

Stormwater Management Ordinance

ORDINANCE NO. 83

Monaghan Township

York County, Pennsylvania

Adopted at a Public Meeting Held on

October 12, 2009

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ARTICLE I - GENERAL PROVISIONS

Section 101. Short Title

This Ordinance shall be known and may be cited as the "Monaghan Township Stormwater Management Ordinance of 2009."

Section 102. Statement of Findings

The Board of Supervisors of Monaghan Township finds that:

- A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases non-point source pollution of water resources.
- B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety and welfare and the protection of people of the Commonwealth, their resources and the environment.
- C. Stormwater is an important water resource, which provides groundwater recharge for water supplies and base flow of streams, and if properly managed, also protects and maintains surface water quality.
- D. 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).

Section 103. Purpose

The purpose of this Ordinance is to promote health, safety, and welfare within Monaghan Township and its watersheds by minimizing the harms and maximizing the benefits described in Section 102 of this Ordinance, through provisions designed to:

- A. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code Chapter 93 to protect, maintain, reclaim and restore the existing and designated uses of the waters of this Commonwealth.
- B. Preserve the natural drainage systems as much as possible.
- C. Manage stormwater runoff close to the source.
- D. Provide procedures and performance standards for stormwater planning and management.

- E. Maintain groundwater recharge, to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
- F. Prevent scour and erosion of stream banks and streambeds.
- G. Provide proper operation and maintenance of all permanent Stormwater Management (SWM) Best Management Practices (BMPs) that are implemented within Monaghan Township.
- H. Provide standards to meet NPDES permit requirements.

Section 104. Statutory Authority

- A. Monaghan Township is empowered to regulate these activities by the authority of the Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. Section 680.1, et seq., as amended, the "Storm Water Management Act" and the by the authority of the Second Class Township Code, Sections 2701 thru 2704, 53 P.S. 67701 thru 67704 and the provisions of the Pennsylvania Municipalities Planning Code.

Section 105. Applicability

All Regulated Activities and all activities that may affect stormwater runoff, including Land Development and Earth Disturbance Activity, are subject to regulation by this Ordinance.

Section 106. Repealer

Any other ordinance provision(s) or regulation of Monaghan Township inconsistent with any of the provisions of this Ordinance is hereby repealed to the extent of the inconsistency only.

Section 107. Severability

In the event that a court of competent jurisdiction declares any section or provision of this Ordinance invalid, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

Section 108. Compatibility with Other Requirements

Approvals issued and actions taken under this Ordinance 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.

ARTICLE II - DEFINITIONS

For the purposes of this Ordinance, 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.

Agricultural Activity – Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops, or pasturing and raising of livestock and installation of conservation measures. Construction of new buildings or impervious area is not considered an Agricultural Activity.

Applicant - A landowner, developer or other person who has filed an application to Monaghan Township for approval to engage in any Regulated Activity at a project site in Monaghan Township.

Board of Supervisors – The board of Supervisors of the Township of Monaghan, York County, Pennsylvania.

Best Management Practice (BMP) - Activities, facilities, designs, measures or procedures used to manage stormwater impacts from Regulated Activities, to meet State Water Quality Requirements, to promote groundwater recharge and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one of two broad categories or measures: "structural" or "non-structural". In this ordinance, non-structural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. Structural Stormwater BMPs are permanent appurtenances to the project site.

Channel – A natural or artificial watercourse with a definite bed and banks which confine and conduct continuously or periodically flowing water.

Conservation District - A conservation district, as defined in section 3(c) of the Conservation District Law (3 P. S. § 851(c)), as amended, that has the authority under a delegation agreement executed with the Department to administer and enforce all or a portion of the regulations promulgated under 25 Pa. Code 102.

Culvert – A pipe or similar structure with appurtenant works which carries a watercourse under or through a road, driveway, embankment or existing grade.

Design Storm - The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g. a 5-year-storm) and duration (e.g. 24 hours), used in the design and evaluation of stormwater management systems. Also see Return Period.

Detention Basin - A reservoir which temporarily contains storm water runoff and releases it gradually into a watercourse or storm water drainage system, in an effort to control peak runoff rates.

Detention Volume - The volume of runoff that is captured and released into the waters of this Commonwealth at a controlled rate.

DEP - The Pennsylvania Department of Environmental Protection.

Development Site (Site) - See Project Site.

Disconnected Impervious Area (DIA) - An impervious or impermeable surface which is disconnected from any stormwater drainage or conveyance system and is redirected or directed to a pervious area which allows for infiltration, filtration, and increased time of concentration as specified in Appendix B, Disconnected Impervious Area.

Disturbed Area - An unstabilized land area where an Earth Disturbance Activity is occurring or has occurred.

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

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; the moving, depositing, stockpiling, or storing of soil, rock or earth materials; installation of impervious surfaces; and the diversion or piping of Waters of the Commonwealth or relocation of man-made watercourses.

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

Existing Condition - The dominant land cover during the five (5) year period immediately preceding a proposed Regulated Activity.

FEMA - Federal Emergency Management Agency.

Floodplain - Any land area susceptible to inundation by water from any natural source or delineated by applicable FEMA maps and studies as being a special flood hazard area. Also includes areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania DEP Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by PADEP).

Floodway - The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the 100-year flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year floodway, it is assumed --

absent evidence to the contrary -- that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

Forest Management/Timber Operations - Planning and activities necessary for the management of forestland. These include conducting a timber inventory, preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation and reforestation.

Hydrologic Soil Group (HSG) - Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSG's (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS ^{3,4}).

Impervious Surface (Impervious Area) - A surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) shall include, but not be limited to, buildings and structures including roofs, additional indoor living spaces, patios, garages, storage sheds and similar structures, swimming pools, pavements including streets, sidewalks and compacted aggregate bases and stormwater facilities with impermeable liners. Decks are not counted as impervious areas if they do not prevent infiltration.

Karst - A type of topography or landscape characterized by surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

Land Development (Development) - Inclusive of any or all of the following meanings: (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more buildings, or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) any subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

Municipality - Monaghan Township, York County, Pennsylvania.

NRCS - USDA Natural Resources Conservation Service (previously SCS).

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

Pervious Area - Any area not defined as impervious.

Project Site - The specific area of land where any Regulated Activities in Monaghan Township are planned, conducted or maintained.

Qualified Professional - Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by the Ordinance.

Regulated Activities - Any Earth Disturbances Activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff.

Regulated Earth Disturbance Activity - Activity involving Earth Disturbance subject to regulation under 25 Pa. Code Chapter 92, Chapter 102, or the Clean Streams Law.

Retention Volume/Removed Runoff - The volume of runoff that is captured and not released directly into the surface waters of this Commonwealth during or after a storm event.

Retention Basin - A reservoir designed to retain storm water runoff with its primary release of water being through the infiltration of said water into the ground.

Return Period - The average interval, in years, within which a storm event of a given magnitude can be expected to occur one time. For example, the 25-year return period rainfall would be expected to occur on average once every 25 years; or stated in another way, the probability of a 25-year storm occurring in any one year is 0.04 (i.e. a 4% chance).

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

Sediment - Soils or other materials transported by surface water as a product of erosion.

State Water Quality Requirements - The regulatory requirements to protect, maintain, reclaim, and restore water quality under Pennsylvania Code Title 25 and the Clean Streams Law.

Stormwater - Drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

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

Stormwater Management Plan - The Monaghan Township Stormwater Management Plan for managing stormwater runoff adopted by the County of York as required by the Act of October 4, 1978, P.L. 864, (Act 167), as amended, and known as the "Storm Water Management Act".

Stormwater Management Best Management Practices - Is abbreviated as **BMPs** or **SWM BMPs** throughout this Ordinance.

Stormwater Management Site Plan - The plan prepared by the Developer or his representative indicating how storm water runoff will be managed at the development site in accordance with this Ordinance. **Stormwater Management Site Plan** will be designated as **SWM Site Plan** throughout this Ordinance.

Subdivision - As defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247.

USDA - United States Department of Agriculture.

Waters of this 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 and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth.

Watershed - Region or area drained by a river, watercourse or other surface water of the Commonwealth.

