Stormwater Ordinance

No. 427

ENACTED and **ORDAINED** at a regular meeting of the

North Fayette Township

on this 10th day of March 2015.

This Ordinance shall take effect immediately.

James Morosetti
Chairman Board of Supervisors

3-10-15
Date

ATTEST:

Robert T. Grimm
Secretary

TOWNSHIP OF NORTH FAYETTE
STORMWATER MANAGEMENT ORDINANCE

CHAPTER 19 OF THE
TOWNSHIP CODE OF ORDINANCES, ORDINANCE NO. 418

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Part 1
General Provisions

§19-101. Short Title.

This Chapter shall be known and may be cited as the "Stormwater Management Ordinance" of the Township of North Fayette.

§19-102. Statement of Findings.

The Board of Supervisors of the Township of North Fayette finds that:

A. Inadequate management of accelerated runoff of stormwater resulting from development and redevelopment increases flows and velocities which causes erosion and sedimentation, overtaxes the carrying capacity of streams, channels and storm sewers, increases the cost of public facilities to carry and control stormwater, reduces groundwater recharge, and increases nonpoint source pollution of water resources.

B. A comprehensive program of stormwater management, including reasonable regulation of development, redevelopment, and other 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, which also protects and maintains surface water quality.

D. Federal and state regulations require that the Township implement a program of stormwater controls and obtain a permit for stormwater discharges from its separate storm sewer system under the National Pollutant Discharge Elimination System (NPDES)

§19-103. Purpose.

The purpose of this Chapter is to:

A. Promote the general health, welfare and safety of the community.

B. Regulate the modification of the natural terrain and alteration of existing drainage from land developments in order to control erosion and sedimentation of soils, the speed and flow of water runoff, and preserve stream channels.

C. Provide design, construction and maintenance criteria for permanent onsite stormwater management facilities necessary to control stormwater, erosion and sedimentation.

§19-104. Authority.

1. Act 247 of July 31, 1968, as amended, known as the "Pennsylvania Municipalities Planning Code," 53 P.S. §10101 *et seq.*, authorizes the governing body of each municipality to regulate subdivision and land developments.

2. The Storm Water Management Act of October 4, 1978, P.L. 864, No. 167, 32 P.S. §680.1 et seq., provides for the regulation of land development and stormwater and confers powers of enforcement to the Township.

3. This Chapter is intentionally enacted as an independent ordinance rather than included in the Township Subdivision and Land Development Ordinance [Chapter 22]. The authority to enact this Chapter derives from both specific and general authority within North Fayette Township's Code of Ordinances and legislative grants of Authority to municipalities in general and second class townships in particular.

§19-105. Validity.

Should the courts declare any portion of this Chapter to be invalid, such declaration shall not affect the validity of the ordinance as a whole or of any part thereof, other than that portion declared to be invalid.

§19-106. Applicability.

It shall be unlawful for any person, partnership, business or corporation to undertake any of the following activities without approval of a final stormwater §19-105 Township of North Fayette §19-106 management plan in accordance with the provisions of this Chapter:

A. Earth disturbance activity, as defined herein.

B. Diversion, impending, re-channeling, straightening, or piping of any natural or man-made water channel. (Streams, creeks, rivers, etc., whether they be flowing on a permanent or intermittent basis).

C. Installation of a stormwater or sewer, pond, or appurtenances thereto.

D. Placement of fill, structures or pipes in a floodplain as designated on the Official Floodplain Map of North Fayette Township.

E. Subdivision or land development as defined herein.

G. Commercial timbering activity or any deforestation (this does not include the removal of isolated, diseased trees or trees whose location and/or health create a public danger).

H. Mining operations, including both underground and open cut strip mining.

I. Changes to land cover, or changes to slope of land, or changes to drainage areas.

§19-107. Repealer.

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

§19-108. 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.

§19-109. 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.

§19-110. Exemptions and Prohibitions.

1. Prohibitions Against Nonstormwater Discharges.

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

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

(1) Discharge from firefighting activities.
(2) Potable water sources including dechlorinated water line and fire hydrant flushing.
(3) Irrigation drainage.
(4) Routine external building washdown (which does not use detergents or other compounds).
(5) Air conditioning condensate.
(6) Water from individual residential car washing.
(7) Springs.
(8) Water from crawl space pumps.
(9) Uncontaminated water from foundations or footing drains.
(10) Flows from riparian habitats and wetlands.
(11) Lawn watering.

(12) Pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used.
(13) Dechlorinated swimming pool discharges.
(14) Uncontaminated groundwater.

C. In the event that the Township determines that any of the discharges identified in paragraph .B significantly contribute to pollution of waters of the Commonwealth, or is so notified by PaDEP, the Township will notify the responsible person to cease the discharge.

