreek Township Public and Private Improvements Code, as may in the future be amended. *[Added by Ordinance 2003-5]*

Release Rate Percentage: The watershed factor determined by comparing the maximum rate of runoff from a sub-basin to the contributing rate of runoff to the watershed peak rate at specific points of interest.

Retention Pond: A basin, usually enclosed by artificial dikes, that is used to retard stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate.

Return Period: The average interval in years over which an event of a given magnitude can be expected to recur.

Runoff: That part of precipitation which flows over the land.

Runoff Characteristics: The surface components of any watershed which affect the rate, amount, and direction of stormwater runoff. These may include but are not limited to: vegetation, soils, slopes and man-made landscape alterations.

SCS: U.S. Department of Agriculture Soil Conservation Service.

Sediment: Mineral or organic solid material that is being transported or has been moved from its site of origin by air, water or ice and has come to rest.

Sedimentation: The process by which mineral or organic matter is accumulated or deposited by moving water, wind or gravity.

Storage Facility: (See detention pond and retention pond).

Storm Frequency (also Design Storm): The average interval in years over which a storm event of a given precipitation volume can be expected to occur.

Storm Sewer: A sewer that carries intercepted surface runoff, street water and other drainage but excludes domestic sewage and industrial waste.

Stormwater: That portion of precipitation which runs over the land.

Stormwater Collection System: Natural or man-made structures that collect and transport stormwater through or from a drainage area to the point of final outlet including, but not limited to, any of the following: conduits and appurtenant features, canals, channels, ditches, streams, culverts, streets, and pumping stations.

Stormwater Management Plan: The plan for managing stormwater runoff adopted by Erie County as required by the Storm Water Management Act.

Subdivision: The division or redivision of a lot, tract or parcel of land by any means into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of 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 10 acres, not involving any new street or easement of access or any residential dwelling, shall be exempted.

Swale: A low-lying stretch of land which gathers or carries surface water runoff.

Watercourse: Any channel for conveyance of surface water having a defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

Watershed: The entire region or area drained by a river or other body of water whether natural or artificial. A "designated watershed" is an area delineated by the Pennsylvania DEP and approved by the Environmental Quality Board for which counties are required to develop watershed stormwater management plans.

Section 202 - Common and Ordinary Meanings and Usage

Terms, words and phrases not specifically defined in this Ordinance shall be given their common, ordinary and customary meaning as shall effectuate the provisions and intention of this Ordinance.

ARTICLE III STORMWATER MANAGEMENT REQUIREMENTS

Section 301 - Stormwater Management Districts

A. For purposes of stormwater management, the Township of Millcreek is divided into the following stormwater management district: **Lake Erie Area Watershed.**

One or more of these districts may be further subdivided into subareas which have similar hydrological characteristics and drain to a common point.

B. The location and boundaries of the watershed and subareas are shown on the "Municipal Stormwater Management District Map" which is hereby adopted as a part of this section. The map shall be retained in the Engineer's office with copies available on request.

Section 302 - General Standards

- A. No discharge of toxic materials shall be permitted into any stormwater management system. Where required by federal and state regulation, the landowner or developer shall be responsible for obtaining an NPDES permit for stormwater discharges.
- B. Storm drainage systems shall be provided in order to permit unimpeded flow of natural watercourses except as modified by stormwater detention facilities or open channels consistent with this Ordinance.
- C. Where a subdivision or other development subject to this Ordinance is traversed by one or more watercourses, a drainage easement conforming substantially with the line of such watercourse(s) shall be provided as a condition of plan approval. The width of such easement shall be adequate to provide for unimpeded flow of stormwater runoff based on calculations made in conformance with Section 303 for the 100-year return period runoff and to provide a freeboard allowance of one-half foot (0.5') above the design water surface level. Such easement shall prohibit excavation, the placing of fill, structures, shrubbery, trees, fences and/or any other alterations which may adversely affect the flow of stormwater within any portion of the easement without Township's prior written approval.
- D. Any drainage facilities required by this Ordinance which are located within State highway rights of way shall be subject to the prior approval of the Department of Transportation.
- E. Stormwater management facilities and appurtenances shall be designed and provided so as to minimize erosion in watercourse channels and at all points of discharge.
- F. All 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 the protection of the channels from erosion. Acceptable velocities shall be based upon criteria set forth in the Pa. DEP Soil Erosion and Sedimentation Control Manual, as amended, and Appendix B to this Ordinance, which is incorporated herein.
- G. The developer shall assure that all flows in excess of a twenty-five (25)-year design storm sewer flow up to and including the 100-year storm discharge from the developed site shall be adequately conveyed to the detention facility via an adequately sized storm sewer system, a designated swale and/or channel or a combination of such facilities in such manner as will protect against public inconvenience and injury to property or persons.
- H. All stormwater management facilities shall be constructed in accordance with the standards and specifications set forth in the Public and Private Improvements Code or the regulations of an authority or other governmental agency having authority over the improvement.
[Added by Ordinance 2003-5]
- I. A developer shall submit to the Township Engineer and the engineer retained to review stormwater management plans a listing of all materials proposed to be used prior to commencement of construction. *[Added by Ordinance 2003-5]*

Section 303 - Watershed Standards: Lake Erie Area Stormwater Management Watershed

- A. The stormwater performance standards contained in this section are intended to implement the standards and criteria contained in the Lake Erie Area Watershed Stormwater Management Plan, adopted and approved in accordance with the Pennsylvania Storm Water Management Act. If there is any discrepancy between the provisions of this section and the standards and criteria of the plan, or if the watershed plan is subsequently amended, then the standards/criteria of the amended watershed plan shall govern.
- B. Storm Frequencies: Stormwater management facilities on all development sites shall control the peak stormwater discharge for the 2-, 10-, 25- and 100-year storm frequencies. The Soil Conservation Service (SCS) 24-hour, Type II Rainfall Distribution shall be used for analyzing stormwater runoff for both pre- and post-development conditions. The 24-hour total rainfall for these storm frequencies in the watershed are:

<u>Storm Frequency</u>	<u>Rainfall Depth (inches)</u>
2-year	2.62
10-year	3.75
25-year	4.61
100-year	6.19

- C. Calculation Methods
 - 1. Development Sites: For the purpose of computing peak flow rates and runoff hydrographs from development sites, calculations shall be performed using one of the following: Soil Cover Complex (SCS) Method, Technical Release (TR) 55 or 20, or the HEC I or Penn State Runoff Model (PSRM). Under special circumstances, the Township may approve use of other computation methods. *[Amended by Ordinance 2003-5]*
 - 2. Stormwater Collection/Conveyance Facilities: For the purposes of designing storm sewers, open swales and other stormwater runoff collection and conveyance facilities, the Rational Method or other method as approved by the Township may be applied. Rainfall intensities for design should be obtained from the Pennsylvania Department of Transportation rainfall charts.
 - 3. Routing of hydrographs through detention/retention facilities for the purpose of designing those facilities shall be accomplished using the Modified-Pulse Method or other recognized reservoir routing method subject to Township’s approval.
 - 4. Predevelopment Conditions: Predevelopment conditions shall be assumed to be those which existed on any site at the time prior to the commencement of any development activities. Where a site has been developed previously and is proposed to be redeveloped, the predevelopment coefficient for the developed portion of the site shall be based upon an assumed fifty percent (50%) native land cover (i.e., grass, trees, etc.) and fifty percent (50%) developed land cover (e.g., buildings, pavement, etc.). SCS runoff curve numbers selected for use in the calculations shall accurately reflect existing conditions subject to the approval of the Township.

At its discretion, the Township may direct that hydrologic conditions for all areas with pervious cover (i.e., fields, woods, lawn areas, pastures, cropland, etc.) shall be assumed to be in "good" condition, and the lowest recommended SCS runoff curve number (CN) shall be applied for all pervious land uses within the respective range for each land use and hydrologic soil group. *[Amended by Ordinance 2003-5]*

D. Release Rate Percentage

1. Definition: The release rate percentage defines the percentage of the pre-development peak rate of runoff that can be discharged from an outfall on the site after development under the 2, 10, and 25 year storm conditions. Under all circumstances, a 100% release rate percentage shall be applied to the 100 year frequency storm whether or not lower reduced release rate percentages are specified for the 2, 10 and 25 year return frequency storms. The assigned release rate percentage for each subarea applies uniformly to all land development or alterations within the subarea. A listing of the release rate percentage by subarea appears in Appendix A of this Ordinance; the subareas are delineated on the Release Rate Percentage Map attached hereto and made a part of Appendix A.

2. Procedure for Use

(a) Identify the specific subarea in which the development site is located from the watershed map and obtain the subarea release rate percentage from the information in Appendix A.