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

ARTICLE III - STORMWATER MANAGEMENT STANDARDS

Section 301. General Requirements

- A. For all Regulated Activities, unless preparation of an SWM Site Plan is specifically exempted in Section 302:
 - 1. Preparation and implementation of an approved SWM Site Plan is required.
 - 2. No Regulated Activities shall commence until Monaghan Township issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
- B. SWM Site Plans approved by Monaghan Township, in accordance with Section 402, shall be on site throughout the duration of the Regulated Activity.
- C. Monaghan Township may, after consultation with DEP, approve measures for meeting the State Water Quality Requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, State law including but not limited to the Clean Streams Law.
- D. For all Regulated Earth Disturbance Activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the Regulated Earth Disturbance Activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under the Pennsylvania Code Title 25 and the Clean Streams Law. Various BMPs and their design standards are listed in the *Erosion and Sediment Pollution Control Program Manual* (E&S Manual)², Commonwealth of Pennsylvania, Department of Environmental Protection, No. 363-2134-008 (2000), as amended and updated.
- E. For all Regulated Activities, implementation of the Volume Controls in Section 303 is required.
- F. Impervious Areas:
 - 1. The measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages.
 - 2. For development taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.
 - 3. For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this ordinance.
- G. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written permission of the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this Ordinance.
- H. All regulated activities shall include such measures as necessary to:
 - 1. Protect health, safety, and property;

2. Meet State Water Quality Requirements as defined in Article II;
 3. Meet the water quality goals of this ordinance by implementing measures to:
 - a. Minimize disturbance to floodplains, wetlands, natural slopes over 8%, and existing native vegetation.
 - b. Preserve and maintain trees and woodlands. Maintain or extend riparian buffers and protect existing forested buffer. Provide trees and woodlands adjacent to impervious areas whenever feasible.
 - c. Establish and maintain non-erosive flow conditions in natural flow pathways.
 - d. Minimize soil disturbance and soil compaction. Over disturbed areas, replace topsoil to a minimum depth equal to the original depth or 4 inches, whichever is greater. Use tracked equipment for grading when feasible.
 - e. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.
 4. To the maximum extent practicable, incorporate the techniques for Smart Growth described in "The Pennsylvania Stormwater Best Management Practices Manual" (SWM Manual)¹.
- I. The design of all facilities over Karst shall include an evaluation of measures to minimize adverse effects.
 - J. Infiltration BMPs should be spread out, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Ordinance. In no case will infiltration facilities be located in an area which will create or exacerbate any known sinkhole condition in Karst areas.
 - K. Storage facilities should completely drain both the volume control and rate control capacities over a period of time not less than 24 and not more than 72 hours from the end of the design storm.
 - M. The design storm volumes to be used in the analysis of peak rates of discharge shall be obtained from:

(1) Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland, 20910, (NOAA's Atlas 14⁵ can be accessed at Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>) or,

(2) The peak discharges and volumes of runoff may be determined by using the Rational Method for watersheds less than twenty (20) acres, and for larger watersheds, the latest version of Technical Release No. 55, Urban Hydrology for Small Watersheds, or

(3) Latest edition of the Commonwealth of Pennsylvania, Department of Transportation *Design Manual, Part 2, Highway Design, Chapter 10*

(4) Other acceptable engineering method, subject to Township approval.

For pre-development computations, all runoff coefficients within the project shall be based on meadow use. Off-site land use conditions used to determine storm flows for designing storm facilities shall be based on existing land uses.

- L. For all Regulated Activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Pennsylvania Code Title 25, the Clean Streams Law, and the Storm Water Management Act.
- N. Various BMPs and their design standards are listed in the SWM Manual.¹

Section 302. Exemptions

- A. Regulated Activities that create Disconnected Impervious Areas smaller than 2500 sq. ft. are exempt from the Peak Rate Control and the SWM Site Plan preparation requirement of this Ordinance.
- B. Regulated Activities that create Disconnected Impervious Areas equal to or greater 2500 sq. ft. and less than 5000 sq. ft. are exempt only from the peak rate control requirement of this Ordinance.
- C. Agricultural activity is exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- D. Forest management and timber operations are exempt from the rate control and SWM Site Plan preparation requirements of this ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- E. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Sections 301.D. through L.

Section 303. Design Standards

- A. Volume Controls

The smart growth practices provided in the SWM Manual¹ shall be utilized for all Regulated Activities to the maximum extent practicable.

Water volume controls shall be implemented using the *Design Storm Method* in Subsection 1 or the *Simplified Method* in Subsection 2 below. For Regulated Activity areas equal or less than one (1) acre that do not require hydrologic routing to design the stormwater facilities, this Ordinance establishes no preference for either methodology; therefore, the applicant may select either methodology on the basis

of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors.

1. *The Design Storm Method* (CG-1 in the SWM Manual¹) is applicable to any size of Regulated Activity. This method requires detailed modeling based on site conditions.
 - a. Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year 24-hour duration precipitation.
 - b. For modeling purposes:
 - i. Existing (pre-development) non-forested pervious areas must be considered meadow or its equivalent.
 - ii. Twenty (20) percent of existing impervious area, when present, shall be considered meadow in the model for existing conditions.
2. *The Simplified Method* (CG-2 in the SWM Manual¹) provided below is independent of site conditions and should be used if the Design Storm Method is not followed. This method is not applicable to Regulated Activities greater than one (1) acre or for projects that require design of stormwater storage facilities. For new impervious surfaces:
 - a. Stormwater facilities shall capture at least the first two inches (2") of runoff from all new impervious surfaces.
 - b. At least the first one inch (1.0") of runoff from new impervious surfaces shall be permanently removed from the runoff flow -- i.e. it shall not be released into the surface Waters of this Commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.
 - c. Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first one-half inch (0.5") of the permanently removed runoff should be infiltrated.
 - d. This method is exempt from the requirements of Section 303.B, Rate Controls.

B. Rate Controls

1. Areas not covered by a Release Rate Map from an approved Act 167 Stormwater Management Plan:

Post-development discharge rates shall not exceed the predevelopment discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storms. If it is shown that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the pre-development analysis for 1-, 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

2. Areas covered by a Release Rate Map from an approved Act 167 Stormwater Management Plan:

For the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storms, the post-development peak discharge rates will follow the applicable approved release rate maps. For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the predevelopment discharge rates.

C. Design Storm For Collection Facilities

The design of storm water management collection facilities that service drainage areas within the site shall be based upon the peak flow from a twenty-five (25) year storm frequency event. All developments shall include design provisions that allow for the overland conveyance of the post-development one hundred (100) year peak flows through the site without damage to any private or public property.

- D. Method of Calculations. Runoff calculations for on-site storm water conveyance facilities shall be based upon the Rational Method or an acceptable engineering design method, subject to Township approval.

- E. Criteria, Methodology and Assumptions. Appropriate values for runoff coefficients, time of concentration, and rainfall intensity should be from the latest edition of the Commonwealth of Pennsylvania, Department of Transportation *Design Manual, Part 2, Highway Design, Chapter 10*. Use of other criteria, methodology, assumptions, references, calculation methods and/or computer modeling may be accepted, provided detailed design information and programming with references are submitted and approved by the Township.

- F. Storm Water Basins. Retention basins and detention basins shall be designed with a minimum one (1) foot freeboard above the design elevation of the one hundred (100) year water surface at the emergency spillway. Additionally, basins shall be designed to safely discharge the full 100-year peak discharge of a post-development storm event through an emergency spillway in a manner which will not damage the integrity of the basin. Basins shall not be located over any existing or proposed utility line.

Storm water basins located in known sinkhole-prone areas are required to be lined to prevent infiltration into the ground.

The Modified PULS Method of Calculating routing or an acceptable engineering design method, subject to Township approval, shall be used for detention basins.

Basins shall be constructed and maintained to insure the design capacity after sedimentation has taken place.

Basin discharge outlets shall be designed to release runoff in a condition which reflects pre-development characteristics.