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

E. Nothing in this Section shall affect a discharger's responsibilities under state law.

2. *Prohibited Connections*. The following connections are prohibited, except as provided in paragraph .B below:

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

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

3. The following activities are specifically exempt from this Chapter:

A. Use of land for gardening primarily for home consumption.

B. Use of land for construction of landscaping improvements provided such improvements do not significantly alter the runoff characteristics of the land.

C. Agricultural use of lands when operated in accordance with a farm conservation plan approved by the Allegheny County Soil Conservation District or when it is determined by the County Conservation District that such use will not cause excessive erosion and sedimentation.

§19-111. Compliance with Other Ordinances.

1. Compliance with the requirements set forth in other applicable ordinances with respect to the submission and approval of preliminary and final subdivision and land development plans, grading plans, building permits, inspections, and compliance with applicable State statutes and regulations shall be a prerequisite to the commencement of any work regulated by this Chapter.

2. In conjunction with meeting the requirements of this Ordinance, the Applicant shall refer to and meet all conditions and requirements set forth in the Township of North Fayette Municipal Separate Storm Sewer System (MS4) Prohibited Discharge Ordinance.

3. In conjunction with meeting the requirements of this Ordinance, the Applicant shall refer to and meet all conditions and requirements set forth in the Township of North Fayette Total Maximum Daily Load (TMDL) Plan as adopted and revised.

§19-112. Abrogation and Greater Restrictions.

This Chapter supersedes any provisions of the North Fayette Township Code of Ordinances currently in effect with respect to stormwater management. However, all other ordinances and regulations shall remain in full force and effect to the extent that their provisions are more restrictive.

§19-113. Township Liability.

For regulatory purposes, the degree of stormwater management sought by the provisions of this Chapter is considered reasonable. This Chapter shall not create liability on the part of North Fayette Township, any appointed or elected official of North Fayette Township, the Allegheny County Conservation District or any officer, engineer, or employee thereof for any erosion, sedimentation or flood damages that result from adherence to this Chapter or any administrative decisions lawfully made thereunder. It is not the intention of the Township to guarantee the elimination of harm resulting from stream flow, floods, rain, storms, water runoff or erosion resulting therefrom. It is the intention of the Township to create reasonable stormwater management regulations which balance several competing interests in an appropriate fashion with the emphasis on public safety.

Part 2

Definitions

§19-201. Definitions.

For the purposes of this Chapter, these terms shall be defined 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.

ACCD- the Allegheny County Conservation District

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

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.

Allegheny County Health Department – ACHD

Applicant - A landowner or developer, as hereinafter defined, who has filed an application to the Township for approval to engage in any regulated activity at a project site in the Township, including his heirs, successors and assigns.

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 "nonstructural." In this Ordinance, nonstructural 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 stream which conveys water; a ditch or open channel excavated to convey water.

Commission – The Planning Commission of North Fayette Township.

Conduit – any watercourse intended for the conveyance of water, whether open or closed.

Conservation District - A conservation district, as defined in Section 3(c) of the Conservation District Law (3 P. S. § 851(c)) that has the authority under a delegation agreement executed with DEP to administer and enforce all or a portion of the regulations promulgated under 25 Pa. Code 102. Where used in this Ordinance, the term shall refer to the Allegheny County Conservation District.

County – the County of Allegheny, Pennsylvania

Culvert – a pipe, conduit or similar structure including appurtenant works which carries under or through an embankment or fill.

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 – the holding, slowing, dampening or attenuating of runoff flows entering the natural drainage pattern or storm drainage system by temporarily holding water on a surface area, in a detention basin or within the drayage system itself, or delaying the movement of water into the natural or man-made drainage system.

Detention Volume - The volume of runoff that is captured and released at a controlled rate into a stormwater management facility in the Township, whether owned by the Township, Allegheny County or the Commonwealth of Pennsylvania.

Detention Basin – a basin designed to retard stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate.

Detention Storage – the temporary detaining or storage of stormwater in reservoirs, on rooftops, in streets, parking lots, or other areas under predetermined and controlled conditions, with the rate of drainage therefrom regulated by appropriately installed devices.

DEP - The Pennsylvania Department of Environmental Protection.

Developer – the person, persons, corporation, partnership, association, or other entity of any responsible person therein or agent therefor that undertakes the activities regulated by this chapter. The term "developer" is intended to include, but not necessarily be limited to the terms "subdivide," "owner," or "builder," even though the individuals involved in successive stages of a project may vary.

Development – any activity, construction, alteration, change in land use or similar action that affects stormwater runoff characteristics.

Development Site (Site) - See Project Site.

Discharge – rate of flow, specifically fluid flow. A volume of fluid flowing from a conduit or channel or being released from detention storage per unit of time. Commonly expressed as a cubic feet per second (CFS), million gallons per day (MGD), gallons per minute (GPM, or cubic meters per second (CMS).

