

Chapter 17

Stormwater Management

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Part 1**General Provisions****§17-101. Short Title.**

This Chapter shall be known and may be cited as the "North York Borough Stormwater Management Ordinance."

(*Ord. 2005-1, 6/21/2005, §101*)

§17-102. Statement of Findings.

The Borough Council of North York Borough finds that:

A. Stormwater runoff from lands modified by human activities threatens public health and safety by causing decreased infiltration of rainwater and increased runoff flows and velocities, which overtax the carrying capacity of existing streams and storm sewers, and greatly increases the cost to the public to manage stormwater.

B. Inadequate planning and management of stormwater runoff resulting from land development and redevelopment throughout a watershed can also harm surface water resources by changing the natural hydrologic patterns, accelerating stream flows (which increase scour and erosion of stream-beds and stream-banks thereby elevating sedimentation), destroying aquatic habitat and elevating aquatic pollutant concentrations and loadings such as sediments, nutrients, heavy metals and pathogens. Groundwater resources are also impacted through loss of recharge.

C. A program of stormwater management, including reasonable regulation of land development and redevelopment causing loss of natural infiltration, is fundamental to the public health, safety, welfare, and the protection of the people of North York Borough and all the people of the Commonwealth, their resources, and the environment.

D. Stormwater can be an important water resource by providing groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.

E. Public education on the control of pollution from stormwater is an essential component in successfully addressing stormwater.

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

G. Non-stormwater discharges to municipal separate storm sewer systems can contribute to pollution of waters of the Commonwealth by North York Borough.

(*Ord. 2005-1, 6/21/2005, §102*)

§17-103. Purpose.

The purpose of this Chapter is to promote health, safety, and welfare within North York Borough and its watershed by minimizing the harms and maximizing the benefits

described in §17-102 of this Chapter through provisions designed to:

- A. Manage stormwater runoff impacts at their source by regulating activities that cause the problems.
- B. Provide review procedures and performance standards for stormwater planning and management.
- C. Utilize and preserve the existing natural drainage systems as much as possible.
- D. Manage stormwater impacts close to the runoff source, which requires a minimum of structures and relies on natural processes.
- E. Focus on infiltration of stormwater, to maintain groundwater recharge, to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
- F. Maintain existing flows and quality of streams and watercourses.
- G. Meet legal water quality requirements under state law, including regulations at 25 Pa.Code, Chapter 93.4a, to protect and maintain “existing uses” and maintain the level of water quality to support those uses in all streams, and to protect and maintain water quality in “special protection” streams.
- H. Prevent scour and erosion of streambanks and streambeds.
- I. Provide for proper operations and maintenance of all permanent stormwater management BMPs that are implemented in North York Borough.
- J. Provide a mechanism to identify controls necessary to meet the NPDES permit requirements.
- K. Implement an illegal discharge detection and elimination program to address non-stormwater discharges into the Borough's separate storm sewer system.

(*Ord. 2005-1, 6/21/2005, §103*)

§17-104. Statutory Authority.

North York Borough is empowered to regulate land use activities that affect stormwater impacts by the authority of the Borough Code of the Commonwealth of Pennsylvania, the Act of July 31, 1968, P.L. 805 No, 247, 53 P.S. §45101 *et seq.*, the Pennsylvania Municipalities Planning Code and to carry out the express intent of the Stormwater Management Act, No. 1978 167, 32 P.S. §680.1 *et seq.*

(*Ord. 2005-1, 6/21/2005, §104*)

§17-105. Applicability.

1. This Chapter applies to any regulated earth disturbance activities within North York Borough, and all stormwater runoff entering into North York Borough's separate storm sewer system from lands within the boundaries of North York Borough.

2. The following activities are defined as Regulated Activities and shall be regulated by this Chapter, except those which meet the waiver specifications presented thereafter:

- A. Land development.

- B. Subdivision involving new impervious surface.
- C. Construction of new or additional impervious surface (driveways, parking lots, etc.)
- D. Construction of new buildings or additions to existing buildings.
- E. Diversion or piping of any natural or man-made stream channel.
- F. Installation of stormwater systems or appurtenances thereto.

3. Earth disturbance activities and associated stormwater management controls are also regulated under existing state law and implementing regulations. This Chapter shall operate in coordination with those parallel requirements; the requirements of this Chapter shall be no less restrictive in meeting the purposes of this Chapter than State law.

(Ord. 2005-1, 6/21/2005, §105)

§17-106. Compatibility with Other Ordinance Requirements.

1. Approvals issued and actions taken under this Chapter do not relieve the Applicant of the responsibility to secure required permits or approvals for activities regulated by any other code, law, regulation or ordinance. To the extent that this Chapter imposes more rigorous or stringent requirements for stormwater management, the specific requirements contained in this Chapter shall be followed.

2. Conflicting provisions in other North York Borough ordinances or regulations shall be construed to retain the requirements of this Chapter addressing State water quality requirements.

(Ord. 2005-1, 6/21/2005, §108)

Part 2

Definitions

§17-201. Definitions.

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

A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.

B. The word “includes” or “including” shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.

C. The words “shall” and “must” are mandatory; the words “may” and “should” are permissive.

2. *Definitions.*

Accelerated erosion - the removal of the surface of the land through the combined action of human activities and the natural processes, at a rate greater than would occur because of the natural process alone.

Applicant - a landowner, developer or other person who has filed an application for approval to engage in any regulated earth disturbance activity at a project site in the Borough.

BMP (Best Management Practice) - activities, facilities, designs, measures or procedures used to manage stormwater impacts from regulated earth disturbance activities, to meet State water quality requirements, to promote groundwater recharge and to otherwise meet the purposes of this Chapter. BMPs include, but are not limited to, infiltration, filter strips, low impact design, bioretention, wet ponds, permeable paving, grasses swales, forested buffers, sand filters and detention basins.

Borough Council - the governing body of North York Borough.

Cistern - an underground reservoir tank for storing rainwater.

Concentrated drainage discharge - flow following a defined path with depth and velocity. Aggregation of diffused flow and rivulets.

Culvert - a pipe, conduit or similar structure including appurtenant work which carries surface water.

DEP - the Pennsylvania Department of Environmental Protection.

Design storm - the magnitude of precipitation from a storm event measured in probability of occurrence (e.g., 50-year storm) and duration (e.g., 24 hours), and used in computing stormwater management control systems.

Detention basin - a basin designed to retard stormwater runoff by temporarily storing runoff and releasing it at a predetermined rate. A detention basin can be designed to drain completely after a storm event, or it can be designed to contain

a permanent pool (retention basin) of water.

Developer - a person that seeks to undertake any regulated earth disturbance activities at a project site in the Borough.

Development - see “earth disturbance activity.” The term includes redevelopment.

Development site - the specific tract of land where any Earth Disturbance activities in the Borough are planned, conducted or maintained.

Diffused drainage discharge - sheet flow - an overland flow or downslope movement of water taking the form of a thin continuous film over relatively smooth soil, rock, paving, or vegetation, etc., and not concentrated into channels larger than nonerosive rivulets.

Diversion terrace - a channel and a ridge constructed to a predetermined grade across a slope, and designed to collect and divert runoff from slopes which are subject to erosion.

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

Drainage plan - the documentation of the proposed stormwater management controls, if any, to be used for a given development site.

E & S plan - erosion and sedimentation control plan.

Earth disturbance activity - a construction or other human activity which disturbs the surface of the land including, but not limited to, clearing and grubbing, grading, excavations, embankments, road maintenance, building construction and the moving, depositing, stockpiling, or storing of soil, rock or earth materials.