Basins which are not designed to release all storm water shall be specifically identified as

retention basins or permanent pond basins. All other basins shall have provisions for de-watering, particularly the bottom, and shall not create swampy and/or unmaintainable conditions. Low flow channels shall be used to de-water the bottom of a basin. A minimum slope of two percent (2%) or a paved low flow channel of at least one percent (1%) shall be provided. Discharge structures shall be designed to eliminate the possibility of blockage during operation.

Basins which are located in or adjacent to a residential zone and viewed by the Township as a potential hazard to the public safety shall be completely surrounded by a fence or wall of not less than four (4) feet in height. The fence or wall shall not have an opening or gap larger than two (2) inches and be provided with a self-closing and self-latching gate.

G. Earth Fill Dams. Basins which are designed with earth fill dams shall be designed by a registered professional engineer with experience in earth-filled dams and shall incorporate the following minimum standards:

- (1) The maximum water depth (measured from the base to the crest of the emergency spillway) shall not exceed six (6) feet, unless approved by waiver of the Township.
- (2) The minimum top width of all dams shall be five (5) feet, unless approved by waiver of the Township
- (3) The side slopes of earth fill dams shall not be steeper than three (3) horizontal to one (1) vertical on both sides of the embankment.
- (4) Basins without restricted access shall have impoundment areas with side slopes no greater than five (5) horizontal to one (1) vertical.
- (5) A cutoff trench of impervious material shall be provided under all dams.
- (6) All pipes and culverts through dams shall be reinforced concrete and have properly spaced concrete cutoff collars.
- (7) All riser pipes shall be reinforced concrete.
- (8) Minimum floor elevations for all structures that would be affected by a basin, other temporary impoundments, or open conveyance systems where ponding may occur shall be two (2) feet above the 100-year water surface and/or one (1) foot above the 500-year water surface. If basement or underground facilities are proposed, detailed calculations addressing the effects of storm water ponding on the structure and water-proofing and/or flood-proofing design information shall be submitted for approval.

The Township may, upon recommendation of the Township Engineer, impose additional requirements on earth fill dams for the safety and welfare of the Township.

H. Capacities.

The capacity of pipes, gutters, inlets, culverts, outlet structures and swales shall consider all possible hydraulic conditions. The following are minimum design standards.

- (1) Grass swales and roadside gutters shall consider both the channel velocity and stability.
- (2) The "n" factors to be used for paved or rip-rap swales or gutters shall be based on the latest edition of the Pennsylvania Department of Transportation *Design Manual, Part 2, Highway Design*, Chapter 10.
- (3) The "n" factors for piping shall be based upon the manufacturer's standard.
- (4) The velocity to be used in the design of any piped storm water conveyance system shall be a minimum of two and one-half (2½) feet per second.
- (5) Inlets, culverts, and basin discharge systems shall be designed for the worst case condition. Inlet capacity shall be based on design standards provided by the latest edition of the Pennsylvania Department of Transportation's *Design Manual, Part 2, Highway Design*, Chapter 10. If acceptable information is not available, inlets in non-ponding areas shall be designed for a maximum capacity of five (5) cubic feet per second. Where ponding occurs, inlet capacity shall be based on accepted engineering design practices. Culvert design shall consider either inlet/outlet control or a combination of hydraulic losses through the system, whichever is greater. Basin discharge systems shall be designed to the same standards as culverts. If it cannot be readily determined which hydraulic condition controls, the basin discharge rate shall be based on the highest possible discharge rating curve, with the basin capacity sized to store the excessive storm runoff, based on the lowest possible discharge rating curve.

I. Storm Water Flow Along Streets and Access Drives. Inlets shall be along the curb line and are not permitted along the curb radius at an intersection. When possible, inlets shall be located away from the side lot property line to avoid conflicts with driveways. For the purpose of inlet placement, curb, gutter, or roadside swale, flow depths for a ten (10) year storm frequency with a five (5) minute duration shall not exceed three (3) inches in a swale condition, two (2) inches in a gutter condition, and one-half (½) inch across intersections and travel lanes. In no case shall inlets be spaced more than six hundred (600) feet apart and function at less than sixty-five percent (65%) efficiency based on the criteria in the *PennDOT Design Manual*.

J. Manhole Locations. Manholes shall not be spaced more than five hundred (500) feet apart. Additionally, manholes shall be placed at points of changes in the horizontal or vertical direction of storm sewers. Inlets may be substituted for manholes where they will serve a useful purpose.

K. Alignment Requirement. If less than a forty-eight (48) inch diameter, curves in pipes or box culverts without an inlet or manhole are prohibited. T-joints, elbows, and wyes are always prohibited.

- L. Minimum Pipe Size. Storm water management pipe collection and conveyance systems shall have a minimum diameter of fifteen (15) inches. Pipes with smaller diameters may be permitted for individual on-lot control systems or where conveyance systems do not carry any off site water. All pipes shall have adequate capacity for the anticipated stormwater flow.
- M. Material Specifications. All materials and installations must be approved for use by the Township Engineer and comply with the Township Specification Manual.
- N. Surface Flow Characteristics. The maximum swale, gutter, or curb velocity of storm water runoff shall be maintained at levels which result in a stable condition both during and after construction. The following are considered characteristics of a stable condition:
- (1) It neither aggrades or degrades beyond tolerable limits.
 - (2) The channel banks do not erode to the extent that the channel cross section is changed appreciably.
 - (3) Sediment bars do not develop.
 - (4) Erosion does not occur around culverts and bridges or elsewhere.
 - (5) Gullies do not form or enlarge due to the entry of uncontrolled storm water runoff.
 - (6) Grass-lined channels shall be considered stable if the calculated velocity does not exceed the allowable velocities shown below:
 - (i) Three (3) feet per second where only sparse vegetation can be established and maintained because of shade or soil condition.
 - (ii) Four (4) feet per second where normal growing conditions exist and vegetation is to be established by seeding.
 - (iii) Five (5) feet per second where a dense, vigorous sod can be quickly established or where water can be temporarily diverted during establishment of vegetation. Netting and mulch or other equivalent methods for establishing vegetation shall be used.
 - (iv) Six (6) feet per second where there exists a well established sod of good quality. Where swale bends occur, the allowable velocities listed above shall

Degree of Bend	Velocity
0 to 30	1.50
30 to 60	1.75
60 to 90	2.00
90 and over	2.50

The above grass-lined channel flows may be exceeded if the designer can provide

acceptable supportive design criteria as proof of erosion prevention.

- (7) Where the velocity of storm water runoff exceeds the allowable velocity, erosion protection must be provided. The method of erosion protection proposed must be supported by the appropriate design information and/or references.
- (8) Sump Pump discharges and roof drains will be directed to lawn areas away from residences, into areas that will surface drain to conveyance structures or infiltration facilities. Discharge from sump pumps and roof drains through curb penetrations or onto public streets will not be permitted.

O. Erosion and Sedimentation.

All land disturbance facilities shall conform to the requirements of the York County Soil Conservation District and the Pennsylvania Department of Environmental Protection, and with the following provisions:

- (1) No Regulated Earth Disturbance activities within the Township shall commence until it has approved an Erosion and Sediment Control Plan for construction activities.
- (2) Any earth disturbance activity of 5,000 square feet or more shall require an Erosion and Sediment Control Plan submitted and approved in accordance with the Pennsylvania Department of Environmental Protection as set forth in 25 Pa. Code § 102.4(b) and any other pertinent regulations.
- (3) A Pennsylvania Department of Environmental Protection "NPDES Construction Activities" permit in compliance with 25 Pa. Code Chapter 92 is required for any earth disturbance of one acre or more with a point source discharge to surface waters of the Township's storm sewer system, or of five acres or more, regardless of the planned runoff (hereinafter collectively referred to as "Regulated Earth Disturbance Activities"). This includes earth disturbance on any portion of, part of, or during any stage of, a larger common plan of development.
- (4) 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 Township. The issuance of an NPDES Construction Permit (or permit coverage under the statewide General Permit (PAG-2)) satisfies the requirements of subparagraph 1 of this Paragraph Q.
- (5) A copy of the Erosion and Sediment Control plan and any required permit, as required by DEP regulations, shall be available at the project site at all times.