(b) Compute the pre- and post-development runoff hydrographs for each stormwater outfall on the development site using an acceptable calculation method for the 2-, 10-, 25- and 100-year storms. Apply no on-site detention for stormwater management but include any techniques to minimize impervious surfaces and/or increase the time of concentration for stormwater runoff flowing from the development site.

If the post-development peak runoff rate and volume are greater than the predevelopment peak runoff rate and volume, or if such runoff exceeds release rates established in this Ordinance, then stormwater detention shall be required. The capacity of the detention facility shall be calculated by multiplying the predevelopment rate of runoff from the 2, 10, and 25 year frequency storm by the subarea release rate percentage and the predevelopment runoff rate from the 100 year storm event by 100% to determine the maximum allowable releases from any detention facility.

[Amended by Ordinance 2003-5]

E. Exception Areas

1. Exceptions to the peak discharge standards will be considered only in the following instances:

(a) In the Lake Erie Area Watershed: only in instances where the discharge from the development site occurs directly to Lake Erie, an adequately sized storm or combined sewer which discharges directly into Lake Erie, or through a properly sized and designed regional stormwater detention facility.

2. The analyses of storm or combined sewers and/or regional detention facilities as are necessary to demonstrate their adequacy for the proposed discharges shall be completed by the applicant using methods and procedures as directed by the Township.

Section 304 - Grading Plans Where Ordinance Not Applicable

In developments not subject to this Ordinance under Section 103, a grading plan must be submitted to and approved by the Township Engineer prior to issuance of any building or local street access permit.

Section 305 - Modification of Approved Plans Prohibited

No person shall modify or alter any approved and/or implemented stormwater management or grading plan without the prior approval of the Board of Supervisors. This prohibition shall extend to the developer and to all successors and assigns, including grantees, owners, lessees, occupants and their contractors and/or agents. Any violation of this Section shall be subject to the remedies and penalties set forth in Article XII of this Ordinance.

ARTICLE IV DESIGN CRITERIA FOR STORMWATER MANAGEMENT CONTROLS

Section 401 - General Criteria

- A. Applicants may select runoff control techniques, or a combination of techniques, which are most suitable to control stormwater runoff from the development site. All controls shall be subject to approval of the Township Engineer or other engineer designated by the Board of Supervisors. The Engineer may request specific information on design and/or operating features of the proposed stormwater controls in order to determine their suitability and adequacy in terms of the standards of this Ordinance.
- B. The applicant should consider the effect of the proposed stormwater management techniques on any special soil conditions or geological hazards which may exist on the development site. In the event such conditions are identified on the site, the Township Engineer may require in-depth studies by a competent geotechnical engineer. Not all stormwater control methods may be advisable or allowable at a particular development site.
- C. In developing a stormwater management plan for a particular site, stormwater controls shall be selected according to the following order of preference:
 1. minimization of impervious surfaces during site design
 2. flow attenuation by use of open vegetated swales and natural depressions
 3. stormwater detention/retention structures
- D. Infiltration practices shall be used to the extent practicable to reduce volume increases and promote groundwater recharge. A combination of successive practices may be used to achieve the applicable minimum control requirements. Justification shall be provided by the applicant for rejecting each of the preferred practices based on actual site conditions.

Section 402 - Criteria for Infiltration Systems

- A. Infiltration systems shall be sized and designed based upon local soil and ground water conditions.
- B. The use of practical structural and non-structural Best Management Practices (BMP) is encouraged in the design of site drainage and infiltration systems and development of land. Design of such measures shall consider the limitations of the site's topography and soils, and shall identify the benefits of proposed measures and maintenance requirements. Technical requirements and limitations of BMPs are provided in the Pennsylvania Handbook of Best Management Practices. *[Added by Ordinance 2003-5]*
- C. Infiltration systems greater than three (3) feet deep shall be located at least ten (10) feet from basement walls.
- D. Infiltration systems shall not be used to handle runoff from commercial or industrial working or parking areas. This prohibition does not extend to roof areas which are demonstrated to be suitably protected from the effects of the commercial/industrial activities.
- E. Infiltration systems may not receive runoff until the entire drainage area to the system has received final stabilization.
- F. The stormwater infiltration facility design shall provide an overflow system with measures to provide a non-erosive velocity of flow along its length and at the outfall.

Section 403 - Criteria for Flow Attenuation Facilities

- A. If flow attenuation facilities are employed to assist in the control of peak rates of discharge, their effects must be quantified using the SCS Technical Release (TR) 55 Urban Hydrology for Small Watersheds or other approved method. The effects of the flow attenuation facilities on travel time should be reflected in the calculations.
- B. Flow attenuation facilities such as swales and natural depressions should be properly graded to ensure positive drainage and avoid prolonged ponding of water.
- C. Swales shall be properly vegetatively stabilized or otherwise lined to prevent erosion.
- D. Swales shall be designed according to the recommendations contained in the Commonwealth of Pennsylvania Erosion and Sediment Pollution Control Program Manual.

Section 404 - Criteria for Stormwater Detention Facilities

- A. If detention facilities are utilized for the development site, the facility(ies) shall be designed such that post-development peak runoff rates from the developed site are controlled to those rates defined by the subarea release rate percentage for the 2-, 10-, 25, and 100-year storm frequencies.
- B. All detention facilities shall be equipped with outlet structures to provide discharge control for the four (4) designated storm frequencies. Provisions shall also be made to safely pass the post-development 100-year storm runoff without damaging or impairing the continued function of the facilities. Should any stormwater management facilities be regulated by PA DEP Chapter 105 regulations, the facility shall be designed in accordance with those regulations and meet the regulations concerning dam safety.

- C. Shared-storage facilities which provide detention of runoff for more than one development site within a single subarea are encouraged wherever feasible and provided such facilities meet the criteria contained in this section. In addition, runoff from the development sites involved shall be conveyed to the facility in a manner that avoids adverse impacts (such as flooding or erosion) to channels and properties located between the development site and the shared-storage facilities.
- D. Where detention facilities will be utilized, multiple use facilities, such as wetlands, lakes, ballfields or similar recreational/open space uses are encouraged wherever feasible, subject to the approval of the Township and compliance with the Pennsylvania Department of Environmental Protection's Chapter 105 regulations.
- E. Discharging stormwater off the property to an existing facility may require supporting calculations, including hydraulic grade line calculations, as deemed necessary by the Engineer, to prove the adequacy of the downstream facilities. The developer, subject to Township approval, may elect to upgrade downstream facilities so as to accommodate the generated runoff.
- F. A multi-stage outlet may be used for detention basins in order to provide discharge control for different storm frequency events, provided that the siltation facility precedes storm water entry into the detention basin or outlet structure.
- G. All stormwater detention facilities shall provide a minimum of one foot (1') freeboard above the maximum pool elevation associated with the 100-year runoff events. An overflow spillway shall be provided to prevent damage to the detention facility in the event the 100-year storm event is exceeded. See requirements in Figure SD-11 of the Public and Private Improvements Code. *[Amended by Ordinance 2003-5]*
- H. Any detention system which requires a Dam Safety Permit or a Water Obstruction Permit from the Pennsylvania Department of Environmental Protection shall be designed consistent with the provisions of the Dam Safety and Encroachments Act and the DEP Chapter 105 rules and regulations.
- I. Other considerations to be incorporated into the design of the detention facilities include:
 - 1. Inflow and outflow structures shall be designed and installed to prevent erosion and bottoms of impoundment type structures should be protected from soil erosion.
 - 2. Control and removal of debris both in the storage structure and in all inlet or outlet devices shall be a design consideration.
 - 3. Inflow and outflow structures, pumping stations, and other structures shall be designed and protected to minimize safety hazards.
 - 4. The water depth at the perimeter of a storage pond should be limited to that which is safe for children. Restriction of access (fence, walls, etc.) may be necessary depending on the location of the facility and the maximum depths of water.
 - 5. Side slope of storage ponds shall not exceed a ratio of three to one (3:1) horizontal to vertical dimension.
 - 6. Landscaping shall be provided for the facility which harmonizes with the surrounding area. Landscaping proposals, including type of vegetative cover, seeding and fertilizer rates, shall be submitted to the Engineer for approval.

Landscaping shall not be considered complete until there is a minimum of 85% fully established vegetative cover.