Erosion - the process by which the surface of the land, including channels, is worn away by water, wind, or chemical action.

Erosion and sediment control plan - a plan for a project site which identifies BMPs to minimize accelerated erosion and sedimentation.

Groundwater recharge - replenishment of existing natural underground water supplies.

Impervious surface - a surface that prevents the infiltration of water into the ground. Impervious surface includes, but is not limited to, any roof, parking or driveway areas, and any new streets and sidewalks. Any surface areas designed to initially be gravel or crushed stone shall be assumed to be impervious surfaces.

Infiltration structures - a structure designed to direct runoff into the ground, e.g., french drains, seepage pits, seepage trench.

Municipality - North York Borough, York County, Pennsylvania.

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

Outfall - “Point source” as described in 40 CFR §122.2 at the point where the Borough's storm sewer system discharges to surface waters of the Commonwealth.

Peak discharge - the maximum rate of flow of water at a given point and time resulting from a specified storm event.

Person - an individual, partnership, public or private association or corporation, or a governmental unit, public utility or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

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

Project site - the specific area of land where any regulated earth disturbance activities in the Borough are planned, conducted or maintained.

Redevelopment - earth disturbance activities on land which has previously been disturbed or developed.

Regulated earth disturbance activity - earth disturbance activity 1 acre or more with a point source discharge to surface waters or the Borough's storm sewer system, or 5 acres or more regardless of the planned runoff. This includes earth disturbance of any portion of, part, or during any stage of, a larger common plan of development. This only includes road maintenance activities involving 25 acres or more or earth disturbance.

Release rate - the percentage of the pre-development peak rate of runoff for a development site to which the post-development peak rate of runoff must be controlled to protect downstream areas.

Return period - the average interval in years over which an event of a given magnitude can be expected to occur. For example, the 25-year return period rainfall or runoff event would be expected to recur on the average once every 25 years.

Road maintenance - earth disturbance activities within the existing road cross-section, such as grading and repairing existing unpaved road surfaces, cutting road banks, cleaning or clearing drainage ditches and other similar activities.

Runoff - that part of precipitation which flows over the land.

SCS - Soil Conservation Service, U.S. Department of Agriculture.

Seepage pit / seepage trench - an area of excavated earth filled with loose stone or similar material into which surface water is directed for infiltration into the ground.

Separate storm sewer system - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) primarily used for collecting and conveying stormwater runoff.

Soil-cover complex method - a method of runoff computation developed by SCS and found in its publication "Urban Hydrology for Small Watersheds," Technical Release No. 55, Soil Conservation Service, U.S. Department of Agriculture, January 1986, or latest revision.

State water quality requirements - as defined under State regulations - protection of designated and existing uses (See 25 Pa.Code, Chapters 93 and 96) including:

- (1) Each stream segment in Pennsylvania has a "designated use," such as "cold water fishery" or "potable water supply," which are listed in Chapter 93. These uses must be protected and maintained, under State regulations.

(2) “Existing uses” are those attained as of November 1975, regardless whether they have been designated in Chapter 93. regulated earth disturbance activities must be designed to protect and maintain existing uses and maintain the level of water quality necessary to protect those uses in all streams, and to protect and maintain water quality in special protection streams.

(3) Water quality involves the chemical, biological and physical characteristics of surface water bodies. After regulated earth disturbance activities are complete, these characteristics can be impacted by addition of pollutants such as sediment, and changes in habitat through increased flow volumes and/or rates as a result of changes in land surface area from those activities. Therefore, permanent discharges to surface waters must be managed to protect the stream bank, streambed and structural integrity of the waterway, to prevent these impacts.

Storage indication method - a reservoir routing procedure based on solution of the continuity equation (inflows minus outflow equals the change in storage for a given time interval) and based on outflow being a unique function of storage volume.

Stormwater - the surface runoff generated by precipitation reaching the ground surface.

Storm sewer - a system of pipes or other conduits which carries intercepted surface runoff, street water and other wash water, or drainage, but excludes domestic sewage and industrial wastes.

Surface waters of the commonwealth - any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of conveyance of surface water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth.

Watercourse - a channel or conveyance of surface water, such as a stream or creek, having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

Watershed - region or area drained by a river, watercourse or other body of water, whether natural or artificial.

YCCD - York County Conservation District.

(Ord. 2005-1, 6/21/2005, Art. II)

Part 3**Stormwater Management Requirements****§17-301. General Requirements for Stormwater Management.**

1. All regulated earth disturbance activities within the Borough shall be designed, implemented, operated and maintained to meet the purposes of this Chapter, through these two elements:

A. Erosion and sediment control during the earth disturbance activities (e.g., during construction).

B. Water quantity and quality protection measures after completion of earth disturbance activities (e.g., after construction), including operation and maintenance.

2. No regulated earth disturbance activities within the Borough shall commence until the requirements of this Chapter are met.

3. Erosion and sediment control during regulated earth disturbance activities shall be addressed as required by §17-303.

4. Post-construction water quality protection shall be addressed as required by §17-307. Operation and maintenance of permanent stormwater BMPs shall be addressed as required by Part 7.

5. All best management practices (BMPs) used to meet the requirements of this Chapter shall conform to the State water quality requirements, and any more stringent requirements as determined by the Borough.

6. Techniques described in Appendix 17-A “Low Impact Development” of this Chapter are encouraged, because they reduce the costs of complying with the requirements of this Chapter and the State water quality requirements.

(*Ord. 2005-1, 6/21/2005, §301*)

§17-302. Permit Requirements by Other Government Entities.

The following permit requirements may apply to certain regulated earth disturbance activities, and must be met prior to commencement of regulated earth disturbance activities, as applicable:

A. All regulated earth disturbance activities subject to permit requirements by DEP under regulations at 25 Pa.Code, Chapter 102.

B. Work within natural drainageways subject to permit by DEP under 25 Pa.Code, Chapter 105.

C. Any stormwater management facility that would be located in or adjacent to surface waters of the Commonwealth, including wetlands, subject to permit by DEP under 25 Pa.Code, Chapter 105.

D. Any stormwater management facility that would be located on a State highway right-of-way, or require access from a State highway, shall be subject to approval by the Pennsylvania Department of Transportation (PennDOT).

E. Culverts, bridges, storm sewers or any other facilities which must pass or

convey flows from the tributary area and any facility which may constitute a dam subject to permit by DEP under 25 Pa.Code, Chapter 105.

(Ord. 2005-1, 6/21/2005, §302)

§17-303. Erosion and Sediment Control During Regulated Earth Disturbance Activities.

1. No regulated earth disturbance activities within the Borough shall commence until approval by the York County Conservation District, proof of which must be submitted to the Borough, of an erosion and sediment control plan for construction activities in accordance with the following schedule:

A. *Earth Disturbance, 0 to 5000 sq. ft.* Implement erosion and sediment control measures on site, written erosion and sediment control plan and York County Conservation District approval is not required unless required by other municipal, State and/or Federal permit(s). If earth disturbance is in a high quality or exceptional value watershed then a written erosion and sediment control plan and YCCD approval is required.

B. *Earth Disturbance, 5001 sq. ft. to less than 1 Acre.* A written erosion and sediment control plan and implementation of plan on site is required. YCCD approval is not required unless required by other municipal, State and/or Federal permit(s). If earth disturbance is in a high quality or exceptional value watershed than YCCD approval is required.

C. *Earth Disturbance, 1 Acre or Greater.* A written erosion and sediment control plan, YCCD approval and implementation of plan on site is required.

2. In addition, under 25 Pa.Code, Chapter 92, a DEP “NPDES construction activities” permit is required for regulated earth disturbance activities of 1 acre or greater.