- (6) The following principles shall be applied to the design plan and construction schedule to minimize soil erosion and sedimentation: a) Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize soil erosion. b) Whenever feasible, natural vegetation shall be retained and protected. c) The extent of the disturbed area and the duration of its exposure shall be kept to a minimum, within practical limits. d) Either temporary seeding, mulching, or other suitable stabilization measures shall be used to protect exposed critical areas during construction. e) Drainage provisions shall accommodate the storm water runoff both during and after construction. f) Soil erosion and sedimentation facilities shall be installed prior to any on-site grading. g) The design plan and construction schedule shall incorporate measures to minimize soil erosion and sedimentation. h) Retention and/or detention basins and water carrying facilities shall be stabilized in accordance with current engineering and Soil Conservation Service practices.

P. Floodplain. All storm water management plans shall conform with the Floodplain Standards specified in the Official Zoning Ordinance of Monaghan Township, May 14, 2007 or latest amendment .

Q. Easements. When considered appropriate, easements shall be provided where storm water or surface water drainage facilities are existing or proposed, whether located within or beyond the boundaries of the property. Easements for maintenance of pipes and culverts shall run from outlet to inlet. Normal lot grading will not require easements. Swales which receive runoff from more than one other lot must be provided with an easement. Easements shall have a minimum width of twenty (20) feet and shall be adequately designed to provide area for (a) the collection and discharge of water, (b) the maintenance, repair, and reconstruction of the drainage facilities, and (c) the passage of machinery for such work. When considered appropriate, easements shall include a description of an ownership and maintenance program, in a recordable form, that clearly sets forth responsibility for all temporary and permanent storm water management facilities..

R. Ownership and Maintenance of Storm Water Management Facilities. The intent of these regulations is to provide private ownership and maintenance of storm water management facilities, erosion and sedimentation control facilities and floodplain control facilities. Under no circumstances does the Township intend to accept dedication of temporary erosion control and sedimentation basins. The Township does not encourage the dedication of storm water management facilities that are located outside public street rights-of-way. Where the Storm Water Management Plan proposes that the Township own or maintain a storm water management facility, a description of the methods, procedures, and the extent of maintenance shall be described in such an offer.

Maintenance of all storm water management facilities during development shall be the sole responsibility of the developer and shall include, but not be limited to:

- (1) Removal of silt from all basins, traps or other structures or measures when thirty percent (30%) of capacity is filled with silt;
- (2) Periodic maintenance of temporary control facilities as described in the soil erosion and sedimentation control plan such as replacement of silt fencing, straw filters or similar

measures;

- (3) Establishment or re-establishment of vegetation by seeding and mulching or sodding of scoured areas or areas where vegetation has not successfully been established;
- (4) Installation of necessary controls to correct unforeseen problems caused by storm events within designed frequencies;
- (5) Removal of all temporary measures and installation of permanent measures upon completion of the project; and
- (6) Requirements of the Pennsylvania Department of Environmental Protection, Chapter 102 Regulations.

Ownership of all storm water management facilities after construction shall be the sole responsibility of the developer or the private landowner as set forth in the plan. The only storm water management facilities which are to be controlled by the Township shall be those permanent facilities which have been offered for dedication and accepted for dedication by the Township. Future offers for dedication can only be made for facilities which meet current Township specifications.

ARTICLE IV - STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

Section 401. Permit Procedures and Plan Requirements

A. General; Structural Prohibition.

An Earth Disturbance Activity, as defined in this Ordinance, shall not be initiated until a Storm Water Management Permit has been issued. No structure shall be permitted, and no permit shall be issued, for the laying, placing, erecting, constructing or locating of any structure in any storm water management facility or drainage easement area, whether such area was created by plan, express easement, easement by implication, easement in fact, or easement by operation of law. This prohibition shall not apply to structures comprising component parts of an approved storm water management facility.

B. Application Procedure

All applications for a Storm Water Management Permit, the activity for which also constitutes a subdivision or land development, shall be submitted concurrently with the subdivision and/or land development plan filed pursuant to the Subdivision and Land Development Ordinance. Action on the Storm Water Management Permit will be made in conjunction with the preliminary plan under the Subdivision and Land Development Ordinance.

All applications for a Storm Water Management Permit, the activity for which does not constitute a subdivision or land development, shall conform with the following procedures. An Application for a Storm Water Management Permit shall be submitted to the Township-designated representative who has been authorized to receive applications at the Township of Monaghan Building, on any business day.

The Township shall forward the application to a Qualified Professional for review.

The Qualified Professional shall, within sixty (60) days from the municipal receipt of an application not associated with a subdivision or land development, review the application and transmit a recommendation for action to Township staff based on the contents of the application. The designated Township representative shall issue a permit, or disapprove the application and transmit the decision in writing to the applicant and the Township Board of Supervisors. Failure of the Qualified Professional to render a decision and communicate it as prescribed above shall not be deemed an approval. In this case, Township Staff may take action on the permit application based on their review.

A notice of disapproval shall cite the reasons for disapproval.

C. Application Requirements.

- (1) One (1) completed copy of the Application for a Storm Water Management Permit (see Appendix C).

(2) Four (4) copies of the Storm Water Management Plan and associated narrative or report:

- a. One (1) copy to Monaghan Township.
- b. One (1) copy to the Township Engineer.
- c. One (1) copy to the County Conservation District.
- d. One (1) copy to the County Planning Commission/Office.

(3) Filing fee in the amount specified in the fee schedule as established by resolution or ordinance of the Township Board of Supervisors.

(4) Performance bond, when applicable.

(5) Liability insurance, when applicable.

D. Storm Water Management Plan Contents

Storm water management plans shall be prepared by professionals registered in the Commonwealth of Pennsylvania to perform such duties. Designs which entail engineering expertise shall be prepared by engineers with appropriate expertise.

The plan shall show, be accompanied by, or be prepared in accordance with the following:

1. General

- a. The plan shall be clearly and legibly drawn at a scale of ten (10) feet, twenty (20) feet, thirty (30) feet, forty (40) feet, fifty (50) feet, sixty (60) or 100 feet to the inch. Profile plans shall maintain a ratio of 1:10 vertical to horizontal.
- b. The sheet size shall be prepared on standard business or engineering paper sizes (8.5" x 11", 11" x 17", 18" x 24" or 24" x 36"), but no larger than twenty four (24 x 36) inches. If the plan is prepared in two (2) or more sections, a key map showing the location of the sections shall be placed on each sheet. If more than one (1) sheet is necessary, each sheet shall be numbered to show the relationship to the total number of sheets in the plan (e.g., Sheet 1 of 5).
- c. Plans shall be legible in every detail.
- d. Name and address of landowner, applicant, and individual who prepared the plan.
- e. Plan date and date of latest revision to plan, north point, graphic scale and written scale.

- f. Location map, drawn to scale, relating the property to at least two (2) intersections of existing road centerlines, including the approximate distance to the intersection of the centerlines of the nearest existing street intersection.
- g. Note on plan indicating any area that is proposed to be offered for dedication to the Township. Any area that is easemented and not to be offered for dedication shall be identified along with a statement that the Township is not responsible for the maintenance of any area not dedicated to and accepted for public use.
- h. Certificate, signed and sealed by an individual registered in the Commonwealth of Pennsylvania and qualified to perform such duties, indicating compliance with the provisions of this Part (see Appendix D).

2. Existing Features

- a. Tract boundaries showing distances, bearings and curve data, as located by field survey or deed plotting, total acreage of tract, and total acreage of project if less than the entire tract.
- b. Existing contours, at a minimum vertical interval of two (2) feet for land with average natural slope of four percent (4%) or less and at a minimum vertical interval of five (5) feet for more steeply sloping land. This information shall be provided by field survey of contour lines within areas of proposed improvements and field survey or other source acceptable to the Township Engineer in those areas outside the proposed improvements. Contours shall be accompanied by the location of the benchmark within or immediately adjacent to the subject tract and a notation indicating the datum used. The United States Geodetic Survey shall be used for benchmark datum.
- c. Names of all owners of all immediately adjacent land, names of all proposed or existing developments immediately adjacent, and locations and dimensions of any streets or easements shown thereon.
- d. Names, locations and dimensions of all existing buildings, street rights-of-way, railroads, utilities, watercourses, drainage facilities, floodplains, wetlands, on-lot sewage disposal facilities, easements, and other significant features located either within and adjacent to the property or two hundred (200) feet from the property.
- e. The size, slope capacity, material, elevation and condition of the existing storm water management system and any other facility that may be used to convey storm flows.
- f. Soil types as designated by the U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of York County.
- g. Designation of the location of on-site and off-site sub-watersheds.