Disturbed Area - A land area where an earth disturbance activity is occurring or has occurred.

Drainage – interception and removal of excess surface water or groundwater form land by artificial or natural means.

Drainage Area – the contributing area to a single drainage basin, expressed in acres, square miles or other units of area; also called a catchment area, watershed or river basin; the area served by a drainage system or by a watercourse receiving storm and surface water.

Drainage Basin – the area from which water is carried off by a drainage system; a watershed or catchment area.

Dry bottom stormwater storage area (dry bottom basin) – a facility that is designed to be normally dry and contains water only when excess stormwater runoff occurs.

Earth Dam – a dam constructed of compacted soil materials.

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

Effluent – the discharge or outflow of water from ground or subsurface storage.

Embankment (fill) – a bank of earth, rock or other material above the natural ground surface.

Engineer (Township Engineer) – an experiences, licensed engineer or engineering firm duly appointed as the engineer for North Fayette Township.

Erodible – susceptible to erosion.

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

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

Excavation (cut) – any act by which soil or rock is cut into, dug, quarried, uncovered, removed, displaced, or relocated and shall include the conditions resulting therefrom.

Existing Condition - The dominant land cover during the 5-year period immediately preceding a proposed regulated activity.

FEMA - Federal Emergency Management Agency.

Flood hazard area (zone) – that portion of a floodplain which is subject to inundation under intermediate regional flood (100-year frequency flood) conditions. Such a flood has a one percent annual chance of occurring each year.

Floodplain - Any land area susceptible to inundation by water from any natural source or delineated by applicable current FEMA maps and studies as being a special flood hazard area

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.

Groundwater recharge – replenishment of existing natural underground water supplies.

Hydraulic Characteristics – the features of a watercourse which determine its water conveyance capacity. These include size and configuration of a cross section of the watercourse, alignment of the watercourse, gradient of the watercourse, texture of materials along the watercourse, amount and type of vegetation within the watercourse, and size, configuration and other characteristics of structures within the watercourse.

Hydrograph – a plot of the discharge of stream flow, discharge, or runoff versus time.

Hydrologic Soil Group (HSG) - Soils are classified into four HSGs designated 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.

Impervious Material – material which resists the entrance or passing through of water or other liquids.

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: roofs; additional indoor living spaces, patios, garages, storage sheds and similar structures; and any new streets or sidewalks. Decks, parking areas, and driveway areas are not counted as impervious areas if they do not prevent infiltration.

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 residential or non-residential buildings, whether proposed initially or cumulatively; or a single-non-residential building on a lot or lots, regardless of the number of occupants or tenure; or (b) the division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) any subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

Mining – underground and open cut strip mining activities.

Mulching – the application of plant residue or other suitable materials to the land surface to conserve moisture, hold soil in place, and aid in establishing

plant cover.

Municipality -Neville Township, Allegheny County, Pennsylvania.

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

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

Outfall – "point-source" as described in 40 CFR 122.2 at the point where a storm sewer system discharges to the surface waters of the Commonwealth.

Outlet control structure – a structure designed to control the volume of stormwater runoff that passes through it during a specific length of time.

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

Permeability – the rate at which water will move through a saturated soil.

Pervious Area - Any area not defined as impervious.

Pervious Materials – material which permits the passage or entrance of water or other liquid.

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

Project Site - The specific area of land where any regulated activities in the Township are planned, conducted, or maintained.

Qualified Professional - Any person licensed by the Pennsylvania Department of State for the services they are providing.

Redevelopment – earth disturbance activities on land which has previously been disturbed or redeveloped.

Regulated Activities - Any earth disturbance activities or any activities that involve the alteration, development or redevelopment 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 92, 25 Pa. Code 102, or the Clean Streams Law.

Release rate percentage – the percentage that, when multiplied by the predevelopment peak rate of runoff from a development site, defines the

allowable post-development peak discharge from any development site in that subarea.

Retention facility – a facility which provides for storage of stormwater runoff and controlled release of this runoff during and after a storm.

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

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).

Road Maintenance – earth disturbance activities within the existing Township road cross-section (full width of right-of-way), such as grading and repairing existing unpaved road surfaces, cutting road banks, cleaning or clearing drainage ditches and other similar activities. The Township is exempt from stormwater management for the purpose of road maintenance.

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

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

Sedimentation – the process by which mineral or organic matter is accumulated or deposited by moving wind, water, ice, or gravity.

Sediment basin – a barrier or dam built at a suitable location to retain rock, sand, gravel, silt or other non-liquid material.

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

Slope – degree of deviation of a surface from the horizontal, usually expressed in percent or degrees.