7. Facilities shall be located to facilitate maintenance, considering the frequency and type of equipment that will be required.
 8. Bottoms of detention basins should be graded with sufficient slope (minimum of 2%) to provide positive surface drainage. A subdrainage system may be required depending on the location of the pond bottom relative to groundwater levels. Slopes of less than 2% may be approved by the Board of Supervisors if warranted by site specifics, provided that in such event, a subdrainage system must then be installed. *[Amended by Ordinance 2003-5]*
 9. Fencing shall be provided if required by the Township. Factors to be considered shall include but not be limited to depth and/or slope, whether the facility is to be used as an erosion and sedimentation control basin and/or the length of time water is likely to remain in the basin after a flood event.
 10. Setback Regulations. Above-ground detention facilities shall constitute structures for purposes of application of front yard setback regulations established in the Zoning Ordinance. Said facilities shall further be subject to a 10' setback from side and rear yard lot lines. Subject to compliance with these setback regulations, a detention facility may be located within a required buffer area. *[Added by Ordinance 2003-5]*
- J. To provide an access point from which a detention facility can be maintained, a minimum 24"-diameter access point must be provided on all sides of an underground detention facility's ends. See also Section 5.02.6.3 of the Public and Private Improvements Code re. manway access ports or structures. *[Added by Ordinance 2003-5]*

Section 405 - Criteria for Collection/Conveyance Facilities

- A. All stormwater runoff collection or conveyance facilities, whether storm sewers or other open or closed channels, shall be designed in accordance with the following basic standards:
1. All sites shall be graded to provide drainage away from and around the structure(s) and improvements in order to prevent any potential flooding damage.
 2. The developer shall be responsible for extending roof, sump and French drains to a storm sewer, stormwater collection or conveyance control system or natural watercourse in accordance with the approved stormwater management or grading plan for the development. Subject to these considerations, roof drains and downspouts may discharge to either a storm sewer or a lawn area subject to Township approval; provided, that any discharge to a lawn area shall be authorized only where it will not result in discharge of stormwater onto neighboring properties and the owner of the subject property will be responsible for its maintenance. Slope, soil type and distance from neighboring properties shall be factors in the Township's considerations. In appropriate circumstances, the Township may authorize connection of a sump or French drain to a dry well instead of to a storm sewer. *[Amended by Ordinance 2003-5]*

3. Collection/conveyance facilities should not be installed parallel and close to the top or bottom of a major embankment to avoid the possibility of failing or causing the embankment to fail.
 4. All collection/conveyance facilities shall be designed to convey the 25-year storm peak flow rate from the contributing drainage area and to carry it to the nearest suitable outlet, such as a stormwater control facility, storm sewer or natural watercourse. *[Amended by Ordinance 2003-5]*
 5. Where drainage swales or open channels are used, they shall be suitably lined to prevent erosion and designed to avoid excessive velocities.
 6. All storm sewer pipe shall be of a type and installed in such manner as is required by Millcreek Township specifications for storm sewers as set forth in the Subdivision and Land Development Ordinance.
- B. In Lake Erie coastal bluff areas (as defined by the Pennsylvania Bluff Recession and Setback Act of 1980), special care should be taken to properly direct, collect, and discharge stormwater runoff so as to protect against bluff recession and erosion. The developer's activities shall be coordinated with the municipality to effect such protections. The Pennsylvania Department of Environmental Protection Division of Coastal Programs may be able to provide guidance in the form of technical assistance.
- C. Wherever storm sewers are proposed to be utilized, they shall comply with the following criteria:
1. Where practical, designed to traverse under seeded and planted areas. If constructed within ten (10) feet of road paving, walks or other surfaced areas, drains shall have a narrow trench and maximum compaction of backfill to prevent settlement of the superimposed surface or development; provided, that such backfill shall be required in the area within five (5) feet of road paving in all cases and in the area within ten (10) feet of road paving where the trench depth is in excess of five (5) feet. See Figure SD-1, Public and Private Improvements Code, for detail. *[Amended by Ordinance 2003-5]*
 2. Preferably installed after excavating and filling in the area to be traversed is completed, unless the drain is installed in the original ground with a minimum of three (3) feet cover and/or adequate protection during the fill construction.
 3. Designed: (1) with cradle when traversing fill areas of indeterminate stability, (2) with anchors when gradient exceeds twenty (20) percent, and (3) with encasement or special backfill requirements when traversing under a paved area.
 4. Designed to adequately handle the anticipated stormwater flow and be economical to construct and maintain. The minimum pipe size shall be fifteen (15) inches in diameter.
 5. Drain pipe, trenching, bedding and backfilling requirements shall conform to the requirements of the Township and/or applicable PaDOT Specifications, Form 408.
 6. All piping shall be of a type meeting Township specifications as set forth in the Public and Private Improvements Code. *[Amended by Ordinance 2003-5]*

7. Storm inlets and structures shall be designed to be adequate, safe, self-cleaning and unobtrusive and consistent with municipal standards.
8. Approved grates shall be designed for all catch basins, stormwater inlets and other entrance appurtenances.
9. Manholes shall be designed so that the top shall be at finished grade and sloped to conform to the slope of the finished grade. Top castings of structures located in roads or parking areas shall be machined or installed to preclude "rattling."
10. Where a proposed storm sewer or other conveyance system will connect with an existing storm conveyance system, the applicant shall demonstrate that sufficient capacity exists in the downstream system to handle the increased volume of flows, subject to applicable release rates, such that, as is applicable, there will be no increase or a reduction in peak rate flows following development or, if the development is subject to lower release rates, that there will be a reduction in peak rate flows to comply with applicable release rates following development. *[Amended by Ordinance 2003-5]*
11. Storm sewer outfalls shall be equipped with energy dissipation devices to prevent erosion and conform with applicable requirements of the Pennsylvania DEP for stream encroachments (Chapter 105 of Pennsylvania DEP Rules and Regulations).
12. Catch basins shall be spaced at appropriate locations so that a spread of no more than ten feet (10') will occur during the design storm.

ARTICLE V EROSION AND SEDIMENTATION CONTROLS

Section 501 - Erosion and Sedimentation Control Requirements

- A. An erosion/sedimentation plan shall be prepared for each development site in accordance with the Pennsylvania Erosion/Sedimentation Regulations (25 PA Code, Chapter 102) and the standards and guidelines of the County Conservation District.
- B. Provisions of the Subdivision and Land Development Ordinance and/or Zoning Ordinance as pertain to the development, shall apply with respect to submission of and action upon grading plans.
- C. Proposed erosion/sedimentation measures shall be submitted with the stormwater management plan.

ARTICLE VI
MAINTENANCE OF STORMWATER MANAGEMENT CONTROLS

Section 601 - Maintenance Responsibilities

- A. The maintenance plan for stormwater management facilities located on the development site shall establish responsibilities for the continuing operation and maintenance of all proposed stormwater 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, storm sewers and other public improvements are to be dedicated to the municipality, stormwater control facilities may be dedicated to and maintained by the Township, subject to approval of the Board of Supervisors.
 2. If a development site is to be maintained in single ownership or if storm sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of stormwater control facilities shall be the responsibility of the owner or private management entity.
 3. Millcreek Township will not agree to provide maintenance services for stormwater management controls except as set forth in this Article.
 4. Millcreek Township prefers that stormwater detention facilities be owned and maintained by the developer or its assigns, including but not limited to property owners' associations established for the purpose of maintaining common facilities.
- B. The developer shall submit with the stormwater management plan a proposed maintenance schedule for any proposed stormwater control facilities, which shall be consistent with standards established in this Ordinance and other applicable Township ordinances.
- C. The Board of Supervisors, upon recommendation of the Township Engineer, shall make the final determination on the continuing maintenance responsibilities prior to final approval of the stormwater management plan. The Board of Supervisors reserves the right to accept or reject the ownership and operating responsibility for any or all of the stormwater management controls.

Section 602 - Maintenance Agreement for Privately Owned Stormwater Facilities

- A. Prior to final approval of the site's stormwater management plan, the applicant and Township shall execute a maintenance agreement covering all stormwater control facilities which are to be privately owned. The maintenance agreement shall be recorded with the final subdivision/land development plan for the site. The agreement shall stipulate that:
1. All facilities shall be maintained in accordance with the approved maintenance schedule and in a safe and attractive manner.
 2. Easements and or rights-of-way shall be conveyed to the Township to assure access for periodic inspections by the Township and maintenance if required.
 3. The name, address and telephone number of the person or company responsible for maintenance activities shall be filed with the Township. In the event of a change, new information will be submitted to the Township within ten (10) days of the change.

4. If the facility owner fails to maintain the stormwater control facilities, the Township may perform the necessary maintenance work or corrective work following due notice by the Township to the facility owner to correct the problem(s). The facility owner shall reimburse the Township for all costs.
 - (a) All sums invoiced by Millcreek Township as reimbursement for its costs in providing maintenance not provided by the owner shall constitute a “municipal claim” as defined in the general municipal law, 53 P.S. § 7101, et seq. and shall be enforceable and collectible as such.
 - (b) Interest shall accrue on all sums so invoiced and not paid within thirty (30) days after the invoice date at the rate of ten percent (10%) per year from the invoice date.
 5. The Township shall be entitled to enforce such agreement by an action at law or in equity, including an action for specific performance, in which event the owner shall in addition to other relief warranted be compelled to pay to Millcreek Township all attorney’s fees, costs and expenses thereby incurred by the Township.
- B. Other items may be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities.