- h. Designation of the location of the path used to calculate the time of concentration for the on-site and off-site sub-watersheds.

3. Proposed Features

- a. Proposed land use, total number of lots and dwelling units, and extent of commercial, industrial or other non-residential uses
- b. Locations and dimensions of all proposed streets, sidewalks, lot lines, building locations, parking compounds, impervious and semi-impervious surfaces, sanitary sewer facilities, water facilities, storm water management facilities, utilities, and other significant features. This information shall be provided to the detail necessary to construct the facilities.
- c. Proposed changes to land surface and vegetative cover including areas to be cut or filled.
- d. Proposed Topographical Data. This information shall be provided by contour lines indicating the existing and proposed grades of the site. Contour lines shall be provided at one (1) foot vertical intervals for slopes of ten percent (10%) or less, and at vertical intervals of five (5) feet for more steeply sloping land.
- e. Plans and profiles of proposed storm water management facilities including horizontal and vertical location. Additionally, a detail with all pertinent construction requirements shall be provided for outlet structures. This information shall be of the quality required for the construction of all facilities.
- f. The size, slope, capacity, material, elevation, and condition of the proposed storm water management system and other facility that may be used to convey storm flows. This information shall include invert elevations and top of grate elevations.
- g. Plans and profiles of all erosion and sedimentation control measures, temporary as well as permanent.
- h. Designation of the location of on-site sub-watersheds.
- i. Designation of the location of the path used to calculate the path of the time of concentration for the on-site sub-watersheds.
- j. Plans, profiles and sections of all permanent best management practices in sufficient detail suitable for construction.

4. Written Report and Calculations

- a. Calculations, assumptions, criteria, methodology, and references used in the design of storm water management facilities, best management practices, the establishment of capacities, and the pre-development and post-development peak discharge. This information shall include data on all sub-watersheds. Applicants are encouraged to follow the Standard Computation Table provided in Appendix F.
- b. For all basins, a plotting or tabulation of the storage volumes and discharge curves with corresponding water surface elevations, inflow hydrographs and outflow hydrographs.
- c. Soil structures and characteristics shall be provided for all proposed groundwater recharge systems, and detention or retention basins which (a) hold two (2) acre feet or more of water, or (b) have an embankment that is six (6) feet or more in height. Plans and data prepared by a registered professional experienced and educated in soil mechanics shall be submitted. This data shall provide design solutions for frost heave potential, spring-swell potential, soil bearing strength, water infiltration, soil settling characteristics, fill and back-filling procedures and soil treatment techniques as required to protect the improvements or structures. The following requirements apply to all proposed groundwater recharge methods of storm water management, such as seepage pits, beds, trenches, leaching wells, and cisterns:
 - 1) Representative percolation tests must be made throughout the proposed area. At least one percolation test must be included in each soil group and at least one percolation test must be conducted for each five lots proposed for development. Testing, in general, should follow the same guidelines as though testing for an on-lot septic system.
 - 2) Seepage pits, beds or trenches shall not be permitted as the primary stormwater control for any development of more than five lots with new public streets, without prior approval of the Township.
- d. Description of all erosion and sedimentation control measures and best management practices, temporary as well as permanent, including the staging of land moving activities, sufficient in detail to clearly indicate their function. All erosion and sedimentation control measures shall conform to the requirements of the Pennsylvania Department of Environmental Protection, *Soil Erosion and Sedimentation Control Manual*. Best management practices shall be designed and constructed in accordance with Pennsylvania Department of Environmental Protection "Pennsylvania Stormwater Best Management Practices Manual," latest edition.
- e. Description of an ownership and maintenance program, in a recordable form, that clearly sets forth the ownership and maintenance responsibilities for all temporary

and permanent storm water management facilities which shall include the following:

- 1) Description of the method and extent of the maintenance requirements.
 - 2) Identification of an individual, corporation, association or other entity responsible for ownership and maintenance.
 - 3) When maintained by a private entity, a copy of the legally binding document which provides that the Township shall have the right to:
 - (i) Inspect the facilities at any time.
 - (ii) Require the private entity to take corrective measures and assign the private entity reasonable time periods for any necessary action.
 - (iii) Authorize maintenance to be done by the Township or an agent or contractor of the Township and the liening of the cost of the work against the properties of the private entity responsible for the maintenance.
 - 4) Establishment of suitable easements for access to storm water management facilities.
 - 5) When an assignment of responsibility is made to the Township, it must include an acknowledgment of its formal acceptance of the responsibility.
 - 6) Where the Land Disturbance Activity is proposed as part of a Land Development Plan, the ownership and maintenance program shall be placed on the plan and recorded in the Office of the Recorder of Deeds for York County. Where a Land Development Plan is not required, the ownership and maintenance program shall be prepared as a separate document and recorded in the Office of the Recorder of Deeds for York County upon issuance of a permit. In all cases, the document shall be recorded prior to the initiation of construction and be fully effective during the post-construction period.
- f. A Pennsylvania Department of Transportation Highway Occupancy Permit shall be required prior to the installation of any storm water management facility proposed within the right-of-way of any state highway.
- g. A NPDES Permit for Stormwater Discharges Associated with Construction Activities shall be required for land disturbance activities of five (5) or more acres, or activities of one (1) acre or more with a point source of discharge. Written certification from the regulatory agency of such approval, or notification that such approval is not required by law shall be provided to the Township.
- h. Notification of approval from the applicable State and Federal agencies for any proposed encroachment into a regulated floodway or wetland area.

- i. A schedule for installation of the control measures and devices. In all cases, the proposed storm water management devices must be completed prior to the construction of additional impervious areas.

Section 402. Plan Review

- A. The SWM Site Plan shall be reviewed by a Qualified Professional for Monaghan Township for consistency with the provisions of this ordinance. After review, the Qualified Professional shall provide a written recommendation for Monaghan Township to approve or disapprove the SWM Site Plan. If it is recommended to disapprove the SWM Site Plan, the Qualified Professional shall state the reasons for the disapproval in writing. The Qualified Professional also may recommend approval of the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing. The SWM Site Plan review and recommendations shall be completed within the time allowed by the Monaghan Township Subdivision and Land Development Ordinance for reviewing subdivision plans.
- B. Monaghan Township shall notify the applicant in writing within 60 calendar days whether the SWM Site Plan is approved or disapproved. If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by Monaghan Township. If Monaghan Township disapproves the SWM Plan, Monaghan Township shall cite the reasons for disapproval in writing.

Section 403. Waiver Procedure.

The provisions of this Ordinance are intended as minimum standards for the protection of the public health, safety and welfare. The Township Board of Supervisors may waive any mandatory provision of these regulations to the benefit of the applicant provided that the Township Board of Supervisors determines that the waiver:

- Is consistent with the purpose of this Part as described in Section 103;
 - Will remove or reduce an unreasonable standard or undue hardship as it applies to the particular property, which is grossly disproportionate to any benefit derived from the standard, or when an alternative standard provides equal or better results; and
 - Provides for reasonable utilization of the property while securing the public interest. It shall be the burden of the applicant to demonstrate compliance with the above conditions.
- A. Waiver Application. Notwithstanding the ability of the Township Board of Supervisors to independently consider a waiver, all requests for waivers which are desired by the applicant shall be submitted to the designated Township representative, at the Township building, on any business day. A waiver request shall include twelve (12) copies of all applicable plans, reports and supplementary data and one (1) application form.
 - B. Distribution. One (1) copy of the waiver request will be distributed to the Township Manager, Township Planning Commission, Township Zoning Officer, Township Engineer, Township Board of Supervisors and, if necessary, other officials.