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

Storm sewer – a conduit that carries intercepted surface runoff, street water and other wash waters, or drainage, but excludes domestic sewage and industrial wastes.

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

Storm sewer discharge – flow from a storm sewer that is discharge into a receiving stream.

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 - 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 - Abbreviated as BMPs or SWM BMPs throughout this Ordinance.

Stormwater Management Site Plan - The plan prepared by the developer or his representative indicating how stormwater 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.

Stormwater Runoff – waters resulting from snowmelt or precipitation within a drainage basin, flowing over the surface of the ground, collected in channels and conduits and carried by receiving streams.

Structure – any man-made object having an ascertainable stationary location on or in land or water, whether or not affixed to the land.

Subarea – a portion of the watershed that has similar hydrological characteristics and drains to a common point.

Subdivision - The division or redivision of a lot, tract or parcel of land by any means into two (2) or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of lease, partition by the court for distribution to heirs or devisees, transfer of ownership or building or lot development, provided, however, that the subdivision by lease of land for agricultural purposes into parcels of more than ten (10) acres, not involving any new street or easement of access or any residential dwelling, shall be exempted.

Supervisors – the North Fayette Township Board of Supervisors.

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

Township – the Township of North Fayette, located in Allegheny County, Pennsylvania.

Time of concentration – the time period necessary for surface to reach the outlet of a subarea.

USDA - United States Department of Agriculture.

Watercourse – a permanent stream; intermittent stream, ephemeral stream; river, brook, creek, channel or ditch, having a defined bed and banks with Perennial or intermittent or ephemeral flow, for the conveyance of water whether natural or man-made.

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 this Commonwealth.

Watershed Stormwater Management Plan – the plan for managing stormwater runoff throughout a designated watershed adopted by Allegheny County as required by the Pennsylvania Stormwater Management Act (Act 167), 32 P.S. 680.1 *et seq.*

Wetlands - Areas that are inundated or saturated by surface or groundwater 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.

Part 3
Procedures

§19-301. Stormwater Plan Review Procedures.

1. *Pre-application Phase.*

A. Prior to submitting a preliminary stormwater management plan, applicants are urged to consult with the Township, the Allegheny County Planning Department and the County Conservation District on the requirements for safely managing stormwater runoff from the development site in a manner consistent with this Chapter and applicable watershed stormwater management plans. These agencies may be helpful in providing the data that is necessary for preparing the stormwater management plans.

B. Applicants are encouraged to submit a sketch plan with a narrative description of the proposed stormwater management controls for general guidance and discussion with the Township and other agencies.

C. The pre-application phase is not mandatory, and any review comments provided by the Township or other agencies are advisory only and do not constitute any legally binding action on the part of the Township or any County agency.

2. *Preliminary and Final Stormwater Plan Review.*

A. Preliminary and final stormwater management plans shall be required for all developments listed in §19-106 except as provided for in §§19-110 and 19-401 of this Chapter.

In the case of subdivision and land development activities, as defined herein, the applicant shall be required to submit stormwater management plans with the preliminary and final subdivision or land development plan application in accordance with the submission requirements and procedure specified in the Township Subdivision and Land Development Ordinance [Chapter 22].

B. *Review by Township Engineer and Conservation District.* Preliminary and final stormwater management plans will be reviewed by the Township Engineer and County Conservation District (if required or requested by ACCD or Township). At its discretion, the Township may also engage other specialists in hydrology and hydraulics to assist with the stormwater plan review.

C. *Preliminary Plan to County.* A copy of the preliminary stormwater management plan, along with all supporting documentation, will be forwarded to the Allegheny County Planning Department for review and comment.

D. *Review by Department of Transportation.* In cases where the stormwater management and erosion and sedimentation control projects fronts on an existing or proposed State highway, the Township may require that a copy of the plans and pertinent data be submitted to the Pennsylvania Department of Transportation for review.

E. *Township Engineer's Recommendation.* The Township Engineer shall recommend approval or disapproval of the preliminary and final stormwater management plans based on the requirements of the Township ordinances, the standards and criteria of the watershed plan, and good engineering practice. The Engineer shall submit a written report, along with supporting documentation to the Board of Supervisors for consideration as part of the overall stormwater plan review.

F. *Notification of Affected Municipalities.* The Township shall notify municipalities upstream and/or downstream of the development site, which may be affected by the stormwater runoff and proposed management system for the site when both the preliminary and final plan applications are submitted, if the stormwater management report identifies the municipalities upstream or downstream will be affected. Copies of the plans will be made available to the municipalities upon request. Comments received from any affected municipality will be considered by the Township and will be submitted to the Planning Commission and Supervisors.

G. *Modifications.* In the event that any modification from this Chapter is requested by the applicant or is deemed necessary for approval, the requested modification and the reasons for its alleged necessity shall be entered into the records of the Township Board of Supervisors. The Board will consider the modification in accordance with the provisions set forth in the Township Zoning Ordinance [Chapter 27], as amended.