3. Evidence of any necessary permit(s) for regulated earth disturbance activities from the appropriate DEP regional office or County Conservation District must be provided to the Borough. The issuance of an NPDES construction permit (or permit coverage under the statewide General Permit (PAG-2) satisfies the requirements of subsection .1.

4. A copy of the erosion and sediment control plan, if required and any required permit(s), as required by municipal, State and/or Federal regulations, shall be available at the project site at all times.

(Ord. 2005-1, 6/21/2005, §303)

§17-304. Design Criteria; Stormwater Collection System.

The stormwater collection system shall be designed and approved based upon the following criteria:

A. General - Peak discharge shall be computed using the Rational Formula:

$$Q = CIA$$

where:

Q = Peak discharge in cubic feet per second.

C = Runoff factor expressed as a percent of the total water falling on an

area.

I = The rate of rainfall for the time of concentration of the drainage area in inches per hour for a given storm frequency (Rainfall Intensity).

A = The drainage area expressed in acres.

The runoff factor “C” is a percentage factor which represents the proportion of the total quantity of water falling on the area that remains as runoff.

The runoff factors for various types of drainage areas, as presented in the following table, shall be used for design.

RUNOFF FACTORS FOR THE RATIONAL EQUATION

TYPE OF DRAINAGE AREA OR SURFACE	RUNOFF FACTOR “C”
Impervious surfaces such as but not limited to roof surface, pavement, concrete or bituminous concrete, gravel (post-development)	0.95
Gravel (pre-development)	0.65
Cultivated field	0.40
Lawn	0.25
Meadow	0.20
Wooded	0.15

NOTES

1. Consideration should be given to future land use changes in the drainage area in selecting the “C” factor.
2. For drainage area containing several different types of ground cover, a weighted value of “C” factor must be used.
3. In special situations where sinkholes, stripped abandoned mines, etc. exist, careful evaluation shall be given to the selection of a suitable runoff factor with consideration given to possible reclamation of the land in the future.

Rainfall Intensity “I” curves are presented on Figure 17-3. The curves provide for variation in rainfall intensity according to:

- (1) *Storm Frequency.*
 - (a) The following storm frequency shall be used for design:
 - 1) Local streets - 10 year
 - 2) Culvert cross drains - 25 year
 - 3) Swales - 100 year
 - (b) When a pipe or culvert is intended to convey the discharge from a stormwater management facility, its required capacity shall be computed by the Rational Method and compared to the peak outflow from the stormwater management facility for the 25-year storm. The greater flow shall govern the design of the pipe or culvert.
 - (c) A 25-year design storm frequency may be required for design of

the stormwater collection system to insure that the resultant stormwater runoff from the post-development design storm is directed into the stormwater management facility.

(d) In all cases where drainage is collected by means of a head wall, the pipe shall be designed as a culvert. The minimum diameter of the culvert shall be 18 inches.

(e) Where the collection system may be under inlet or outlet control, the Borough Engineer may request additional calculations.

(f) Greater design frequencies may be required on individual projects.

(2) *Storm Duration.*

(a) A 5-minute storm duration shall be used if this duration does not result in a maximum expected discharge that exceeds the capacity of a 30-inch pipe.

(b) If a 5-minute storm duration results in a pipe size exceeding 30 inches, the time of concentration approach shall be used in determining storm duration.

(3) *Inlet Placement.* In general, catch basins shall be placed as required by hydraulic capacity. For design purposes, a capture ratio (intercepted flow/design flow) of 70 percent or greater is required. However, the width of flow in a street cannot exceed one-half of the travel lane. In any event, the maximum distance between conveyed inlets shall not exceed 400 feet.

(4) *Pipe and Swale Capacity:* Manning's equation shall be used for the design of all storm sewer pipes and for open channel design:

$$V = \frac{1.486 R^{2/3} S^{1/3}}{n}$$

where:

V = Velocity of the water in feet per second.

R = Hydraulic radius which is equal to the net effective areas (A) divided by the wetted perimeter (W.P.):

R= A W.P.

The wetted perimeter is the lineal feet of the drainage facility cross-section which is wetted by the water.

S = Slope of the hydraulic gradient (for approximation, use water surface slope in wetted stream and stream bed slope in dry stream).

n = The roughness coefficient. Roughness coefficients are as follows:

Value of Manning's Roughness Coefficient - n

Rip-rap	0.040
Grass-lined channel	0.035
Bare earth channel	0.020
Paved bituminous channel	0.016

Concrete	0.012
Turf reinforcement matting (TRM)	Per manufacturer's recommendation

The maximum permitted velocity in a lined or unlined swale shall be in accordance with the USDA Engineering Field Manual and PA DEP, whichever is less.

The maximum permitted velocity in storm sewer pipe is 20 FPS. If 20 FPS is exceeded, the pipe must be anchored in accordance with the following table:

Velocity of Flow (FPS)	Anchor Spacing (Ft)
20-25	20'
25-30	10'

In any event flow velocity shall not exceed 30 fps.

(Ord. 2005-1, 6/21/2005, §304)

§17-305. Design Criteria; Stormwater Management Facilities.

The plan shall be designed and approved based upon the following criteria:

A. *General.* For drainage areas 320 acres or larger the peak discharge and runoff shall be computed using the soil-cover complex method contained in “Urban Hydrology for Small Water Sheds,” Technical Release No. 55, published by the Engineering Division, Soil Conservation Services, United States Department of Agriculture, dated June, 1986, or latest revision, except as modified herein. For drainage areas less than 320 acres the Modified Rational Method may be utilized. Alternate methods of analysis may be considered if approved by the Borough Engineer.

B. *Outflow Determination.* The maximum permitted stormwater discharge, in cubic feet per second, from any site shall not exceed the capacity of the receiving pipe or structure, nor the calculated peak discharge from the site at pre-development ground cover and soil conditions for all design storms specified below. For the purpose of this Chapter, pre-development ground cover conditions shall be assumed to be “meadow” as defined in “Urban Hydrology for Small Water Sheds,” Technical Release No. 55, published by Engineering Division, Soil Conservation Service, United States Department of Agriculture, dated June, 1986 or latest revision. The maximum permitted stormwater discharge shall be calculated using the SCS method or alternative method approved by the Borough Engineer for rainfalls having recurrence intervals of 2, 5, 10, and 25 years. Time of Concentration (Tc) should be calculated using the SCS segmental approach in accordance with the current recommendations by SCS. For the purpose of this Chapter, the following rainfall depths shall be used for design:

Recurrence Intervals (Yrs.)	24-Hour Rainfall Depth (In.)
2	3.0
5	3.9
10	4.8

Recurrence Intervals (Yrs.)	24-Hour Rainfall Depth (In.)
25	5.3
100	6.8

The PennDOT Intensity-Duration Frequency (IDF) curves must be used to generate the proper rainfall intensity for design if using the Modified Rational Method. If alternate methods of analysis are utilized, the design storms recurrence interval in years shall be the same as used in the SCS TR-55 Method.

C. *Existing Runoff Volume.* Existing runoff volume, in inches, shall be determined using the SCS method (or other method approved by the Borough Engineer) at pre-development conditions for the 25-year recurrence interval design storm listed in subsection .B above.

D. *Future Runoff Volume.* The future runoff volume, in inches, shall be determined using the SCS method (or other method approved by the Borough Engineer) at post-development conditions (including any future expansion) for the 25-year recurrence interval design storm listed in paragraph .B above.

E. *Minimum Required Detention Storage.* The minimum required detention storage, shall be determined by routing the approved post-development hydrographs through the stormwater management facility, using either manual methods or computerized routing. Routing shall be based upon the modified PULS method; other routing methodologies shall be subject to the approval of the Borough Engineer.