Section 603 - Municipal Stormwater Maintenance Fund

- A. The Township shall establish and maintain a Stormwater Maintenance Fund, the sole purpose of which shall be to receive contributions and effect payment of the Township’s inspection and maintenance costs associated with stormwater retention/detention facilities.
- B. Persons installing stormwater storage facilities shall be required to pay a specified amount to the Township’s Stormwater 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 Township for a period of ten (10) years, as estimated by the Township engineer. Upon completion of the facility, the Township shall perform periodic inspections of the facility for a term of ten (10) years. These inspections will be of a routine nature and shall not excuse the owner from inspecting and maintaining the facility. *[Amended by Ordinance 2003-5]*
 2. If the storage facility is to be owned and maintained by the Township, the deposit shall cover the estimated costs for maintenance and inspections for fifteen (15) years. The Township 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 Township Engineer and Treasurer shall determine the present worth equivalents which shall be subject to the approval of the Board of Supervisors.

4. Such deposit shall be paid by the developer on or before the date upon which the Township assumes responsibilities for inspection and/or maintenance, and not later than the date upon which the Township accepts the facility as being completed.
 5. The Township shall provide no inspection or maintenance services without such deposit having first been made.
- C. If a storage facility is proposed that also serves as a recreation facility (e.g., ballfield, lake), the Township may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purposes.
 - D. If in the future 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.

Section 604 - Miscellaneous Provisions

- A. The agreement of Millcreek Township to provide inspection and/or maintenance services under this Article shall not serve to impose upon the Township, its officials, departments or employees any liability arising out of the calculations, design or construction of the said facility.
- B. The provisions of this Article shall be an express condition upon approval of any subdivision, land development or other development plan subject to the provisions of this Ordinance.
- C. The Board of Supervisors by Resolution shall from time to time establish forms, agreements, filing and maintenance fees and other documents necessary to implement the provisions of this Article.
- D. Millcreek Township shall not be obligated to perform any inspection, maintenance or other services to or upon privately owned facilities absent the owner's prior execution of an agreement acceptable to the Township and the owner's prepayment to the Township of all fees due for performance of the specified services for the next following year subject to the agreement. An owner's failure to prepay such fees prior to commencement of the next year of performance shall immediately terminate such agreement and all obligations of Millcreek Township thereunder.

**ARTICLE VII
STORMWATER PLAN REQUIREMENTS**

Section 701 - General Requirements

No final subdivision/land development plan shall be approved, no permit authorizing construction shall be issued, or an earth moving or land disturbance activity initiated until the final stormwater management plan for the site is approved in accordance with the provisions of this Ordinance.

Section 702 - General Exemptions

The following activities are specifically exempt from the plan preparation provisions of this Ordinance unless the Township determines that the activity is likely to, has, or will negatively impact the purposes and objectives set forth in Article I. For example, where an activity occurs on very steep terrain or where an activity is the latest in a series of incremental developments expected to cause pronounced stormwater impacts, it may be that these activities will be required to comply with the plan preparation requirements contained herein even though their activities qualify under the listing in this section. Upon making such determination, the Township shall give notice in writing to the land owner and the developer, if known, and direct the landowner and any developer to immediately cease and desist all activity and affirmatively comply with the formal plan, submission, and approval procedures of this ordinance. Exemption shall not relieve the applicant from providing adequate stormwater management to meet the purpose of this Ordinance.

- A. Any regulated activity that would create 10,000 square feet or less of impervious area; provided, however, that the Township may require plan preparation for developments creating in excess of 5,000 square feet of impervious area if drainage or stormwater management problems exist upon the subject premises or upon properties adjacent to it. This criteria shall apply to the total development even if development is to take place in phases. Impervious cover shall include, but not be limited to, any roof, parking or driveway areas and any new streets and sidewalks. Any areas designed to initially be gravel or crushed stone shall be assumed to be impervious for the purposes of this exemption criteria.
 - 1. The exemption set forth above shall be cumulative, and all development activity within a five (5)-year period shall be included within calculations.
 - 2. General standards for regulated activities creating 5,000 square feet or less of impervious area, in the aggregate, are as set forth on Appendix C to this Ordinance.

[Subsections 1 and 2 were added by Ordinance 2003-5]

- B. Use of land for gardening for home consumption.
- C. Agriculture when operated in accordance with a conservation plan or erosion and sedimentation control plan prepared by the County Conservation District. The agricultural activities such as growing crops, rotating crops, filling of soil and grazing animals and other such activities are specifically exempt from complying with the requirements of this Ordinance when such activities are conducted in accordance with a conservation plan prepared by the County Conservation District. The construction of buildings, parking lots or any activity that may result in impervious surface which increases the rate and volume of stormwater runoff shall comply with the requirements of this Ordinance.

- D. Forest management operations which are following the Department of Environmental Protection's management practices contained in its publication "Soil Erosion and Sedimentation Control Guidelines for Forestry" and are operating under an erosion and sedimentation control plan.

Section 703 - Stormwater Plan Contents

- A. General Format: The stormwater plan shall be drawn to a scale of not less than 1 inch = 100 feet. All sheets shall contain a title block with; Name and address of applicant and engineer, scale, north arrow, legend and date of preparation.
- B. Existing and Proposed Features: The plan shall show on separate drawings (one of Existing Conditions and the other of Proposed Conditions) the following under both pre-development and post-development conditions: *[Amended by Ordinance 2003-5]*
1. Watershed location - Provide a key map showing the location of the development site within the watershed(s) and watershed subarea(s). On all site drawings, show the boundaries of the watershed(s) and subarea(s) as they are located on the development site and identify watershed names(s) and subarea number(s).
 2. Floodplain boundaries - Identify 100-year floodplains on the development site (as appropriate) based on the municipal Flood Insurance Study maps.
 3. Natural features - Show all bodies of water (natural or artificial), watercourses (permanent and intermittent), swales, wetlands and other natural drainage courses on the development site, or which will be affected by runoff from the development.
 4. Soils - Provide an overlay showing soil types and boundaries within the development site (consult County, SCS and U.S. Geological Survey for information).
 5. Contours - Show existing and final contours at intervals of two (2) feet; in areas with slopes greater than fifteen (15) percent, five (5) foot contour intervals may be used.
 6. Land cover - Show existing and final land cover classifications as necessary to support and illustrate the runoff calculations performed; include proposed structures, roads, paved areas and buildings and areas of intended future expansion.
 7. Drainage area delineations - Show the boundaries of the drainage areas employed in the runoff calculations performed.
 8. Stormwater management controls - Show any existing stormwater management or drainage controls and/or structures, such as storm sewers, swales, culverts, etc. which are located on the development site, or which are located off-site but will be affected by runoff from the development.
 9. General Location - the location of the project relative to highways, streets, municipalities and other identifiable landmarks.

- C. Professional Certification: The principal in charge of preparing the stormwater management plan (including all calculations) shall be a registered professional engineer and the stormwater management plan shall be sealed by a registered professional engineer with training and expertise in hydrology and hydraulics. A professional engineer certifying a stormwater management plan and/or as-built drawings shall maintain in force at all times professional liability or errors and omissions insurance coverage having limits of not less than \$1,000,000.00. Documentation of qualifications and insurance coverage may be required by the Township. *[Amended by Ordinance 2003-5]*
- D. Runoff Calculations: Calculations for determining pre- and post-development discharge rates and for designing proposed stormwater control facilities must be submitted with the stormwater management plan. All calculations shall be prepared using the methods and data prescribed by Article III of this Ordinance.
- E. Stormwater Controls: All proposed stormwater runoff control measures must be shown on the plan including methods for collecting, conveying and storing stormwater runoff on-site, which are to be used both during and after construction. Erosion and sedimentation controls shall be shown in accordance with Article V of this Ordinance. The plan shall provide information on the exact type, location, sizing, design and construction of all proposed facilities and their relationship to the existing watershed drainage system. The plan shall include technical specifications for materials and methods to be used in the construction of the stormwater management facilities.
1. If the development is to be constructed in stages, the applicant must demonstrate that stormwater facilities will be installed to manage stormwater runoff safely during each stage of development.
 2. A schedule for the installation of all temporary and permanent stormwater control measures and devices shall be submitted.
 3. If appropriate, a justification should be submitted as to why any preferred stormwater management techniques, as listed in Article IV of this Ordinance, are not proposed for use.
- F. Easements, Right-of-Ways, Deed Restrictions: All existing and proposed easements and rights-of-way for drainage and/or access to stormwater control facilities shall be shown along with any areas subject to special deed restrictions relative to or affecting stormwater management on the development site.
- G. Other Permits/Approvals: A list of any approvals/permits relative to stormwater management that will be required from other governmental agencies (Pennsylvania DEP Chapter 105 and 106 permits and/or NPDES permit) and anticipated dates of submission/receipt should be included with the stormwater plan submission. Copies of permit applications may be requested by the Township where they may be helpful for the plan review.