3. *Preliminary and Final Stormwater Plan Approval.*

A. The Supervisors shall approve, approve with modifications or disapprove the plan and shall notify the applicant in writing following the decision.

B. When the application is not approved in terms as filed, the decision shall specify the defects found in the application and describe the requirements which have not been met and shall, in each case, cite the provisions of this Chapter.

C. Provide a list of adjacent property owners within 200 feet of the subject property and documentation that the adjacent property owners have been notified of the proposed project.

§19-302. Status of Stormwater Plan after Final Plan Approval.

Upon final stormwater plan approval and all other approvals required under Township ordinances, the applicant may commence to install or implement the approved stormwater management controls. If site development does not begin within 2 years of the date of final approval of the stormwater management plan, then before doing so, the applicant shall resubmit the stormwater management plan to verify that no condition has changed within the watershed that would affect the feasibility or effectiveness of the previously approved stormwater management controls. In addition, if for any reason, development activities are suspended for 2 years or more, then the same requirement for resubmission of the stormwater management plan

shall apply. The applicant shall then be required to conform to any new requirements of this Chapter.

§19-303. Stormwater Plan Modifications.

Requests for modifications in the finally approved stormwater management controls shall be submitted to the Township as follows:

A. If the request is initiated before construction begins, the stormwater plan must be resubmitted and reviewed according to the procedures in §19-301 of this Chapter.

B. If the request is initiated after construction is underway, the Township shall have the authority to approve or disapprove the modification upon the review of the Township Engineer, based on field observation provided: (1) the requested changes in stormwater controls do not result in any modifications to other approved land use/development requirements (e. g., required building setbacks, yards, etc.), and (2) the performance standards in Part 5 are met. Notification of the Township's decision shall be sent to the Township Supervisors and property owner. The Supervisors may issue a stay of stormwater plan modification within 5 days and require the applicant to resubmit the plan modification for full stormwater plan review in accordance with the procedures in §19-301.

§19-304. Dedication of Facilities.

1. When drainage and stormwater control facilities have been completed in accordance with this Chapter and all applicable requirements of the Township Subdivision and Land Development Ordinance [Chapter 22], such improvements shall be deemed private until such time as they have been offered for dedication to the Township and accepted by separate ordinance or resolution, or until they have been condemned for use as a public facility. The Township will not accept dedication of any facilities, or portions thereof, that are still being utilized for, or impacted by, construction activities.

2. Prior to the acceptance of any improvement, as-built plans and surveys must be submitted that clearly illustrate which facilities are to be dedicated to the Township and which will remain as private systems or facilities and the Township shall inspect the entire system to ensure that it has been constructed in accordance with the approved plan and is functioning. In the case of any stormwater control facility, it must be free of sediment and debris. In addition, the developer shall submit as-built routing calculations and plans of all detention facilities proposed for dedication must be provided.

3. All developers of residential subdivisions that propose dedication of roadways must also dedicate the storm sewer systems, stormwater detention facilities, and stormwater BMPs.

4. The developer must pay the required amount to the Township to be deposited into the stormwater maintenance fund based upon the volume of the detention facilities, volume of the raingardens, and an amount to be determined for any other water quality BMPs.

Part 4
Stormwater Plan Requirements

§19-401. Exemptions

1. Agricultural and Silviculture use of lands when operated in accordance with a farm conservation plan approved by the local soil conservation district or when it is determined by the local soil conservation district that such use will not cause excessive erosion and sedimentation.

2. Any development which results (or will result when fully constructed) in the creation of 2,500 or less square feet of impervious surface area, including roofs, patios, driveways, and sidewalks.

§19-402. Small Developments

1. At the time of application, the Township Zoning Officer shall determine if the development qualifies as a "small development" and, therefore, is eligible for a simplified stormwater plan submission. For the purposes of this Chapter, a small development is:

   A. Any development which results (or will result when fully constructed) in the creation of 5,000 or less square feet of impervious surface area, including roofs, patios, driveways, and sidewalks.

   B. The Township Engineer shall review the proposed provisions for stormwater management for small developments. The Township shall determine if the proposed development site is part of a larger parcel or tract for which a stormwater management plan was approved previously and, therefore, subject to any specific stormwater management controls contained in the prior plan.

   C. For a parcel or tract of land held under single ownership, only one application for a small development, as defined above, shall be permitted before requiring a stormwater management plan for the entire parcel. A project cannot be phased to circumvent the stormwater requirements by using the exemption for small developments. When calculating new impervious area for determining whether a development qualifies as a "small development," the cumulative total of all impervious areas constructed within five years of the application date shall be considered.