F. *Emergency Spillway.* Emergency spillways or overflow structures shall be designed to pass the peak flow resulting from a 100-year recurrence interval design storm computed at post-development conditions. All retention basins and detention basins shall provide an emergency spillway.

G. *Minimum Bottom Slope.* All detention basins shall have a minimum bottom slope of 2 percent.

H. *Side Slopes.* The maximum side slopes for detention or retention basins shall be 3 horizontal to 1 vertical in cut and 4 horizontal to 1 vertical in fill.

I. *Freeboard.* The stormwater management facility shall have a minimum one foot of freeboard determined after routing the 100-year recurrence interval design storm listed in paragraph .B above, through the stormwater management facility.

J. *Seepage Trench.* All stormwater management detention basins shall provide as a minimum a 2 feet wide by 10 feet long by 6 feet deep seepage trench in the bottom of the basin near the outlet control structure in accordance with Figure 17-2, unless field conditions deem the seepage trench non-functional and concurred by the Borough Engineer.

K. Fencing, trash racks and installation of child proof facilities may be required by the Borough.

L. Roof drain seepage pits shall be in accordance with Figure 17-1 and approved by the Borough Engineer.

M. Rainfall intensity shall be determined from the "Storm Intensity -

Duration - Frequency Curves for Region 4,” see Figure 17-3.
(Ord. 2005-1, 6/21/2005, §305)

§17-306. Waiver of Runoff Quantity Control Based on Minimum Impervious Cover.

1. Any proposed regulated activity, which would create 1,000 square feet or less of additional impervious cover may be exempt from meeting the runoff quantity control provisions of this Chapter. If a waiver is requested by the applicant, approval of the waiver is contingent upon a recommendation of approval by the Borough Engineer and final approval by Borough Council. For developments which are to take place in stages, the entire development plan must be used in determining conformance to this criteria. Additional impervious cover shall include, but not be limited to, any roof or driveway areas and any new streets and sidewalks constructed as part of or for the proposed development. Any areas which may be designed to initially be semi-pervious (e.g., gravel, crushed stone, porous pavement, etc.) shall be considered impervious areas for the purpose of waiver evaluation.

2. This waiver shall be valid for a period of 1 year during which a building permit must be obtained. If a building permit is not obtained during the 1 year validity, the waiver shall become void without the necessity of any proceedings for revocation.

3. When a waiver is granted by Borough Council the applicant shall pay a fee in lieu of runoff quantity control to the Borough in accordance with the fee schedule established by resolution of Borough Council.

(Ord. 2005-1, 6/21/2005, §306)

§17-307. Water Quality Requirements after Regulated Disturbance Activities Are Complete.

1. No regulated earth disturbance activities within the Borough shall commence until approval by the Borough of a plan which demonstrates compliance with State water quality requirements after construction is complete.

2. The BMPs must be designed, implemented and maintained to meet State water quality requirements, and any other more stringent requirements as determined by the Borough.

3. To control post-construction stormwater impacts from regulated earth disturbance activities, State water quality requirements can be met by BMPs, including site design, which provide for replication of pre-construction stormwater infiltration and runoff conditions, so that post-construction stormwater discharges do not degrade the physical, chemical or biological characteristics of the receiving waters. As described in the DEP Comprehensive Stormwater Management Policy (#392-0300-002, September 28, 2002 or latest version), this may be achieved by the following:

A. *Infiltration* - replication of pre-construction stormwater infiltration conditions.

B. *Treatment* - use of water quality treatment BMPs to ensure filtering out of the chemical and physical pollutants from the stormwater runoff.

C. *Streambank and Streambed Protection* - management of volume and rate of post-construction stormwater discharges to prevent physical degradation of

receiving waters (e.g., from scouring).

D. DEP has regulations that require municipalities to ensure design, implementation and maintenance of best management practices (“BMPs”) that control runoff from new development and redevelopment after regulated earth disturbance activities are complete. These requirements include the need to implement post construction stormwater BMPs with assurance of long-term operation and maintenance of those BMPs.

E. Evidence of any necessary permit(s) for regulated earth disturbance activities from the appropriate DEP regional office must be provided to the Borough. The issuance of an NPDES construction permit (or permit coverage under the statewide General Permit (PAG-2)) satisfies the requirements of this Section.

F. BMP operation and maintenance requirements are described in Part 7 of this Chapter.

(Ord. 2005-1, 6/21/2005, §307)

Part 4**Stormwater Management and BMP Operation
and Maintenance Plan Requirements****§17-401. General Requirements.**

No regulated earth disturbance activities within the Borough shall commence until approval by the Borough of a stormwater management BMP operations and maintenance plan which describes how the permanent (e.g., post-construction) stormwater BMPs will be installed and properly operated and maintained.

(Ord. 2005-1, 6/21/2005, §401)

§17-402. Plan Contents.

1. The following items shall be included in the stormwater management and BMP operation and maintenance plan:

A. Map(s) of the project area(s), shall be submitted on 24-inch x 36-inch or a sheet size acceptable to both the Borough and the Borough Engineer. The contents of the maps(s) shall include, but not be limited to:

(1) Clear identification of the location and nature of permanent stormwater BMPs.

(2) The location of the project site relative to highways, Borough boundaries or other identifiable landmarks.

(3) Existing and final contours at intervals of 2 feet, or others as appropriate.

(4) Existing streams, lakes, ponds, or other bodies of water within the project site area.

(5) Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, and areas of natural vegetation to be preserved.

(6) The locations of all existing and proposed utilities, sanitary sewers, and water lines within 50 feet of property lines of the project site.

(7) Proposed final changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added.

(8) Proposed final structures, roads, paved areas, and buildings, and a 15-foot wide access easement around all stormwater BMPs that would provide ingress to and egress from a public right-of-way.

(9) Soil types and boundaries.

(10) Wetlands.

B. A description of how each permanent stormwater BMP will be operated and maintained, and the identity of the person(s) responsible for operation and maintenance.

C. The name of the project site, the name and address of the owner of the

property, and the name of the individual or firm preparing the Plan.

D. A statement, signed by the landowner, acknowledging that the stormwater BMPs are permanent fixtures that can be altered or removed only after approval by the Borough.

(Ord. 2005-1, 6/21/2005, §402)

§17-403. Plan Submission.

1. The plan shall be accompanied by the requisite fee as set forth in Part 5 of this Chapter.

(Ord. 2005-1, 6/21/2005, §403)

§17-404. Borough Review of BMP Operation and Maintenance Plan.

1. The Borough shall review the BMP operation and maintenance plan for consistency with the purposes and requirements of this Chapter, and any permits issued by DEP.

2. The Borough shall notify the applicant in writing whether the BMP operation and maintenance plan is approved.

3. The Borough may require an “as-built survey” of all stormwater BMPs, and an explanation of any discrepancies with the operation and maintenance plan.

(Ord. 2005-1, 6/21/2005, §404)

§17-405. Stormwater Easements.

1. Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by Borough Council based upon a recommendation for approval by the Borough Engineer.

2. Stormwater management easements shall be provided by the property owner if necessary for (A) access for inspections and maintenance, and/or (B) preservation of stormwater runoff conveyance, infiltration, and detention areas and other BMPs, by persons other than the property owner. The purpose of the easement shall be specified in any agreement under this Section.

3. The Borough may suspend or revoke any approvals granted for the project site upon discovery of the failure of the owner to comply with this Section.