- H. Maintenance Program: The proposed maintenance plan for all stormwater control facilities shall:
1. Identify the proposed ownership entity (e.g., property owner, private corporation, homeowner's association, other entity, municipality).
 2. Identify the type of maintenance, probable frequencies, personnel and equipment requirements and estimated annual maintenance costs (with substantiation of the estimate's basis).
 3. Identify the method for financing the continuing operation and maintenance of the facility if the facility is to be owned by other than a governmental agency.
 4. Include copies of any legal agreements required to implement the maintenance program and, if applicable, copies of the maintenance agreement as required under Article VI of this Ordinance.
- I. Financial Guarantees: Submit financial guarantees in accordance with the provisions of Article X of this Ordinance.
- J. Evidence of Notification of Downstream Municipality: The developer shall notify (by certified mail) the municipality immediately downstream of the municipality within which the development is proposed that a stormwater control plan has been prepared and submitted. This letter should identify the location of the proposed development site and the name of the affected stream. The developer shall submit a copy of this letter and a copy of the certified mail return receipt.

ARTICLE VIII PLAN REVIEW PROCEDURES

Section 801 - Pre-Application Phase

- A. Before submitting the stormwater plan, applicants are urged to consult with the Township on the applicable regulations and techniques for safely managing runoff from the development site. The Township may also be helpful in providing necessary data for the stormwater management plan.
- B. Applicants are encouraged to submit a sketch plan with a narrative description of the proposed stormwater management controls for general guidance and discussion with the Township and other agencies.
- C. The pre-application phase is not mandatory; any review comments provided by the Township are advisory only and do not constitute any legally binding action on the part of the Township.

Section 802 - Stormwater Plan Reviews

- A. Submission of Plans: Stormwater plan applications shall be submitted with the preliminary and final subdivision/land development applications.
- B. Notification of Affected Municipalities: The developer is required to notify municipalities immediately downstream of the development site that a stormwater control plan has been submitted. Copies of the plans will be made available to the municipalities upon request. Comments received from any affected municipality will be considered by the Township engineer and county agencies in their reviews. Prior to first consideration of the plan or the development plan to which it pertains, the developer must submit to the Township Engineer proof that required notice to downstream municipalities has been given.
- C. Engineer's Review: The Township's engineer shall recommend approval or disapproval of the stormwater management plan based on the requirements of the municipal ordinances, the standards and criteria of the watershed plan and good engineering practice. The engineer shall submit a written report, along with supporting documentation, stating reasons for approval or disapproval.
 - 1. Stormwater management plans submitted to the Township shall be referred to a consulting engineer to be selected by the Board of Supervisors for review of submitted plans and issuance of written reports and certifications required under this subsection, unless the Board of Supervisors upon approval of the first plan application should otherwise direct.
 - 2. All fees and costs associated with such reviews, inspections, administration, reports and related services shall be paid by the applicant and deemed plan application, review, inspection and administration fees. The Board of Supervisors shall by Resolution adopted from time to time establish a schedule of such fees and the manner of their prepayment by the applicant. All such fees shall be paid or deposited prior to recordation of the subdivision or land development plat to which it pertains.
 - 3. The Board of Supervisors by Resolution shall establish procedures and policies governing such reviews, which shall address prohibitions against conflicts of interest, identify those engineers eligible for referrals and establish the process for referral of proposed plans to an engineer retained by the Township.
- D. Permits Required from Other Governmental Agencies: Where the proposed development requires an obstruction permit from the Pennsylvania DEP or an erosion/sedimentation permit from the County Conservation District, final stormwater management plan approval shall be granted subject to the receipt of such permits. No building permit shall be issued, nor construction started, until the permits are received and copies filed with the Township.
- E. Engineering Certification: The engineer reviewing stormwater management applications and submitting recommendations thereon to the Board of Supervisors shall certify that any application recommended for approval meets all requirements of the Stormwater Management Act, this Ordinance and other applicable laws, ordinances and regulations. If a review indicates that all requirements have not been met, the engineer shall in writing identify deficiencies and recommend the corrective measures needed to ensure compliance.

Section 803 - Status of the Stormwater Plan after Final Approval

- A. Upon final stormwater plan approval, receipt of all necessary permits, and recording of the final subdivision or land development plan in the Erie County Recorder of Deeds Office, the applicant may commence to install or implement the approved stormwater management controls.
- B. If site development or building construction does not begin within two years of the date of final approval of the stormwater management plan, then before doing so, the applicant shall resubmit the stormwater management plan to verify that no condition has changed within the watershed that would affect the feasibility or effectiveness of the previously approved stormwater management controls. Further, if for any reason development activities are suspended for two years or more, then the same requirement for resubmission of the stormwater management plan shall apply.
- C. A stormwater management plan is intended under this Ordinance as a developer's means of meeting the developer's obligations under the Stormwater Management Act. Neither the Township's approval of a submitted plan nor any subsequent acceptance of dedication shall relieve the developer of his/her/its obligation to control stormwater from the development as is established in the Act.

Section 804 - Stormwater Plan Modifications

- A. If the request for a plan modification is initiated before construction begins, the stormwater plan must be resubmitted and reviewed according to the procedures contained in this Article.
- B. If the request for a plan modification is initiated after construction is underway, the engineer who reviewed the original plan shall recommend approval or disapproval of the modification based on field inspection provided: (1) the requested changes in stormwater controls do not result in any modifications to other approved Township land use/development requirements (e.g., building setbacks, yards, etc.) and (2) the performance standards in Article III of this Ordinance are met. Notification of the engineer's action shall be sent to the Board of Supervisors, which may issue a stay of the plan modification within fourteen (14) days and require the permittee to resubmit the plan modification for full stormwater plan review in accordance with the procedures contained in this Article.
- C. The applicant shall be responsible for payment of all fees and costs incurred as a consequence of review, approval and/or inspection of a plan modification.

ARTICLE IX
INSPECTIONS OF STORMWATER MANAGEMENT CONTROLS

Section 901 - Inspections

- A. The Township Engineer or a designated representative of the municipality shall inspect the construction of the temporary and permanent stormwater management system for the development site. The permittee shall provide to the Township Engineer and the engineer retained to conduct stormwater management plan reviews and inspections written notice of intention to commence work to be received at least 48 hours prior to commencement of construction, and the permittee shall thereafter keep the Township Engineer and retained engineer apprised of the permittee's progress and schedule of work. *[Amended by Ordinance 2003-5]*
- B. If there are deficiencies in any phase, the Township Engineer shall issue a written description of the required corrections and stipulate the time by which they must be made. The Township shall have authority to direct performance of work deemed necessary to protect downstream properties during the course of development activity. *[Amended by Ordinance 2003-5]*
- C. If during construction, the contractor or permittee identifies any site condition, such as subsurface soil conditions, alterations in surface or subsurface drainage which could affect the feasibility of the approved stormwater facilities, he/she shall notify the Township Engineer within 24 hours of the discovery of such condition and request a field inspection. The Township Engineer shall determine if the condition requires a stormwater plan modification.
- D. In cases where stormwater facilities are to be installed in areas of landslide-prone soils or other special site conditions exist, the Township may require special precautions such as soil tests and core borings, full-time inspectors and/or similar measures. All costs of any such measures shall be borne by the permittee.
- E. All inspections shall be conducted by the engineer responsible for review and certification of such plan, or his or her designee.
- F. Where stormwater facilities are to be dedicated to and accepted by the Township, the engineer shall conduct such inspections as are required to enable the engineer to certify to the Board of Supervisors, prior to the Board's acceptance of the facilities and/or reduction or release of security pertinent to their construction or integrity, that such facilities have been constructed in full conformity with this Ordinance and the approved stormwater management plan.

ARTICLE X
FINANCIAL GUARANTEES AND DEDICATION OF PUBLIC IMPROVEMENTS

Section 1001 - Financial Guarantees

- A. Guarantee of completion: A completion guarantee in the form of a bond, cash deposit, certified check or other negotiable securities acceptable to the Township shall be filed.
The guarantee shall cover all streets, sanitary sewers, stormwater management facilities, water systems, fire hydrants, sidewalks and other required improvements; it shall be in the amount and form prescribed by the Pennsylvania Municipalities Planning Code (Section 509). Such security must provide that, upon written certification by the Township that all or a portion of the improvements subject thereto have not been completed in proper or timely fashion, funds under the security shall be immediately paid over to the Township. The Subdivision and Land Development Ordinance shall govern generally the issue of security for completion of required public improvements.
- B. Release of completion guarantee: The procedures for requesting and obtaining a release of the completion guarantee shall be in a manner prescribed by the Pennsylvania Municipalities Planning Code (Section 510).
- C. Default of completion guarantee: If improvements are not installed in accordance with the approved final plan, the Board of Supervisors may enforce any corporate bond or other security by appropriate legal and equitable remedies. If proceeds of such bond or other security are insufficient to pay the cost of installing or making repairs or corrections to all the improvements covered by said security, the Board of Supervisors may at its option install part of such improvements in all or part of the development and may institute appropriate legal or equitable action to recover the moneys necessary to complete the remainder of the improvements. All proceeds, whether resulting from the security or from any legal or equitable action brought against the developer, or both, shall be used solely for the installation of the improvements covered by such security and not for any other municipal purpose.