2. The Small Project Stormwater Management Plan Application included in Appendix 19-F may be used for projects under 5,000 square feet of proposed impervious surface. The Small Project Stormwater Management Plan Application allows documentation of new impervious surface, credits through disconnection of impervious surfaces and tree planting, and sizing of Volume Control BMPs and Rate Control facilities that may be required.

3. Should the applicant choose not to use the Small Project Stormwater Management Plan Application (Appendix 19-F), a plan addressing peak rate and volume

controls must be submitted and shall include a plan which describes narratively and graphically, the type and location of proposed on-site stormwater management techniques or the proposed connection to an existing storm sewer system. The plan should show accurately site boundaries, 5-foot interval contours, location of watershed and/or subarea boundaries on the site (if applicable), and any watercourses, floodplains or existing drainage facilities or structures located on the site. Where the applicant is proposing to connect to an existing storm sewer, the applicant shall submit documentation showing that sufficient capacity exists in the storm sewer from the point of connection to the point of outlet in the natural drainage system. The plan and supporting documentation must be prepared by a registered professional engineer.

§19-403. Stormwater Plan Content.

The stormwater management plan for all developments except for small developments as defined above shall consist of three parts:

A. *Part I–Narrative Report.* The narrative report shall consist of a general statement of the project giving the purpose and engineering assumptions and calculations for control measures and facilities. The following information shall be included:

(1) General description of the project.
(2) General description of accelerated runoff control plan.
(3) General description of erosion and sedimentation control plan.
(4) Expected project time schedule, including anticipated start and completion dates.
(5) Project's stormwater district, location and watershed characteristics.
(6) On-site detention methods.
(7) Hydraulic and hydrologic calculations, methodology and basis of design.
(8) Brief soil description.

B. *Part II–Preliminary Plan.* The preliminary plan shall provide, and be accompanied by, maps or other descriptive material indicating the feasibility of the plan and showing the following:

(1) A key map showing the development site's location within the designated watershed and watershed subsheds (consult watershed stormwater plans for boundaries). On all site drawings, show the boundaries of the watershed(s) and subarea(s) as they are located on the development site and identify watershed names and/or subshed numbers.

(2) Location of the 100-year floodplain on the development site based on the municipal Flood Insurance Study maps or a determination by the applicant's engineer.

(3) An overlay showing soil types and boundaries within the development site.

(4) The street, storm sewers and other storm drains to be built, the basis of their design, and outfall and outlet locations and elevations, receiving stream or channel

and its high water elevation, and the functioning of the drains during high water conditions.

(5) The parts of the proposed parking area pavements, which are planned to be depressed to provide stormwater storage or conveyance. A maximum of 6 inches depth of water may be ponded in a proposed parking area, provided it is documented that such ponding does not affect the health, safety, or welfare of the persons using the property.

(6) Existing streams and watercourses to be maintained, and new channels to be constructed, their locations, cross sections and profiles.

(7) Proposed culverts and bridges to be built, their materials, elevations, waterway openings and basis of design.

(8) Existing detention ponds and basins to be maintained, enlarged, or otherwise altered and new ponds or basins to be built and the basis of their design.

(9) The approximate location and percentage of the total land area in the development which will be covered by impervious surfaces after construction is completed.

(10) The slope, type and size of all proposed and existing storm sewers and other waterways.

(11) Existing contours at intervals of 2 feet except in areas with slopes greater than 15 percent, in which case 5-foot contour intervals may be used.

(12) All natural features including bodies of water (natural and artificial), watercourses (permanent and intermittent), swales, wetlands, and other natural drainage courses on the development site or those off-site which will be affected by runoff from the development.

(13) Approximate depth, shape, size and storage of any proposed retention facility.

(14) One or more typical cross sections of all existing and proposed channels or other open drainage facilities, showing the elevation of the existing land and the proposed changes thereto, together with the high water elevations expected from the 100-year storm under the controlled conditions called for by this Chapter, and the relationship of structures, streets, and other utilities.

(15) A site plan showing property lines, dimensions of the site, and location of existing and proposed buildings, structures, sewers, waterlines, easements and rights-of-way.

(16) Certification and seal of the registered professional engineer responsible for the preparation of the plan.

(17) A list of approvals/permits relative to stormwater management that will be required from other governmental agencies and anticipated dates of submission/receipt. Copies of applications may be requested by the Township where they may be helpful for the stormwater plan review.

C. *Part III–Final Plan.* Upon approval of the preliminary plan, the final plan shall be submitted to the Township Zoning Officer. The final plan shall provide all descriptive material and maps previously submitted and required prior to the final plan, in addition to the following items:

(1) All calculations, assumptions and criteria used in the design of the storm sewer system, detention facilities and sediment and erosion control operations. Hydraulic and energy grade lines shall be provided for both the existing and proposed storm sewers to evaluate the storm system.