- C. Review of the Waiver. The waiver is reviewed by the Township staff and Planning Commission. Recommendations are forwarded to the Township Board of Supervisors.
- D. Ruling on the Waiver. The Township Board of Supervisors shall have the authority to approve or disapprove the waiver. In granting any waiver, the Township Board of Supervisors may impose such conditions as will, in its judgment, secure substantially the objectives of the standards and requirements of this Ordinance. Action on the waiver shall be entered in the minutes of the Township Board of Supervisors and forwarded to the applicant. Failure of the Township Board of Supervisors to render a decision and communicate it to the applicant as described herein shall not be a deemed approval of the waiver, if such decision is within the time limits set forth for review.

Section 404 Schedule of Inspections.

Inspections shall be required prior to the start of construction, during installation of materials and structures, and upon the completion of all improvements in accordance with the requirements of the Monaghan Township Improvement Specification Manual, latest edition. Prior to the initiation of construction, the developer shall arrange a pre-construction meeting with the Township Engineer so that an inspection schedule can be coordinated with the construction schedule. The Township Engineer shall be notified two (2) working days in advance of any intended date of construction. The provisions stated herein shall not be construed as mandating periodic inspections and the undertaking of periodic inspections shall not be construed as an acceptance of the work during construction or as a final inspection of the construction. The Township shall inspect all phases of the Earth Disturbance Activity including, but not limited to, the following:

- A. Prior to the start of any Earth Disturbance Activity.
- B. During construction of the permanent storm water management facilities at such times as specified by the Township.
- C. Upon installation of permanent storm water management facilities.
- D. Upon completion of any final grading, vegetative control measures or other site restoration work done in accordance with the permit.

No work shall begin on a subsequent phase until the preceding phase has been inspected and approval has been noted on the permit. Any portion of the work which does not comply with the approved plan must be corrected by the applicant. No work may proceed on any subsequent phase until the required corrections have been made.

Section 405. Performance Guarantee.

The Township may, prior to issuing a Storm Water Management Permit, require a Performance Guarantee for storm water detention and/or retention basin, erosion control facility, and other drainage facilities which may adversely affect adjacent properties, streets or other public improvements.

Where required, the developer shall file with the Board of Supervisors, financial security in an amount

sufficient to cover the costs of the storm water management facilities plus a 10 percent contingency. The administration of the financial security shall comply with the financial security provisions of the Monaghan Township Subdivision and Land Development Ordinance.

Where the proposed Earth Disturbance Activity is proposed as part of a Land Development Plan, the financial security provisions of the Monaghan Township Subdivision and Land Development Ordinance, latest edition, shall apply to the Earth Disturbance activity. The posting of duplicate security is not required.

Section 406. Liability.

Neither issuance of the Permit nor compliance with the provisions hereto or any conditions imposed by the Township shall relieve any person from any responsibility for damage otherwise imposed by law, nor impose any liability upon the Township or its officers, appointed professionals, or employees for damages to persons or property.

Section 407 Maintenance Guarantee.

The Township may, prior to issuing a storm water management permit, require the applicant to submit a maintenance guarantee for the structural integrity as well as function of any storm water management facility for a term not to exceed eighteen (18) months from the date of acceptance of dedication by the Township Board of Supervisors. Said guarantee shall not exceed fifteen (15) percent of the actual cost of installation of said improvements and be of the same type of financial security as required in this Part.

Where the proposed Earth Disturbance Activity is proposed as part of a Land Development Plan, the financial security provisions of the Monaghan Township Subdivision and Land Development Ordinance, latest edition, shall apply to the Earth Disturbance activity. The posting of duplicate security is not required.

Section 408. Modification of Plans

A modification to a submitted SWM Site Plan that involves a change in SWM BMPs or techniques, or that involves the relocation or redesign of SWM BMPs, or that is necessary because soil or other conditions are not as stated on the SWM Site Plan as determined by Monaghan Township, shall require a resubmission of the modified SWM Site Plan in accordance with this Article.

Section 409. Resubmission of Disapproved Storm Water Management Site Plans

A disapproved SWM Site Plan may be resubmitted, with the revisions addressing Monaghan Township's concerns, to Monaghan Township in accordance with this Article. The applicable review fee must accompany a resubmission of a disapproved SWM Site Plan.

Section 410. Authorization to Construct and Term of Validity

All Storm Water Management Permits shall expire twelve (12) months from the date of issuance unless an extension of time is approved. An extension of an unexpired Storm Water Management Permit shall be issued by the Township following the submission of a written request if, in the opinion of the Township, the following characteristics are present: (1) the subject property or affected surrounding area has not been altered in a manner which requires alteration to the Storm Water Management Plan, and (2)

in the case where substantial improvements have not been completed, any new standard would not alter the application. The refusal of an extension of time shall cite the reasons for such refusal. A Storm Water Management Permit shall not expire while a request for an extension is pending, however any work or activity performed while such request is pending shall be done or performed at the risk of the owner and persons engaged in such activity.

Monaghan Township's approval of an SWM Site Plan authorizes the Regulated Activities contained in the SWM Site Plan for a maximum term of validity following the date of approval. Terms of validity shall commence on the date Monaghan Township signs the approval for an SWM Site Plan. If an approved SWM Site Plan is not completed according to Section 410 within the term of validity, then Monaghan Township may consider the SWM Site Plan disapproved and may revoke any and all permits. SWM Site Plans that are considered disapproved by Monaghan Township shall be resubmitted in accordance with Section 401 of this Ordinance.

Section 411. As-Built Plans, Completion Certificate and Final Inspection

- A. The Developer shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM Site Plan. The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to Monaghan Township.
- B. The as-built submission shall include a certification of completion signed by a Qualified Professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications. If any licensed Qualified Professionals contributed to the construction plans, then a licensed Qualified Professional must sign the completion certificate.
- C. After receipt of the completion certification by Monaghan Township, Monaghan Township may conduct a final inspection.

ARTICLE V - OPERATION AND MAINTENANCE

Section 501. Responsibilities of Developers and Landowners

- A. Monaghan Township shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan. Monaghan Township may require a dedication of such facilities as part of the requirements for approval of the SWM Site Plan. Such a requirement is not an indication that Monaghan Township will accept the facilities. Monaghan Township reserves the right to accept or reject the ownership and operating responsibility for any portion of the stormwater management controls.
- B. Facilities, areas, or structures used as Stormwater Management BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or conservation easements that run with the land.
- C. The Operation and Maintenance Plan shall be recorded as a restrictive deed covenant that runs with the land.
- D. Monaghan Township may take enforcement actions against an owner for any failure to satisfy the provisions of this Article.

Section 502. Operation and Maintenance Agreements

The owner is responsible for Operation and Maintenance of the SWM BMPs. If the owner fails to adhere to the Operation and Maintenance Agreement, Monaghan Township may perform the services required and charge the owner appropriate fees. Non-payment of fees may result in a lien against the property.

ARTICLE VI - FEES AND EXPENSES

Section 601. General

Monaghan Township may include all costs incurred in the review fee charged to an applicant.

The review fee may include but not be limited to costs for the following:

- A. Administrative/clerical processing.
- B. Review of the SWM Site Plan by Qualified Professionals.
- C. Attendance at meetings.
- D. Inspections.

ARTICLE VII - PROHIBITIONS

Section 701. Prohibited Discharges and Connections

- 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 waters of this Commonwealth is prohibited.
- B. No person shall allow, or cause to allow, discharges into surface waters of this Commonwealth which are not composed entirely of stormwater, except (1) as provided in subsection C below, and (2) discharges allowed under a state or federal permit.
- C. The following discharges are authorized unless they are determined to be significant contributors to pollution to the waters of this Commonwealth:

- Discharges from fire fighting activities	- Flows from riparian habitats and wetlands
- Potable water sources including water line flushing	- Uncontaminated water from foundations or from footing drains
- Irrigation drainage	- Lawn watering
- Air conditioning condensate	- Dechlorinated swimming pool discharges
- Springs	- Uncontaminated groundwater
- Water from crawl space pumps	- Water from individual residential car washing
- Pavement wash waters 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	- Routine external building wash down (which does not use detergents or other compounds)

- D. In the event that Monaghan Township or DEP determines that any of the discharges identified in Subsection C, significantly contribute to pollution of the waters of this Commonwealth, Monaghan Township or DEP will notify the responsible person(s) to cease the discharge.