Section 1002 - Dedication of Public Improvements

- A. Procedures governing dedication and acceptance of public improvements by the Township, water and sewer authorities and other governmental agencies shall be as set forth in the Municipalities Planning Code, the Subdivision and Land Development Ordinance and regulations of other governmental agencies responsible for accepted improvements. Improvements shall be deemed private until such time as they have been offered for dedication and accepted as a public improvement by resolution or ordinance of the Township or other applicable governmental agency. *[Amended by Ordinance 2003-5]*
- B. A development and stormwater management plan shall identify clearly those improvements which are to be offered for dedication for public use and the governmental agency to which dedication is offered. The Township shall accept dedication of stormwater management facilities only where located within rights of way of a public street or as otherwise authorized in this Ordinance. Prior to acceptance by the Township of any improvements or facilities, the Township Engineer, a consulting engineer retained by the Board of Supervisors or their designee shall inspect them to ensure that they have been constructed in full conformity with the approved plan and Township specifications and are functioning properly. Any stormwater control facility must be free of sediment and debris prior to acceptance by the Township.

The developer offering said facilities for acceptance by the Township shall be responsible for payment of all inspection and engineering fees incurred in this process, which fees shall be paid in full to Millcreek Township prior to acceptance of such improvements. Regulations of water and sewer authorities, PennDOT and other agencies to whom dedication of certain constructed improvements is offered shall control with regard to their completion and acceptance. *[Amended by Ordinance 2003-5]*

- C. The owner shall submit as-built plans for all facilities proposed for dedication, certified by a professional engineer. Complete certified as-built plans shall be provided to the Township's retained engineer prior to issuance of the engineer's certification of completion. *[Amended by Ordinance 2003-5]*
- D. Prior to acceptance of any detention and/or retention facility, the applicant shall provide a financial security to secure the structural integrity and functioning of the said facility(ies). The security shall: (1) be in the form of a bond, cash, certified check or other negotiable securities acceptable to the Township, (2) be for a term of 36 months, and (3) be in an amount equal to 25 percent of the actual cost of the improvements and facilities so dedicated. Security for all other development improvements shall be fixed and administered pursuant to the Subdivision and Land Development Ordinance.

Section 1003 - Express Conditions Upon Acceptance of Dedication

- A. Any acceptance by Millcreek Township of dedication of storm detention or retention facilities shall be subject to the following conditions:
 - 1. Such acceptance shall not constitute assumption by the Township of responsibility or liability arising out of errors, omissions, miscalculations or misrepresentations (whether accidental, negligent, reckless or intentional) upon which the stormwater management plan submitted by the developer and certified by the developer's engineer was wholly or in part based.
 - 2. The developer and its engineer shall remain liable under the Stormwater Management Act and this Ordinance to the Township and third parties for loss, damage and expense, including attorney's fees and litigation expenses, incurred as a result or arising out of deficient or negligent calculations, design and/or construction of the facility, and shall be obligated to hold Millcreek Township harmless against any and all claims of personal injury and/or property damage arising out of such negligence.
 - 3. No action for damages shall be deemed to arise until the date upon which defects in calculation, design and/or construction of the facility is first known by the Township to exist.
 - 4. No stormwater detention/retention facility shall be accepted by the Board of Supervisors unless (a) it has been enclosed by a fence acceptable to the Township; (b) it has a maximum side slope not exceeding 4:1 horizontal to vertical dimension and (C) the deposit for future inspection and maintenance required under Section 603(B)(2) of this Ordinance has been paid in full. Where the nature, physical conditions and/or topography of the development, the facility or the adjacent lands are such that a side slope of 4:1 does not adequately allow for safe and efficient maintenance, the Board of Supervisors in its discretion may require a maximum side slope of 5:1 horizontal to vertical dimension.

5. The Board of Supervisors shall have received from an engineer to whom the proposed stormwater management plan was referred his/its certification that such plan and the facilities proposed to be dedicated have been completed in full conformity with the approved plan, this Ordinance and all applicable laws and regulations.
- B. The Board of Supervisors shall not accept dedication of any stormwater detention/retention facility without first receiving the written and signed agreement of the applicant and the applicant's engineer to the express conditions set forth above.
- C. This Ordinance shall not be construed so as to impose upon the Board of Supervisors an obligation to accept dedication of any stormwater detention/retention facility unless the Board should so elect, and subject to such additional conditions as the Board may impose.

ARTICLE XI FEES AND ADMINISTRATION

Section 1101 - Fee Schedule

The Board of Supervisors may adopt by resolution from time to time a reasonable schedule of fees to cover the cost of plan reviews, inspections and other activities necessary to administer the provisions of this Ordinance. All fees shall be set in accordance with the applicable provisions of the Pennsylvania Municipalities Planning Code and any dispute over the fee amount shall be resolved in the manner prescribed by the Pennsylvania Municipalities Planning Code.

Section 1102 - Developer Obligated to Pay all Fees

All fees and expenses associated with the review, inspection, oversight and administration of stormwater management plans shall be paid by the developer. Filing and review fees shall defray ongoing administration of this Ordinance.

Section 1103 - Administration

The Board of Supervisors shall have authority to delegate responsibilities for administration and implementation of this Ordinance, and to establish by Resolution fees and procedures.

ARTICLE XII ENFORCEMENT PROCEDURES AND REMEDIES

Section 1201 - Right of Entry

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

Section 1202 - Notification

In the event that the applicant, developer, owner or his/her agent fails to comply with the requirements of this Ordinance or fails to conform to the requirements of any permit, a written notice of violation shall be issued by the Township Engineer or any designated municipal official. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of the violation(s). Upon failure to comply within the time specified, unless otherwise extended by the Township, the applicant, developer, owner or his/her agent shall be subject to the enforcement remedies of this Ordinance.

Section 1203 - Preventive Remedies

- A. In addition to other remedies, the Township may institute and maintain appropriate actions by law or in equity to restrain, correct or abate a violation, to prevent unlawful construction, to recover damages and to prevent illegal occupancy of a building or premises.
- B. In accordance with the Pennsylvania Municipalities Planning Code (Sec. 515.1), the Township may refuse to issue any permit or grant approval to further improve or develop any property which has been developed in violation of this Ordinance.

Section 1204 - Enforcement Remedies

- A. Any person, who has violated or permitted the violation of the provisions of this Ordinance shall, upon such finding by the Township Engineer or Code Administrator, pay an administrative fine of \$750.00 to Millcreek Township. In the event such administrative fine is not paid within fifteen (15) days after the date of the administrative enforcement notice, such person, upon being found by the District Justice having appropriate jurisdiction in an action brought by the Township in the same manner provided for the enforcement of summary offenses under the Pa. Rules of Criminal Procedure, shall be guilty of a summary offense and shall pay a fine of \$1,000.00 plus court costs, including all reasonable attorney fees incurred by the Township, and shall be subject to imprisonment as determined by the District Justice to the extent allowed by law for punishment of summary offenses. No judgment upon the fine shall commence or be imposed, levied or be payable until the date of the determination of a violation by the District Justice. The Solicitor may assume charge of the prosecution under Act 172-1996.
- B. If the defendant neither pays the fine and costs nor timely appeals a conviction, the Township may enforce the judgment pursuant to applicable rules of civil procedure.
- C. Each day or portion thereof that each violation continues shall constitute a separate offense.
In the event the District Justice determines that there was a good faith basis for the person violating the Ordinance to have believed that there was no such violation, there shall be deemed to have been only one such violation until the fifth day following the date of the District Justice's determination of a violation; thereafter each day that a violation continues shall constitute a separate violation.
- D. All fines, costs and reasonable attorney fees collected for the violation of this Ordinance shall be paid over to the Township Treasurer.
- E. This Ordinance shall be enforced in accordance with general enforcement provisions of the Subdivision and Land Development Ordinance, Ordinance 96-8 (relating to civil enforcement of ordinances) and Ordinance 96-9 (relating to imposition of attorney's fees), as modified by Act 172 of 1996 and as the same may in the future be amended.
- F. Nothing contained in this section shall be construed or interpreted to grant to any person or entity other than the Township the right to commence any action for enforcement pursuant to this section; provided, however, that this Ordinance shall not be construed or interpreted to deprive persons of their private rights or remedies under the Act.