(Ord. 2005-1, 6/21/2005, §405)

Part 5**Fees and Expenses****§17-501. General.**

The Borough may charge a reasonable fee for review of BMP operation and maintenance plans to defray review costs incurred by the Borough. The applicant shall pay all such fees. Fee amounts shall be established by resolution of Borough Council. (*Ord. 2005-1, 6/21/2005, §501*)

§17-502. Expenses Covered by Fees.

The fees required by this Chapter may cover:

- A. Administrative/clerical costs.
- B. The review of the BMP operation and maintenance plan by the Borough Engineer.
- C. The site inspections including, but not limited to, pre-construction meetings, inspections during construction of stormwater BMPs, and final inspection upon completion of the stormwater BMPs.
- D. Any additional work required to monitor and enforce any provisions of this Chapter, correct violations, and assure proper completion of stipulated remedial actions.

(*Ord. 2005-1, 6/21/2005, §502*)

Part 6**Inspections and Right of Entry****§17-601. Inspections.**

1. DEP or its designees (e.g., County Conservation Districts) normally ensure compliance with any permits issued, including those for stormwater management. In addition to DEP compliance programs, the Borough or its designee(s) may inspect all phases of the construction, operation, maintenance and any other implementation of stormwater BMPs.

2. During any stage of the regulated earth disturbance activities, if the Borough or its designee(s) determines that any BMPs are not being implemented in accordance with this Chapter, the Borough may suspend or revoke any existing permits or other approvals until the deficiencies are corrected.

(Ord. 2005-1, 6/21/2005, §601)

§17-602. Right-of-Entry.

1. Upon presentation of proper credentials, duly authorized representatives of the Borough may enter at reasonable times upon any property within the Borough to inspect the implementation, condition, or operation and maintenance of the stormwater BMPs in regard to any aspect governed by this Chapter.

2. BMP owners and operators shall allow persons working on behalf of the Borough ready access to all parts of the premises for the purposes of determining compliance with this Chapter.

3. Persons working on behalf of the Borough shall have the right to temporarily locate on any BMP in the Borough such devices as are necessary to conduct monitoring and/or sampling of the discharges from such BMP.

4. Unreasonable delays in allowing the Borough access to a BMP is a violation of this Chapter.

(Ord. 2005-1, 6/21/2005, §602)

Part 7**Financial Guarantees and Maintenance Responsibilities****§17-701. Performance Bond.**

1. The Borough shall require a performance bond in favor of the Borough in an amount equal to 110 percent of the estimated cost of all stormwater management facilities and post-construction BMPs. Said bonds shall be conditioned upon the faithful performance of the control measures specified on the plan within the times specified or within any extension thereof granted by the Borough. Said bond shall terminate when all control measures as shown on the approved plan are completed and approved by the Borough Engineer.

2. In lieu of the required bonds, the applicant may deposit funds or securities in an escrow account satisfactory to the Borough Solicitor. Funds deposited in this account for guaranteeing the construction or maintenance of control measures shall be used for these purposes only. No bond will be required for a single-family residence application, however, occupancy certificates will not be issued until compliance with the provisions of this Chapter are verified by the Borough Engineer.

3. Such bonds or escrowed funds required by this Section shall be governed, controlled by, and be administered and reduced pursuant to Borough ordinances, regulations and standards.

(Ord. 2005-1, 6/21/2005, §701)

§17-702. Responsibilities for Operation and Maintenance of BMPs.

1. The BMP operation and maintenance plan for the project site shall establish responsibilities for the continuing operation and maintenance of all permanent stormwater BMPs, as follows:

A. If a plan includes structures or lots which are to be separately owned and in which streets, sewers and other public improvements are to be dedicated to the Borough, stormwater BMPs may also be dedicated to and maintained by the Borough provided the Borough is agreeable to the acceptance and adoption of these facilities.

B. If a plan includes operation and maintenance by a single ownership, or if sewers and other public improvements are to be privately owned and maintained, then the operation and maintenance of stormwater BMPs shall be the responsibility of the owner or private management entity.

2. The Borough shall make the final determination on the continuing operation and maintenance responsibilities. The Borough reserves the right to accept or reject the operation and maintenance responsibility for any or all of the stormwater BMPs.

(Ord. 2005-1, 6/21/2005, §702)

§17-703. Adherence to Approved BMP Operation and Maintenance Plan.

It shall be unlawful to alter or remove any permanent stormwater BMP required by an approved BMP operation and maintenance plan, or to allow the property to

remain in a condition which does not conform to an approved BMP operation and maintenance plan, unless an exception is granted in writing by the Borough.

(Ord. 2005-1, 6/21/2005, §703)

§17-704. Operation and Maintenance Agreement for Privately Owned Stormwater BMPs.

1. The property owner shall sign an operation and maintenance agreement with the Borough covering all stormwater BMPs that are to be privately owned. The agreement shall be substantially the same as the agreement in Appendix 17-B of this Chapter.

2. Other items may be included in the agreement where determined necessary to guarantee the satisfactory operation and maintenance of all permanent stormwater BMPs. The agreement shall be subject to the review and approval of the Borough.

(Ord. 2005-1, 6/21/2005, §704)

§17-705. Municipal Stormwater BMP Operation and Maintenance Fund.

1. If stormwater BMPs are accepted by the Borough for dedication, the Borough may require persons installing stormwater BMPs to pay a specified amount to the Borough Stormwater BMP Operation and Maintenance Fund, to help defray costs of operation and maintenance activities. The amount may be determined as follows:

A. If the BMP is to be owned and maintained by the Borough, the amount shall cover the estimated costs for operation and maintenance for 25 years, as determined by the Borough.

B. The amount shall then be converted to present worth of the annual series values.

2. If a BMP is proposed that also serves as a recreation facility (e.g., ballfield, lake), the Borough may adjust the amount due accordingly.

(Ord. 2005-1, 6/21/2005, §705)

Part 8**Civil Remedies****§17-801. Civil Remedies.**

Any development activity conducted in violation of any provision of this Chapter shall be subject to suits to restrain, prevent or abate violation of this Chapter by the Borough or by an aggrieved person. This remedy is cumulative with other remedies in this Chapter.

(Ord. 2005-1, 6/21/2005, §801)

Part 9**Prohibitions****§17-901. Prohibited Discharges.**

1. No person in the Borough shall allow, or cause to allow, stormwater discharges into the Borough's separate storm sewer system which are not composed entirely of stormwater, except (1) as provided in subsection .2 below, and (2) discharges allowed under a State or Federal permit.

2. Discharges which may be allowed, based on a finding by the Borough that the discharge(s) do not significantly contribute to pollution of surface waters of the Commonwealth, are:

- A. Discharges from firefighting activities.
- B. Potable water sources including dechlorinated water line and fire hydrant flushings.
- C. Irrigation drainage.
- D. Routine external building washdown (which does not use detergents or other compounds).
- E. Air conditioning condensate.
- F. Water from individual residential car washing.
- G. Springs.
- H. Water from crawl space pumps.
- I. Uncontaminated water from foundation or from footing drains.
- J. Flows from riparian habitats and wetlands.
- K. Lawn watering.
- L. Pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used.
- M. Dechlorinated swimming pool discharges.
- N. Uncontaminated ground.

3. In the event that the Borough determines that any of the discharges identified in subsection .2 significantly contribute to pollution of waters of the Commonwealth, or is so notified by DEP, the Borough will notify the responsible person to cease the discharge.

4. Upon notice provided by the Borough under subsection .3, the discharger will have a reasonable time, as determined by the Borough, to cease the discharge consistent with the degree of pollution caused by the discharge.

5. Nothing in this Section shall affect a discharger's responsibilities under State and/or Federal law.

(Ord. 2005-1, 6/21/2005, §901)

§17-902. Prohibited Connections.