Section 702. Roof Drains

Roof drains and sump pumps shall discharge to infiltration or vegetative BMPs and to the maximum extent practicable satisfy the criteria for Disconnected Impervious Areas.

Section 703. Alteration of SWM BMPs

No person shall modify, remove, fill, landscape, or alter any SWM BMPs, facilities, areas, or structures, without the written approval of Monaghan Township. Normal maintenance of facilities is permitted.

ARTICLE VIII - ENFORCEMENT AND PENALTIES

Section 801. Right-of-Entry

Upon presentation of proper credentials, Monaghan Township may enter at reasonable times upon any property within Monaghan Township to inspect the condition of the stormwater structures and facilities in regard to any aspect regulated by this Ordinance. Acceptance of a permit shall constitute irrevocable consent to the Township, its officials, employees, Engineer, consultants and contractors, to enter the premises to perform any act necessary to insure compliance with this Chapter, including, but not limited to, inspections, completion of required work, remediation of work, maintenance, etc. Nothing herein shall be construed to place a duty, obligation or requirement on the Township to do or perform any of the foregoing.

Section 802. Inspection

SWM BMPs should be inspected by the landowner, or the owner's designee, according to the following list of minimum frequencies:

1. Annually for the first 5 years.
2. Once every 3 years thereafter.
3. During or immediately after the cessation of a 10-year or greater storm.

Section 803. Enforcement

- A. It shall be unlawful for a person to undertake any Regulated Activity except as provided in an approved SWM Site Plan, unless specifically exempted in Section 302.
- B. It shall be unlawful to violate Section 703 of this Ordinance.
- C. Inspections regarding compliance with the SWM Site Plan are a responsibility of Monaghan Township.

Section 804. Suspension and Revocation

Any person, partnership or corporation, who being the owner of land on which a Land Disturbance Activity, as defined in this Ordinance, has occurred or is engaged, or any person, partnership or corporation, who has or is engaged in performing, causing or conducting a Land Disturbance Activity, shall comply with the provisions of this Ordinance and the Storm Water Management Permit. Any Land Disturbance conducted in violation of this Ordinance or the Storm Water Management Permit is hereby declared a public nuisance.

In the event of a violation, and in addition to all other lawful remedies, the Township may initiate the following actions:

- A. Suspension of a Storm Water Management Permit. Any permit issued under this Part may be suspended by the Township based upon:

- (1) The noncompliance with or failure to implement any provision of the Storm Water Management Plan, or
- (2) A violation of any provision of this Part relating to the project, or
- (3) The creation of any condition or the commission of any act during construction which constitutes or creates a hazard or nuisance or which endangers the life or property of others.
- (4) Proceeding with Work. Under the suspension of a permit, only such work as the Township so authorized may proceed. This work shall be limited to that which is necessary to correct the violation. A suspended permit shall be reinstated by the Township when:
 - (i) The Township has inspected and approved the corrections to the storm water management facilities or the elimination of the hazard or nuisance, and
 - (ii) The Township is satisfied that the violation of the Part has been corrected. A permit will not expire while under suspension or noncompliance exists with the permit.

B. Revoke a Storm Water Management Permit. Based upon a report from the Township Engineer that the existing site condition or further construction is likely to endanger property or create hazardous conditions, the Township may:

- (1) Revoke a permit.
- (2) Require protective measures to be taken and assign a reasonable time period for the necessary action.
- (3) Authorize protective measures to be done and lien all cost of the work against the property on which work is required.

A permit which has been revoked cannot be reinstated. The applicant may apply for a new permit in accordance with the processing procedures in Article 4.

C. Notification of Suspension or Revocation of a Storm Water Management Permit. In the event of a suspension or revocation of a Storm Water Management Permit, the Township shall provide written notification of the violation to the landowner and/or applicant and to any person who has or is engaged in performing, causing or conducting a Land Disturbance Activity at their last known addresses. Such notification shall:

- (1) Cite the specific violation, describe the requirements which have not been met, and cite the provisions of the Part relied upon.
- (2) Identify the specific protective measures to be taken.
- (3) Assign a reasonable time period necessary for action or in the case of revocation, identify if the Township has authorized protective measures to be performed at cost to the landowner.

- (4) Identify the right to request a hearing before the Township Board of Supervisors if aggrieved by the suspension or revocation.

- E. Civil Remedies. Suits to restrain, prevent, or abate a violation of this Part may be instituted in equity or at law by the Township. Such proceedings in equity or law may be initiated before any court of competent jurisdiction. In cases of emergency where, in the opinion of the court, the circumstances of the case require immediate abatement of the unlawful conduct, the court may, in its decree, fix a reasonable time during which the person responsible for the unlawful conduct shall correct or abate the same. The expense of such proceedings shall be recoverable from the violator in such manner as may now or hereafter be provided by law.
- E. A suspended approval may be reinstated by Monaghan Township when:
1. Monaghan Township has inspected and approved the corrections to the violations that caused the suspension.
 2. Monaghan Township is satisfied that the violation has been corrected.
- F. If a violation causes no immediate danger to life, public health, or property, at its sole discretion, Monaghan Township may provide a limited time period for the owner to correct the violation. In these cases, Monaghan Township will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the allowed time period, Monaghan Township may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

Section 805. Penalties

- A. Anyone violating the provisions of this Ordinance shall be guilty of a summary offense, and upon conviction shall be subject to a fine of not more than \$1,000.00 for each violation, recoverable with costs. Each day that the violation continues shall be a separate offense and penalties shall be cumulative. In default of payment of the fine, such person shall be liable to imprisonment for not more than thirty (30) days. After receipt of the written notice, each day's violation of any provision of this Chapter shall constitute a separate violation.
- B. In addition, Monaghan Township, may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

Section 806. Appeals

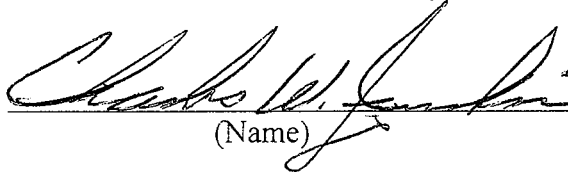
- A. Any person aggrieved by any action of Monaghan Township or its designee, relevant to the provisions of this Ordinance, may appeal to Monaghan Township within thirty (30) days of that action.
- B. Any person aggrieved by any decision of Monaghan Township, relevant to the provisions of this Ordinance, may appeal to the York County Court of Common Pleas within thirty (30) days of Monaghan Township's decision.

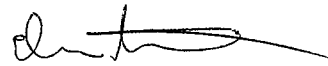
ARTICLE IX - REFERENCES

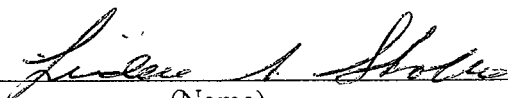
1. Pennsylvania Department of Environmental Protection (DEP). No. 363-0300-002 (2006), as amended and updated. *Pennsylvania Stormwater Best Management Practices Manual*. Harrisburg, PA.
2. The Pennsylvania Department of Environmental Protection (DEP). 363-2134-008 (2000), as amended and updated. *Erosion and Sediment Pollution Control Program Manual*. Harrisburg, PA.
3. United States Department of Agriculture (USDA), National Resources Conservation Service (NRCS). *National Engineering Handbook*. Part 630: Hydrology, 1969-2001. Originally published as the *National Engineering Handbook*, Section 4: Hydrology. Available online at: <http://www.wcc.nrcs.usda.gov/hydro/hydro-techref-neh-630.html>.
4. United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 1986. *Technical Release 55: Urban Hydrology for Small Watersheds*, 2nd Edition. Washington, D.C.
5. US Department of Commerce (USDC), National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS), Hydrometeorological Design Studies Center. 2004-2006. *Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2*, Silver Spring, Maryland, 20910. Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.