(2) All plans and profiles of proposed storm sewers and open channels including horizontal and vertical controls, elevations, sizes, slopes and materials. All drainage facilities shall be designed to contain the energy gradeline for the peak flow rate for the design storm within the structures and pipes. Swales and channels shall provide at least 1 foot of freeboard above the energy gradeline.

(3) Locations, dimensions and design details required for the construction of all facilities.

(4) For all detention basins, a plot or tabulation of storage volumes with corresponding water surface elevations and of the basin outflow rates for those water surface elevations.

(5) For all detention basins, design hydrographs of inflow and outflow for the peak design flows from the site under natural and developed conditions.

(6) A description of operation for all detention basins.

(7) Contours of the finished project site at intervals of 2 feet except in areas with slopes greater than 15 percent, in which case, 5-foot contour intervals may be used.

(8) The staging of earthmoving activities and a program of operation, including a schedule for the installation of all temporary and permanent stormwater control measures and devices.

(9) All information relative to the design and operation of emergency spillways.

(10) Emergency routing of outfall for stormwater runoff in the event of failure off-site drainage structures.

(11) When major control facilities, such as retention basins, require a PaDEP permit, are planned, soil structures and characteristics shall be investigated. Plans and data prepared by a licensed professional engineer or geologist with experience and

education in soil mechanics shall be submitted. These submissions should consider and offer design solutions for frost heave potential, shrink/swell potential, soil bearing strength, water infiltration, soil settling characteristics, fill and backfilling procedures and soil treatment techniques as required to protect the improvements or structures.

(12) All erosion and sedimentation control measures, temporary as well as permanent, having sufficient detail in order to clearly indicate effectiveness of the plan.

(13) Project specifications relative to stormwater control, erosion and sedimentation.

(14) An operation and maintenance program establishing ownership and maintenance responsibilities for all stormwater management control facilities (identify specific person or entity responsible) and detailing financial requirements and sources of funding shall be submitted with the final plan. Submit any legal agreements or covenants required to implement the maintenance program. A maintenance schedule shall be submitted in accordance with the Township's Standardized Maintenance Schedule.

(15) Documentation that all on-site and off-site easements required to convey runoff flow to an existing public drainage facility or permanent stream have been granted and recorded to the operating entity.

(16) Provide the information to conform with the requirements noted in the Pennsylvania Municipalities Planning Code, 53 P.S. §10101 *et seq*.

Part 5
Stormwater Management Performance Standards

§19-501. Stormwater Management Districts.

1. For the purposes of stormwater management, the Township is divided into the following stormwater management districts:

A. Montour Run
B. Robinson Run

These stormwater management districts may be further subdivided into subareas which have similar hydrological characteristics and drain to a common point.

2. The location and boundaries of the stormwater management districts and subareas are adopted as part of this ordinance and are shown in Appendix 19-A Release Rates for Montour Run Watershed.

§19-502. General Standards.

The following provisions shall be considered the overriding performance standards against which all proposed stormwater control measures shall be evaluated, and they shall apply in all stormwater management districts in the Township:

A. Any landowner and any person engaged in the alteration or development of land which may affect stormwater runoff characteristics shall implement such measures as are reasonably necessary to prevent injury to health, safety or other property. Such measures shall include such actions as are required:

(1) To assure that the maximum rate of stormwater runoff is no greater after development than prior to development activities.

(2) To manage the quantity, velocity and direction of resulting stormwater runoff in a manner which will not adversely impact the health on, or value of, any affected properties.

(3) The stormwater management plan for the development site must consider all the stormwater runoff flowing over the site.

(4) No discharge of toxic materials into any stormwater management system or natural drainage course is permitted.

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.

B. *Design Storms.*

(1) The 1-, 2-, 5-, 10-, 25-, 50-, and 100-year design storm frequencies shall be used for analyzing stormwater runoff in pre- and post-development conditions as well as for designing runoff control facilities.

(2) The SCS, Type II Rainfall Distribution shall be used for all analyses. The design storms, along with the 24-hour total rainfall for these storm frequencies for the watershed are:

Design Storm	**Rainfall Depth 24 Hour (Inches)**
1 year	1.97
2 year	2.35
5 year	2.88
10 year	3.30
25 year	3.90
50 year	4.40
100 year	4.92

C. The stormwater management plan must consider all of the stormwater runoff flowing over the project site. Runoff calculations shall be made to insure that runoff from the fully developed upstream watershed area (based on the Township Comprehensive Land Use Plan) can be accommodated by the pipes, drainage easements, watercourses, etc., on the site.

D. *Joint Development of Control Systems*. Stormwater control systems may be planned and constructed in coordination with two or more developments provided they are in compliance with the applicable provisions of this Chapter.