The following connections are prohibited, except as provided in §17-901.2 above:

A. Any drain or conveyance, whether on the surface or subsurface, which allows any non-stormwater discharge including sewage, process wastewater, and wash water, to enter the separate storm sewer system, and any connections to the storm drain system from indoor drains and sinks.

B. Any drain or conveyance connection from a commercial or industrial land use to the separate storm system which has not been documented in plans, maps, or equivalent records, and approved by the Borough.

(Ord. 2005-1, 6/21/2005, §902)

§17-903. Roof Drains.

1. Roof drains shall not be connected to streets, sanitary or storm sewers or roadside ditches, except as provided in subsection .2.

2. When it is more advantageous to connect directly to streets or storm sewers, connections of roof drains to streets or roadside ditches may be permitted by the Borough.

3. Roof drains shall discharge to infiltration areas or vegetative BMPs to the maximum extent practicable.

(Ord. 2005-1, 6/21/2005, §903)

§17-904. Alteration of BMPs.

1. No person shall modify, remove, fill, landscape or alter any existing stormwater BMP, unless it is part of an approved maintenance program, without the written approval of the Borough.

2. No person shall place any structure, fill, landscaping or vegetation into a stormwater BMP or within a drainage easement, which would limit or alter the functioning of the BMP, without the written approval of the Borough.

(Ord. 2005-1, 6/21/2005, §904)

Part 10**Enforcement and Penalties****§17-1001. Public Nuisance.**

1. The violation of any provision of this Chapter is hereby deemed a public nuisance.

2. Each day that a violation continues shall constitute a separate violation.

(Ord. 2005-1, 6/21/2005, §1001)

§17-1002. Enforcement Generally.

1. Whenever the Borough finds that person has violated a prohibition or failed to meet a requirement of this Chapter, the Borough may order compliance by written notice to the responsible person. Such notice may require without limitation:

- A. The performance of monitoring, analyses, and reporting.
- B. The elimination of prohibited connections or discharges.
- C. Cessation of any violating discharges, practices, or operations.
- D. The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property.
- E. Payment of a fine to cover administrative and remediation costs.
- F. The implementation of stormwater BMPs.
- G. Operation and maintenance of stormwater BMPs.

2. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violation(s). Said notice may further advise that, if applicable, should the violator fail to take the required action within the established deadline, the work will be done by the Borough or designee(s) and the expense thereof shall be charged to the violator.

3. Failure to comply within the time specified shall also subject such person to the penalty provision of this Chapter. All such penalties shall be deemed cumulative and shall not prevent the Borough from pursuing any and all other remedies available in law or equity.

(Ord. 2005-1, 6/21/2005, §1002)

§17-1003. Suspension and Revocation of Permits and Approvals.

1. Any building, land development or other permit or approval issued by the Borough may be suspended or revoked by the Borough for:

- A. Non-compliance with or failure to implement any provision of the permit.
- B. A violation of any provision of this Chapter.
- C. The creation of any condition or the commission of any act during construction or development which constitutes or creates a hazard or nuisance, pollution or which endangers the life or property of others.
- D. It shall be the duty of the Building Permit Officer to forthwith revoke any

building permit issued hereunder if it shall be determined that the same shall have been improperly or wrongfully issued by reason of any false statement in the application, or by reason of any mistake of fact or law, or that the work therein authorized would constitute the violation of any statute or ordinance. Such revocation shall become effective upon the mailing by the Building Permit Officer to the applicant at his address shown in the application thereof. Upon such revocation, all work authorized by said permit shall immediately cease, and shall not be resumed unless and until a permit therefor has been properly issued.

2. A suspended permit or approval shall be reinstated by the Borough when:

A. The Borough Engineer or designee(s) has inspected and approved the corrections to the stormwater BMPs, or the elimination of the hazard or nuisance.

B. The Borough is satisfied that the violation of this Chapter, law, or rule and regulation has been corrected.

3. A permit or approval which has been revoked by the Borough cannot be reinstated. The applicant may apply for a new permit under the procedures outlined in this Chapter.

(Ord. 2005-1, 6/21/2005, §1003)

§17-1004. Erroneous Permit.

A building permit or other permit or authorization issued or approved in violation of the provisions of this Chapter, is void without the necessity of any proceedings for revocation. Any work undertaken or use established pursuant to such permit or other authorization is unlawful. No action may be taken by a board, agency, or employee of the Borough purporting to validate such a violation.

(Ord. 2005-1, 6/21/2005, §1004)

§17-1005. Appeals.

Any person aggrieved by any action of the Borough or its designee(s), relevant to the provisions of this Chapter, may appeal to the relevant judicial or administrative body according to law, within the time period allowed.

(Ord. 2005-1, 6/21/2005, §1005)

§17-1006. Flood Warning and Disclaimer of Liability.

1. The degree of flood protection sought by the provisions of this Chapter is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This Chapter does not imply that areas outside the floodplain, or that land uses permitted within such areas will be free from flooding or flood damages.

2. This Chapter shall not create liability on the part of North York Borough or any officer or employee thereof for any flood damages which result from reliance on this Chapter or any administrative decision lawfully made thereunder.

(Ord. 2005-1, 6/21/2005, §1006)

§17-1007. Borough Liability.

The grant or permit or approval of a subdivision and/or land development plan shall not constitute a representation, guarantee, or warranty of any kind by the Borough or by any officials or employees thereof the practicability or safety of the proposed use, and shall create no liability upon the Borough, its officials or employees. (Ord. 2005-1, 6/21/2005, §1007)

§17-1008. Penalties.

1. Any person, firm or corporation who shall violate any provision of this Part, upon conviction thereof, shall be sentence to a fine of not more than \$1,000 plus costs and, in default of payment of said fine and costs, to a term of imprisonment not to exceed 30 days. Each day that a violation of this Part continues or each Section of this Part which shall be found to have been violated shall constitute a separate offense. [Ord. 2006-3]

2. In addition, the Borough, through its Solicitor, may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Chapter. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

(Ord. 2005-1, 6/21/2005, §1008; as amended by Ord. 2006-3, 7/10/2006)

Appendix 17-A

Low Impact Development Practices Alternative Approach for Managing Stormwater Runoff

Natural hydrologic conditions may be altered radically by poorly planned development practices, such as introducing unneeded impervious surfaces, destroying existing drainage swales, constructing unnecessary storm sewers, and changing local topography. A traditional drainage approach of development has been to remove runoff from a site as quickly as possible and capture it in a detention basin. This approach leads ultimately to the degradation of water quality as well as expenditure of additional resources for detaining and managing concentrated runoff at some downstream location.

The recommended alternative approach is to promote practices that will minimize post development runoff rates and volumes, which will minimize needs for artificial conveyance and storage facilities. To simulate pre-development hydrologic conditions, forced infiltration is often necessary to offset the loss of infiltration by creation of impervious surfaces. The ability of the ground to infiltrate depends upon the soil types and its conditions.

Preserving natural hydrologic conditions requires careful alternative site design considerations. Site design practices include preserving natural drainage features, minimizing impervious surface area, reducing the hydraulic connectivity of impervious surfaces, and protecting natural depression storage. A well-designed site will contain a mix of all those features. The following describes various techniques to achieve the alternative approach:

Preserving Natural Drainage Features. Protecting natural drainage features, particularly vegetated drainage swales and channels, is desirable because of their ability to infiltrate and attenuate flows and to filter pollutants. However, this objective is often not accomplished in land development. In fact, commonly held drainage philosophy encourages just the opposite pattern -- streets and adjacent storm sewers typically are located in the natural headwater valleys and swales, thereby replacing natural drainage functions with a completely impervious system. As a result, runoff and pollutants generated from impervious surfaces flow directly into storm sewers with no opportunity for attenuation, infiltration, or filtration. Developments designed to fit site topography also minimizes the amount of grading on site.