ENACTED and ORDAINED at a regular meeting of the Monaghan Township Board of Supervisors
on this 12th day of October , 2009.

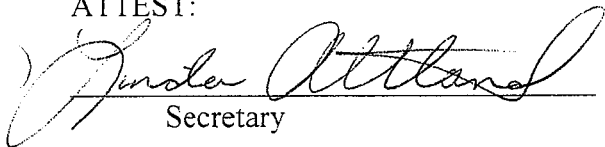
This Ordinance shall take effect immediately.

 CHAIRMAN
(Name) (Title)

 VICE-CHAIRMAN
(Name) (Title)

 SUPERVISOR
(Name) (Title)

ATTEST:

 Secretary

APPENDIX A

OPERATION AND MAINTENANCE AGREEMENT STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (SWM BMPs)

THIS AGREEMENT, made and entered into this _____ day of _____, 20____, by and between _____, (hereinafter the "Landowner"), and _____, _____ County, Pennsylvania, (hereinafter "Monaghan Township");

WITNESSETH

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

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

WHEREAS, the SWM BMP Operation and Maintenance Plan approved by Monaghan Township (hereinafter referred to as the "Plan") for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by Monaghan Township, provides for management of stormwater within the confines of the Property through the use of BMPs; and

WHEREAS, Monaghan Township, and the Landowner, his successors and assigns, agree that the health, safety, and welfare of the residents of Monaghan Township and the protection and maintenance of water quality require that on-site SWM BMPs be constructed and maintained on the Property; and

WHEREAS, Monaghan Township requires, through the implementation of the SWM Site Plan, that SWM BMPs as required by said Plan and the Municipal Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, successors and assigns.

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 Landowner shall construct the BMPs in accordance with the plans and specifications identified in the SWM Site Plan.
2. The Landowner shall operate and maintain the BMPs as shown on the Plan in good working order in accordance with the specific maintenance requirements noted on the approved SWM Site Plan.
3. The Landowner hereby grants permission to Monaghan Township, its authorized agents and employees, to enter upon the property, at reasonable times and upon presentation of proper credentials, to inspect the BMPs whenever necessary. Whenever possible, Monaghan Township shall notify the Landowner prior to entering the property.
4. In the event the Landowner fails to operate and maintain the BMPs per paragraph 2, Monaghan Township or its representatives may enter upon the Property and take whatever action is deemed necessary to maintain said BMP(s). It is expressly understood and agreed that Monaghan

Township 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 Monaghan Township.

5. In the event Monaghan Township, 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 Monaghan Township for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from Monaghan Township.
6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMPs by the Landowner; provided, however, that this 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 Monaghan Township 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 Monaghan Township.
8. Monaghan Township shall inspect the BMPs at a minimum of once every three years to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorder of Deeds of _____ 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 Monaghan Township:

For the Landowner:

ATTEST:

_____ (City, Township, Township)

County of _____, Pennsylvania

I, _____, a Notary Public in and for the County and State
aforesaid, whose commission expires on the _____ day of _____, 20____, do
hereby certify that _____ whose name(s) is/are signed to the
foregoing Agreement bearing date of the _____ day of _____, 20____, has
acknowledged the same before me in my said County and State.

GIVEN UNDER MY HAND THIS _____ day of _____, 20____.

NOTARY PUBLIC

(SEAL)

APPENDIX B

DISCONNECTED IMPERVIOUS AREA (DIA)

B.1. Rooftop Disconnection

When rooftop downspouts are directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the rooftop may qualify as completely or partially Disconnected Impervious Area (DIA) and a portion of the impervious rooftop area may be excluded from the calculation of total impervious area.

A rooftop is considered to be completely or partially disconnected if it meets the requirements listed below:

- The contributing area of rooftop to each disconnected discharge is 500 square feet or less, and
- The soil, in proximity of the roof water discharge area, is not designated as hydrologic soil group "D" or equivalent, and
- The overland flow path from roof water discharge area has a positive slope of 5% or less.

For designs that meet these requirements, the portion of the roof that may be considered disconnected depends on the length of the overland path as designated in Table B.1.

Table B.1: Partial Rooftop Disconnection	
Length of Pervious Flow Path *	Roof Area Treated as Disconnected
(ft)	(% of contributing area)
0 – 14	0
15 – 29	20
30 – 44	40
45 – 59	60
60 – 74	80
75 or more	100
* Flow path cannot include impervious surfaces and must be at least 15 feet from any impervious surfaces.	

B.2. Pavement Disconnection

When pavement runoff is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the contributing pavement area may qualify as a DIA that may be excluded from the calculation of total impervious area. This applies generally only to small or narrow pavement structures such as driveways and narrow pathways through otherwise pervious areas (e.g. a walkway or bike path through a park).

Pavement is disconnected if the pavement, or area adjacent to the pavement, meets the requirements below:

- The contributing flow path over impervious area is not more than 75 feet, and
- The length of overland flow is greater than or equal to the contributing length, and
- The soil is not designated as hydrologic soil group "D" or equivalent, and

- The slope of the contributing impervious area is 5% or less, and
- The slope of the overland flow path is 5% or less.

If the discharge is concentrated at one or more discrete points, no more than 1,000 square feet may discharge to any one point. In addition, a gravel strip or other spreading device is required for concentrated discharges. For non-concentrated discharges along the edge of the pavement, this requirement is waived; however, there must be a provision for the establishment of vegetation along the pavement edge and temporary stabilization of the area until vegetation becomes stabilized.

REFERENCE

Philadelphia Water Department. 2006. *Stormwater Management Guidance Manual*. Section 4.2.2: ***Integrated Site Design***. Philadelphia, PA.

APPENDIX C
APPLICATION FOR A STORM WATER MANAGEMENT PERMIT
MAJOR LAND DISTURBANCE

MONAGHAN TOWNSHIP
York County, Pennsylvania

Application is hereby made to Monaghan Township for the issuance of a Storm Water Management Permit pursuant to the specifications herewith submitted.

1. Name of Property Owner(s):

Address:

Telephone No.:

2. Name of Applicant (if other than owner):

Address:

Telephone No.:

3. Project Location:

4. Type of Earth Disturbance Activity:

A. New impervious or semi-impervious surface _____ (sq. ft./ac.)

B. Diversion or piping of natural or man-made watercourse _____ (linear ft.)

C. Installation of the following:

Culvert _____	Retention Basin _____
Detention Basin _____	Sediment Basin _____

D. Removal of ground cover, grading, filling, or excavation _____ (sq. ft./ac.)

5. If the property is the subject of a subdivision or land development, provide plan book record number:

6. Storm Water Management Plan Prepared By:

Address:

Telephone No.:

Fax No.:

The undersigned hereby represents that, to the best of their knowledge and belief, all information listed above is true, correct, and complete. **By signing this application, the undersigned irrevocably grants permission to the Township, its officials, employees, Engineer, consultants and contractors, to enter the premises to perform any act necessary to insure compliance with this Ordinance, including, but not limited to, inspections, completion of required work, remediation of work, maintenance, etc.**

Date:

Signature of Applicant

For Township Use Only

File No.:

Date of Receipt/Filing:

APPENDIX D

STORM WATER MANAGEMENT PLAN CERTIFICATE

I hereby certify that, to the best of my knowledge and information, the storm water management facilities shown and described hereon are designed in conformance with the Township of Monaghan Storm Water Management Ordinance.

Date

Signature and Seal of the Registered
Professional Responsible for the Preparation of
the Plan

APPENDIX E

**STORM WATER MANAGEMENT PERMIT
LAND DISTURBANCE ACTIVITY**

**Township of Monaghan
York County, Pennsylvania**

PERMIT NO. _____

The property of _____
located at _____
has received approval of the storm water management plans dated _____, last revised
_____, in accordance with the Township of Monaghan Storm Water Management
Part.

Approved By: _____

Date: _____

Expiration Date: _____

SCHEDULE OF INSPECTIONS

Approved

Date

During construction of the following specific storm water management
facilities:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

_____ Upon installation of all permanent storm water management facilities.

_____ Final grading, vegetative control measures, or other site restoration work.