Section 1205 - Additional Remedies

In addition to the above remedies, the Township may also seek remedies and penalties under applicable Pennsylvania statutes, or regulations adopted pursuant thereto, including but not limited to the Stormwater Management Act (32 P.S. Section 693.1-693.27) and the Erosion and Sedimentation Regulations (25 Pennsylvania Code, Chapter 102). Any activity conducted in violation of this Ordinance or any Pennsylvania approved watershed stormwater management plan may be declared a public nuisance by the Township and abatable as such.

ENACTED this 25th day of February, 1997.

Millcreek Township Secretary

Appendix A
Assigned Release Rate Percentages

Release Rate Area	Assigned Release	Release Rate Area	Assigned Release
1	100	26	90
2	80	27	80
3	90	28	80
4	80	29	90
5	70	30	80
6	90	31	80
7	80	32	90
8	80	33	80
9	90	34	90
10	80	35	70
11	80	36	80
12	80	37	80
13	80	38	90
14	80	39	90
15	70	40	80
16	90	41	90
17	90	42	70
18	80	43	80
19	80	44	80
20	80	45	70
21	90	46	90
22	70	47	80
23	100	48	80
24	80	49	80
25	80	50	70

Note: Release Rate Identification Numbers refer to numbers indicated on the Release Rate Percentage Map.

APPENDIX B
PERMISSIBLE VELOCITIES FOR CHANNELS

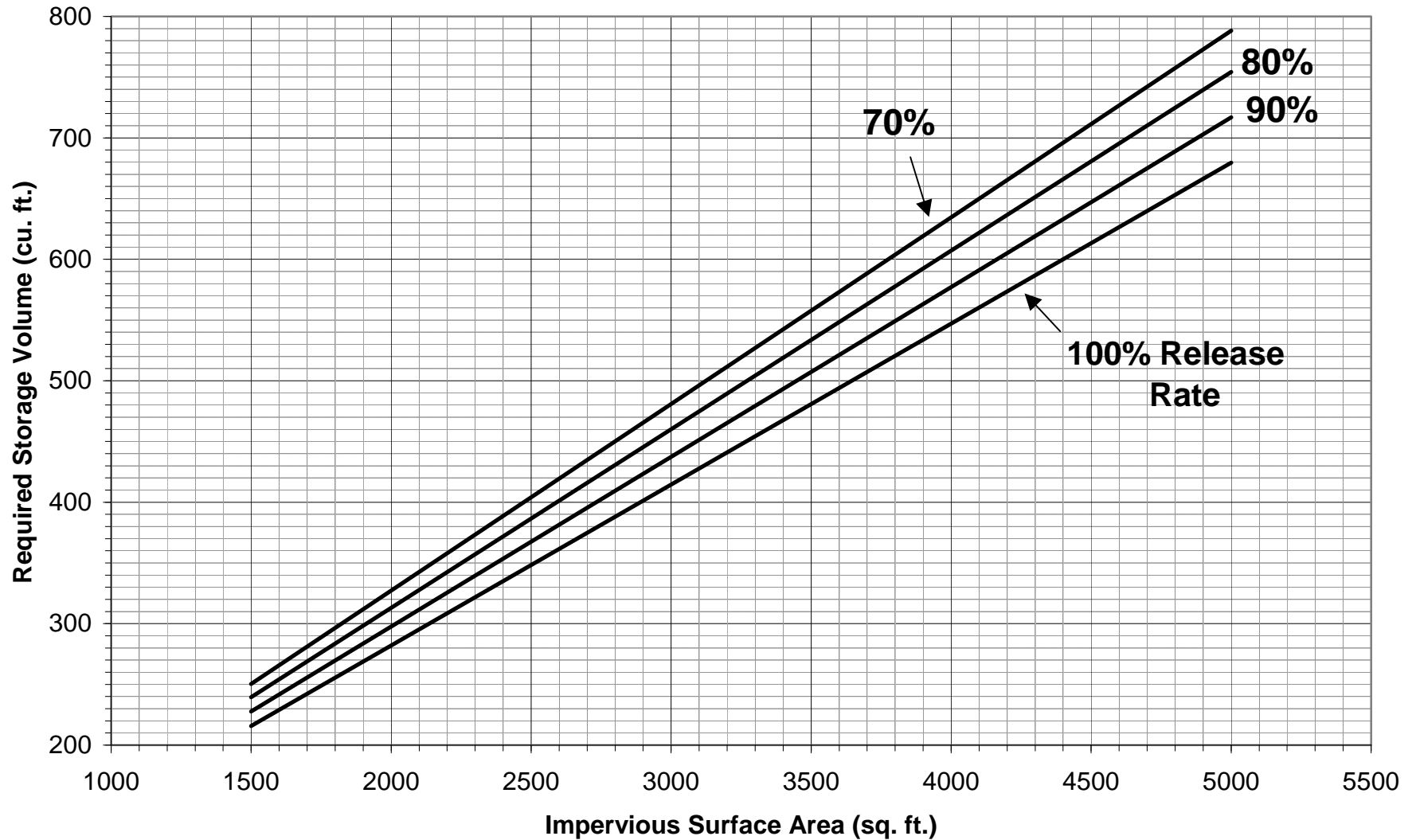
<u>CHANNEL LINING</u>	<u>PERMISSIBLE CHANNEL VELOCITY (F.P.S.)</u>		
<u>Vegetation</u>			
Alfalfa	2.5	-	3.5
Bermuda grass	4	-	8
Crabgrass	2.5	-	3.5
Crownvetch	3	-	5
Kentucky bluegrass	4	-	7
Kentucky 31 tall fescue	2.5	-	7
Red Clover or Red Fescue	2.5	-	3.5
Reed Canary	3	-	5
Ryegrass	2.5	-	3.5
Small grains	2.5	-	3
Smooth brome	3	-	7
Sudan grass or Timothy	2.5	-	3.5
 <u>Bare Earth, Easily Eroded</u>			
Fine sand			1.5
Sand loam			1.75
Silt loam or alluvial silts, loose			2
Firm loam			2.25
 <u>Bare Earth, Erosion Resistant</u>			
Fine gravel			2.5
Stiff clay or alluvial silts, firm			3
Loam to cobbles (graded)			3.75
Silt to cobbles (graded or coarse gravel)			4
Cobbles and stones or shales and hardpans			5
Durable bedrock			8
 <u>Other</u>			
Plastic			4
6" Rip Rap			6
Asphalt			7
9" Rip Rap			8
12" Rip Rap or wood			9
Concrete or steel			12

APPENDIX B - PAGE 2

Slope, soil condition, climate and management must be considered in channel design. If different channel linings exist in a channel, and size and slope do not change, the channel should be designed for the lining with the lower velocity listed.

Where velocity ranges are listed, the lower velocity is for design with easily eroded soils and slopes greater than 10%. The higher velocity is for design with erosion resistant soils and slopes less than 10%.

Millcreek Township: Simplified Detention Basin Chart for Small Watersheds - APPENDIX C



Length of pipe (in feet) required in a single or multiple pipe detention system to attain the required volume.