Protecting Natural Depression Storage Areas. Depressional storage areas have no surface outlet, or drain very slowly following a storm event. They can be commonly seen as ponded areas in farm fields during the wet season or after large runoff events. Traditional development practices eliminate these depressions by filling or draining, thereby obliterating their ability to reduce surface runoff volumes and trap pollutants. The volume and release-rate characteristics of depressions should be protected in the design of the development site. The depressions can be protected by simply avoiding the depression or by incorporating its storage as additional capacity in required detention facilities.

Avoiding Introduction of Impervious Areas. Careful site planning should consider reducing impervious coverage to the maximum extent possible. Building footprints, sidewalks, driveways and other features producing impervious surfaces should be

evaluated to minimize impacts on runoff.

Reducing the Hydraulic Connectivity of Impervious Surfaces. Impervious surfaces are significantly less of a problem if they are not directly connected to an impervious conveyance system (such as storm sewer). Two basic ways to reduce hydraulic connectivity are routing of roof runoff over lawns and reducing the use of storm sewers. Site grading should promote increasing travel time of stormwater runoff, and should help reduce concentration of runoff to a single point in the development.

Routing Roof Runoff Over Lawns. Roof runoff can be easily routed over lawns in most site designs. The practice discourages direct connections of downspouts to storm sewers or parking lots. The practice also discourages sloping driveways and parking lots to the street. By routing roof drains and crowning the driveway to run off to the lawn, the lawn is essentially used as a filter strip.

Reducing the Use of Storm Sewers. By reducing use of storm sewers for draining streets, parking lots, and back yards, the potential for accelerating runoff from the development can be greatly reduced. The practice requires greater use of swales and may not be practical for some development sites, especially if there are concerns for areas that do not drain in a “reasonable” time. The practice requires educating local citizens and public works officials, who expect runoff to disappear shortly after a rainfall event.

Reducing Street Widths. Street widths can be reduced by either eliminating on-street parking or by reducing roadway widths. Municipal planners and traffic designers should encourage narrower neighborhood streets which ultimately could lower maintenance.

Limiting Sidewalks to One Side of the Street. A sidewalk on one side of the street may suffice in low-traffic neighborhoods. The lost sidewalk could be replaced with bicycle/recreational trails that follow back-of-lot lines. Where appropriate, backyard trails should be constructed using pervious materials.

Using Permeable Paving Materials. These materials include permeable interlocking concrete paving blocks or porous bituminous concrete. Such materials should be considered as alternatives to conventional pavement surfaces, especially for low use surfaces such as driveways, overflow parking lots, and emergency access roads.

Reducing Building Setbacks. Reducing building setbacks reduces driveway and entry walks and is most readily accomplished along low-traffic streets where traffic noise is not a problem.

Constructing Cluster Developments. Cluster developments can also reduce the amount of impervious area for a given number of lots. The biggest savings is in street length, which also will reduce costs of the development. Cluster development clusters the construction activity onto less-sensitive areas without substantially affecting the gross density of development.

In summary, a careful consideration of the existing topography and implementation of a combination of the above mentioned techniques may avoid construction of costly stormwater control measures. Other benefits include reduced potential of downstream flooding, water quality degradation of receiving streams/water bodies and enhancement of aesthetics and reduction of development costs. Beneficial results include more stable baseflows in receiving streams, improved groundwater recharge, reduced flood flows, reduced pollutant loads, and reduced costs for conveyance and storage.

Appendix 17-B

Stormwater Best Management Practices Operations and Maintenance Agreement

THIS AGREEMENT, made and entered into this _____ day of _____
2 _____, by and between _____ (hereinafter the
“Landowner”), and North York Borough, York County, Pennsylvania, (hereinafter
“Borough”);

WITNESSETH

WHEREAS, the Landowner is the owner of certain real property as recorded by deed in the land records of York County, Pennsylvania, Deed Book ____ at Page _____ (hereinafter “Property”).

WHEREAS, the Landowner is proceeding to build and develop the Property; and

WHEREAS, the stormwater management BMP Operation and Maintenance Plan approved by the Borough (hereinafter referred to as the “Plan”) for the property identified herein, which is attached hereto as Appendix 17-A and made part hereof, as approved by the Borough, provides for management of stormwater within the confines of the Property through the use of Best Management Practices (BMP's); and

WHEREAS, the Borough, and the Landowner, his successors and assigns, agree that the health, safety, and welfare of the residents of the Borough and the protection and maintenance of water quality require that on-site stormwater Best Management Practices be constructed and maintained on the Property; and

WHEREAS, for the purposes of this agreement, the following definitions shall apply;

- BMP - “Best Management Practice”; activities, facilities, designs, measures or procedures used to manage stormwater impacts from land development, to protect and maintain water quality and groundwater recharge and to otherwise meet the purposes of the Borough Stormwater Management Ordinance, including but not limited to infiltration trenches, seepage pits, filter strips, bioretention, wet ponds, permeable paving, rain gardens, grassed swales, forested buffers, sand filters and detention basins.
- Infiltration Trench - A BMP surface structure designed, constructed, and maintained for the purpose of providing infiltration or recharge of stormwater into the soil and/or groundwater aquifer,
- Seepage Pit - An underground BMP structure designed, constructed, and maintained for the purpose of providing infiltration or recharge of stormwater into the soil and/or groundwater aquifer,
- Rain Garden - A BMP overlain with appropriate mulch and suitable vegetation designed, constructed, and maintained for the purpose of providing infiltration or recharge of stormwater into the soil and/or underground aquifer, and

WHEREAS, the Borough requires, through the implementation of the Plan, that stormwater management BMP's as required by said Plan and the Borough Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, his successors and assigns, and

NOW, THEREFORE, in consideration of the foregoing promises, the mutual

covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The BMPs shall be constructed by the Landowner in accordance with the plans and specifications identified in the Plan.
2. The Landowner shall operate and maintain the BMP(s) as shown on the Plan in good working order acceptable to the Borough and in accordance with the specific maintenance requirements noted on the Plan.
3. The Landowner hereby grants permission to the Borough, its authorized agents and employees, to enter upon the property, at reasonable times and upon presentation of proper identification, to inspect the BMP(s) whenever it deems necessary. Whenever possible, the Borough shall notify the Landowner prior to entering the property.
4. In the event the Landowner fails to operate and maintain the BMP(s) as shown on the Plan in good working order acceptable to the Borough, the Borough or its representatives may enter upon the Property and take whatever action is deemed necessary to maintain said BMP(s). This provision shall not be construed to allow the Borough to erect any permanent structure on the land of the Landowner. It is expressly understood and agreed that the Borough is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Borough.
5. In the event the Borough, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the Borough for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the Borough.
6. The intent and purpose of the Agreement is to ensure the proper maintenance of the onsite BMP(s) by the Landowner, provided, however, that his Agreement shall not be deemed to create or effect any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.
7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the Borough's employees and designated representatives from all damages, accidents, casualties, occurrences or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMP(s) by the Landowner or Borough. In the event that a claim is asserted against the Borough, its designated representatives or employees, the Borough shall promptly notify the Landowner and the Landowner shall defend, at his own expense, any suit based on the claim. If any judgement or claims against the Borough's employees or designated representatives shall be allowed, the Landowner shall pay all costs and expenses regarding said judgement or claim.
8. The Borough shall inspect the BMP(s) at a minimum of once every 3 years to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorded of Deeds of York County, Pennsylvania, and shall constitute a covenant running with the Property and/or equitable servitude, and shall be binding on the Landowner, his administrators, executors, assigns, heirs and any other successors in interests, in perpetuity.