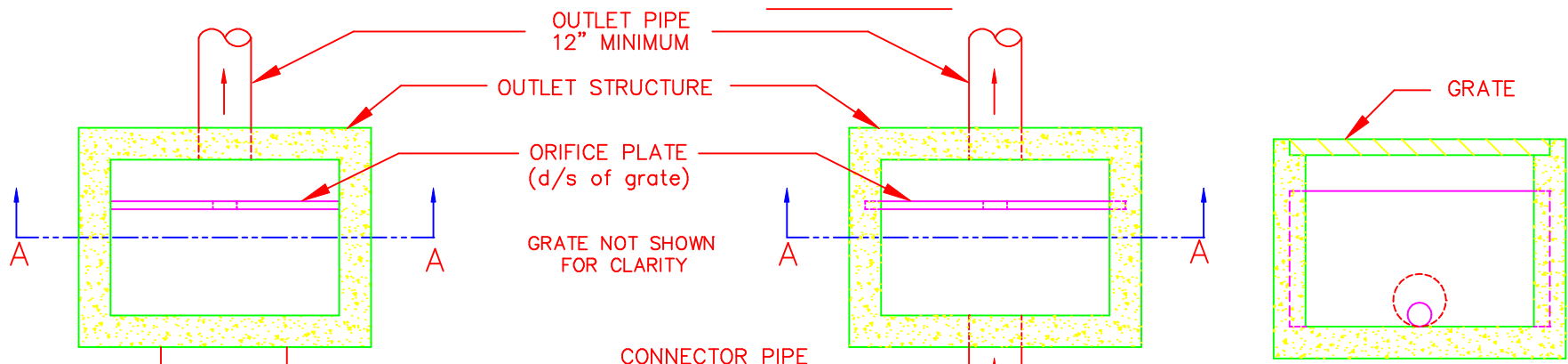
Required Volume (cu. ft.)	<u>15" Pipe</u>				<u>18" Pipe</u>				<u>24" Pipe</u>				<u>30" Pipe</u>				<u>36" Pipe</u>				*
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
200	163	81	54	40	113	56	37	28	64	31	21	15	41	20	13	10	28	13	9	7	
220	179	89	59	44	124	62	41	30	70	35	23	17	45	22	15	11	31	15	10	7	
240	196	97	65	48	136	67	45	33	76	38	25	18	49	24	16	12	34	16	11	8	
260	212	105	70	52	147	73	48	36	83	41	27	20	53	26	17	13	37	18	12	9	
280	228	114	75	56	158	79	52	39	89	44	29	22	57	28	19	14	40	19	13	10	
300	244	122	81	60	170	84	56	42	95	47	31	23	61	30	20	15	42	20	14	10	
320	261	130	86	64	181	90	60	45	102	50	33	25	65	32	21	16	45	22	15	11	
340	277	138	92	69	192	96	63	47	108	54	35	26	69	34	23	17	48	23	16	12	
360	293	146	97	73	204	101	67	50	115	57	38	28	73	36	24	18	51	25	16	12	
380	310	154	103	77	215	107	71	53	121	60	40	29	77	38	25	19	54	26	17	13	
400	326	162	108	81	226	113	75	56	127	63	42	31	81	40	27	20	57	28	18	14	
420	342	171	113	85	238	118	79	59	134	66	44	33	86	42	28	21	59	29	19	14	
440	359	179	119	89	249	124	82	61	140	70	46	34	90	44	29	22	62	30	20	15	
460	375	187	124	93	260	130	86	64	146	73	48	36	94	46	31	23	65	32	21	16	
480	391	195	130	97	272	135	90	67	153	76	50	37	98	48	32	24	68	33	22	17	
500	407	203	135	101	283	141	94	70	159	79	52	39	102	50	34	25	71	35	23	17	
520	424	211	141	105	294	147	97	73	166	82	55	41	106	52	35	26	74	36	24	18	
540	440	220	146	109	306	152	101	76	172	85	57	42	110	54	36	27	76	37	25	19	
560	456	228	151	113	317	158	105	78	178	89	59	44	114	56	38	28	79	39	26	19	
580	473	236	157	117	328	164	109	81	185	92	61	45	118	58	39	29	82	40	27	20	
600	489	244	162	121	340	169	113	84	191	95	63	47	122	60	40	30	85	42	28	21	
620	505	252	168	126	351	175	116	87	197	98	65	49	126	63	42	31	88	43	29	22	
640	522	260	173	130	362	181	120	90	204	101	67	50	130	65	43	32	91	45	30	22	
660	538	268	179	134	373	186	124	93	210	105	69	52	134	67	44	33	93	46	31	23	
680	554	277	184	138	385	192	128	95	216	108	71	53	139	69	46	34	96	47	32	24	
700	570	285	189	142	396	198	131	98	223	111	74	55	143	71	47	35	99	49	33	24	
720	587	293	195	146	407	203	135	101	229	114	76	57	147	73	48	36	102	50	33	25	
740	603	301	200	150	419	209	139	104	236	117	78	58	151	75	50	37	105	52	34	26	
760	619	309	206	154	430	215	143	107	242	120	80	60	155	77	51	38	108	53	35	27	
780	636	317	211	158	441	220	146	110	248	124	82	61	159	79	53	39	110	54	36	27	
800	652	325	217	162	453	226	150	112	255	127	84	63	163	81	54	40	113	56	37	28	

* Number of lengths of pipe used in a single or manifold pipe system.

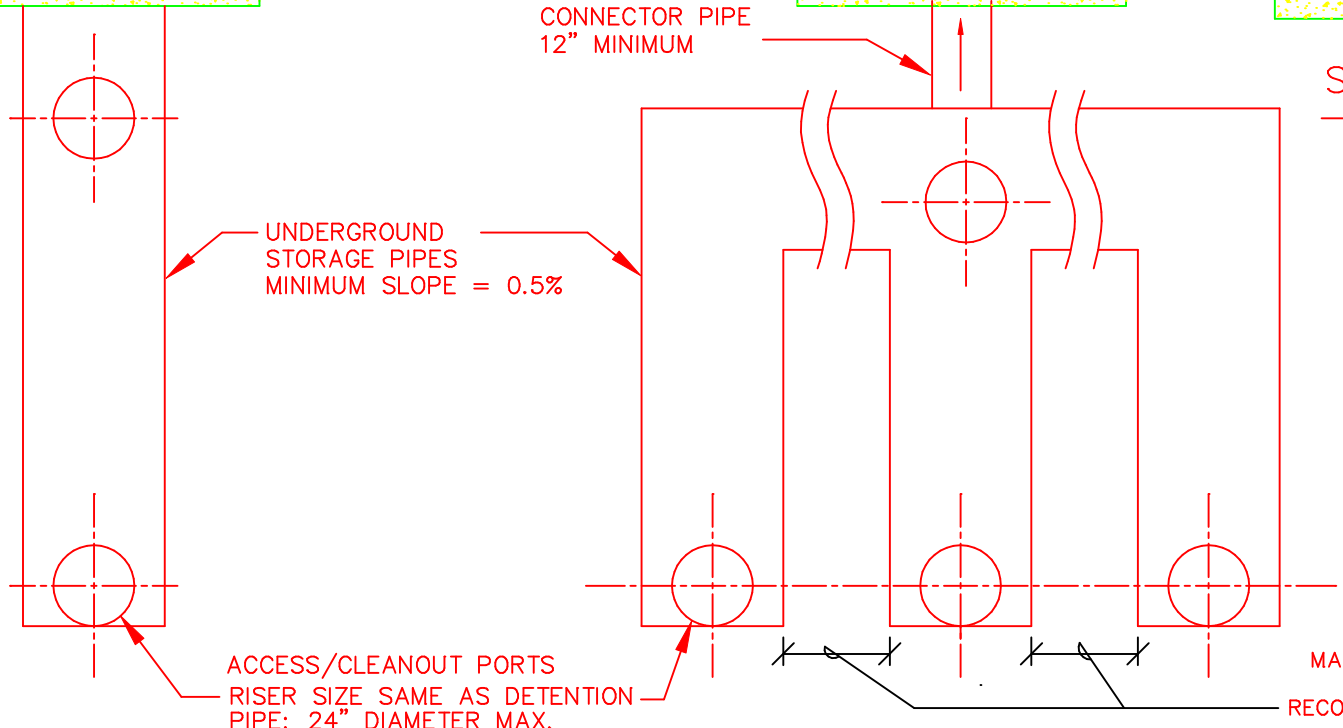
**Single Orifice
Diameter to be
Used in
Conjunction
with
Simplified
Detention Basin
Design.**

Release Rate (%)	<u>Total Impervious Surface (sq. ft)</u>							
	<u><1,750</u>	<u>1,750- 2,250</u>	<u>2,250- 2,750</u>	<u>2,750- 3,250</u>	<u>3,250- 3,750</u>	<u>3,750- 4,250</u>	<u>4,250- 4,750</u>	<u>4,750 +</u>
	<u>Orifice Size Required (in)</u>							
100	1 ½	1 ¾	2	2	2	2 ¼	2 ½	2 ½
90	1 ½	1 ¾	1 ¾	2	2	2 ¼	2 ¼	2 ½
80	1 ½	1 ½	1 ¾	1 ¾	1 ¾	2	2 ¼	2 ½
70	1 ½	1 ½	1 ½	1 ¾	1 ¾	1 ¾	2	2

PLAN VIEW



SECTION A-A



COMPLY WITH
MANUFACTURERS
SPACING
RECOMMENDATIONS

ACCESS/CLEANOUT PORTS
RISER SIZE SAME AS DETENTION
PIPE; 24" DIAMETER MAX.

UNDERGROUND
STORAGE PIPES
MINIMUM SLOPE = 0.5%

GRATE NOT SHOWN
FOR CLARITY

ORIFICE PLATE
(d/s of grate)

OUTLET STRUCTURE

OUTLET PIPE
12" MINIMUM

N.T.S.

2-18-03

Millcreek Township
Erie County, Pennsylvania
3608 West 26th Street
Erie, PA 16506
814-833-1111
www.millcreektownship.com

**CONSTRUCTION STANDARDS
UNDERGROUND STORAGE
TYPICAL DETAILS**



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Revisions:	
Drawing No:	