ATTEST:

WITNESS the following signatures and seals:

(SEAL)

For the Borough

(SEAL)

For the Landowner

ATTEST:

(City, Borough, Township)

County of _____ Pennsylvania

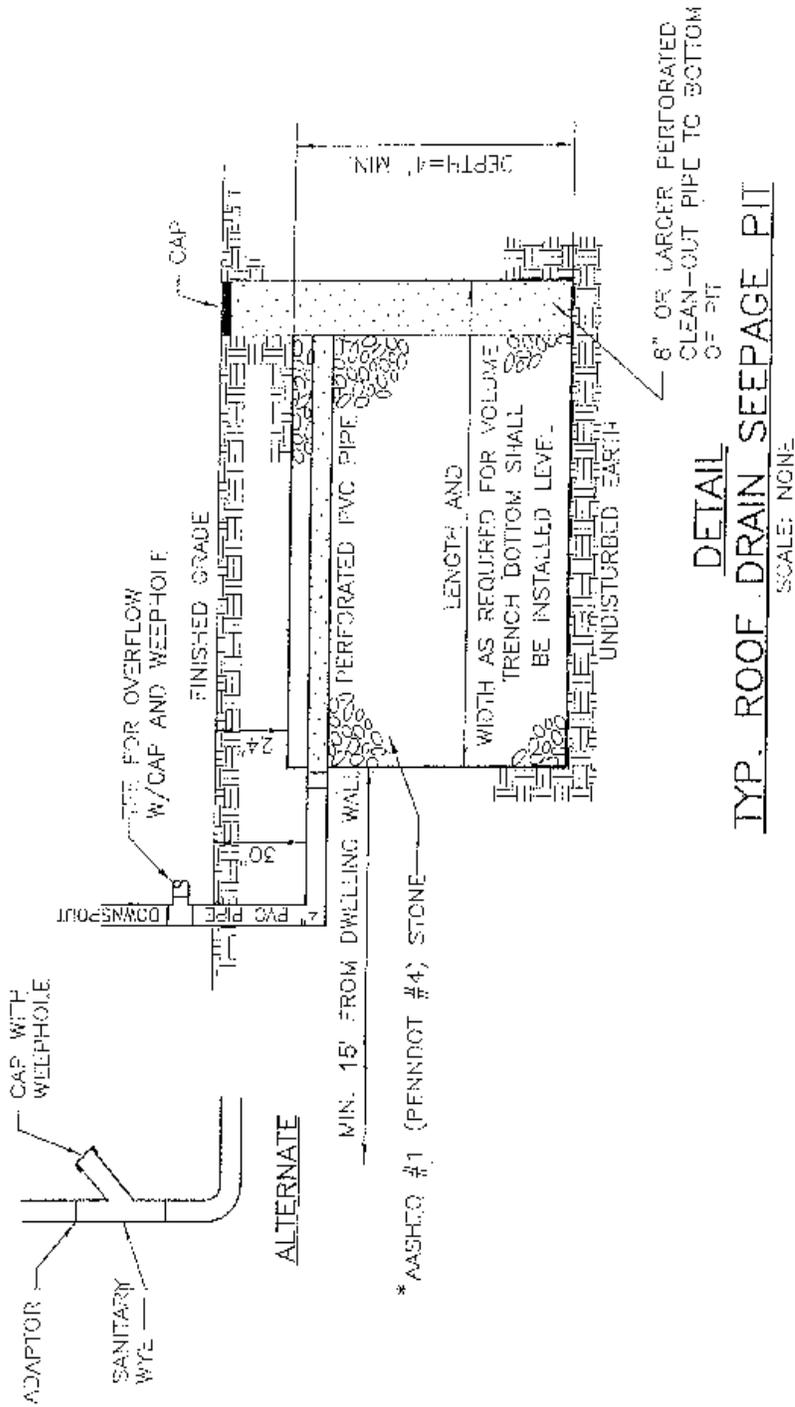
I, _____, a Notary Public in and for the County and State
aforesaid, whose commission expires on the _____ day of _____ 2_____,
do hereby certify that _____ whose names(s)
is/are signed to the foregoing Agreement bearing date of the _____ day of
_____ 2_____, has acknowledged the same before me in my said County
and State,

GIVEN UNDER MY HAND THIS _____ day of _____, 2_____.

NOTARY PUBLIC

(SEAL)

Figure 17-1



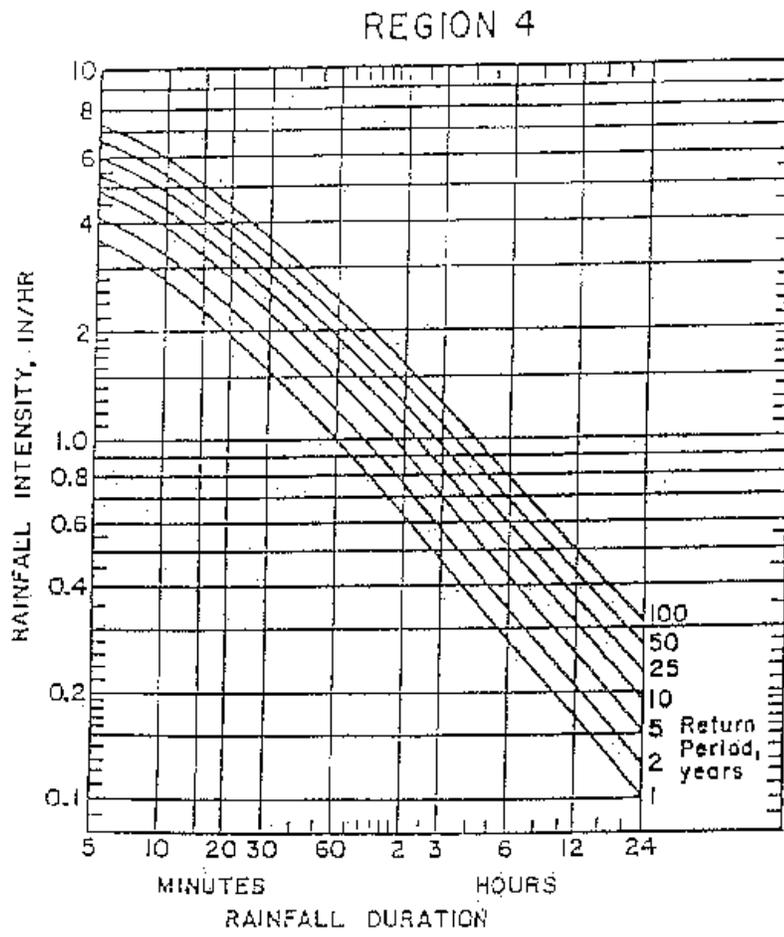
TRENCH SHALL BE LINED WITH PADOT CLASS 1 GEOTEXTILE MATERIAL PER PUBLICATION 408, SECTION 212.3b. ALLOW 1' OVERLAP ACROSS BACKFILL AT TOP OF TRENCH AND ALSO AN OVERLAP OF 1' AT END OF ROLLS.

DWELLINGS MAY UTILIZE ROOF DRAIN SEEPAGE PITS. A PERC TEST BY THE ZONING OFFICER MAY BE REQUIRED.

* TOP 12" OF STONE MAY BE 3/4" IN SIZE TO AID IN PIPE INSTALLATION

* AASHTO #1 (PENNDOT #4) STONE

Figure 17-3



STORM INTENSITY - DURATION - FREQUENCY
CURVES FOR REGION 4