E. *Method of Computation.*

(1) All computations used in conjunction with the analysis and design, of stormwater management facilities shall be based on one or more of the following methods:

(a) HEC-HMS–U.S. Army Corps of Engineers Hydrologic Modeling System.

(b) TR-55–Soil Conservation Service Technical Release No. 55.

(c) TR-20–Soil Conservation Service Technical Release No. 20.

(d) Modified rational method.

(e) Penn State runoff model.

(2) These methods for determining peak discharge shall be used (a) to determine pre-development runoff conditions; (b) to analyze the impact of development, and (c) to perform calculations in the design of any detention/retention facilities used in

controlling runoff. These methods of runoff computation developed and used by the Soil Conservation Service and other authorities are hereby adopted by the Township.

(3) The use of the basic rational method in estimating runoff may be employed in the design of the storm sewer system within the development. The storm sewer system shall be interpreted as the conduits, channels, culverts, inlets and appurtenances featured for the conveying of stormwater to, through or from a development site to the point of final discharge or control facility. The Rational Method shall not be used in the analysis of stormwater runoff from the development in its entirety or in conjunction with the design of any retention/detention facilities or other runoff control measures.

E. *Stormwater Drains*. All stormwater roof drains, footer drains, and yard drains shall be connected directly into underground pipe which shall flow into an approved storm drainage system, unless approved by the Township. All pipe from roof and footer drains shall be a minimum 4-inch Schedule 40 ABS, PVC or SDR 35 pipe. Four-inch Schedule 40 ABS or PVC pipe is required for a distance of 5 feet from the foundation of the dwelling. Yard drains shall be sized based on the area contributing to the drain; ABS, PVC, or SDR 35 pipe shall be utilized unless approved by the Township.

F. 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 Title 25 of the Pennsylvania Code 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, No. 363-2134-008 (April 15, 2000), as amended and updated.

G. 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.

H. 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.

I. Notification of adjacent property owners.

J. To the maximum extent practicable, incorporate the techniques for Low Impact Development Practices described in the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual).[1]

K. Impervious areas:

(1) In the case of a development in which the total of the building and paved surfaces on the site exceed ten thousand (10,000) square feet, the developer shall provide as part of the design a stormwater management narrative signed and sealed by an engineer licensed in the Commonwealth of Pennsylvania. The stormwater management narrative shall include an analysis of both Pre- and Post-Developed runoff conditions.

1. For the analysis of redevelopment projects twenty percent (20%) of the existing impervious surface shall be considered meadow in good condition.

2. Post-development runoff rates after development shall not exceed the Pre-developed runoff rates including the reduction in impervious surface required for redevelopment projects.

3. 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.

4. For development taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.

§19-503. Watershed Standards; Montour Run Watershed District.

The stormwater performance standards contained in this section are intended to implement the standards and criteria contained in the Montour Run Watershed Stormwater Management Plan, adopted and approved as required by the Pennsylvania Stormwater Management Act (Act 167), 32 P.S. §680.1 *et seq*. If there is any discrepancy between the provisions of this Chapter and the standards and criteria of the plan, or if the plan is subsequently amended, then the standards and criteria of the current watershed plan shall govern.

A. *Release Rate Percentage.*

(1) *Application.* All activities which result in an increase in the post-development peak rate of stormwater runoff from any outfall on the development site shall be subject to the release rate percentage for the watershed subarea in which the site (or outfall) is located. A listing of the release rate percentage for each subarea in the Montour Run Watershed appears in Appendix 19-A of this Chapter, and the subareas are delineated on the watershed subarea map in the watershed plan.

(2) *Procedure for Use.* The steps that must be followed to utilize the release rate percentage for a particular development site are as follows:

(a) Identify from the watershed subarea map, the specific subarea in which the development site is located and obtain the subarea release rate percentage from Appendix 19-A.

(b) Compute the pre- and post-development run-off hydrographs for each stormwater outfall for the site, using one of the methods listed in §19-502.E of this Chapter, for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year design storms,

applying no on-site detention for stormwater management but including any techniques to minimize impervious surfaces and/or increase the time of concentration for stormwater runoff flowing over the development site. If the post-development peak runoff rate is less than or equal to the predevelopment peak runoff rate, then additional stormwater control shall not be required at the outfall. If any of the post-development peak runoff rates are greater than the pre-development values, then stormwater detention will be required and proceed to clause (c).

(c) Multiply the subshed's release rate percentage by the predevelopment rate of runoff from the development site to determine the maximum allowable release rate from any detention facility for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storm events.

B. *No-Harm Evaluation.*

(1) An applicant may seek to exceed the otherwise applicable subarea release rate percentage by performing a no-harm evaluation which requires an independent engineering analysis to demonstrate that other reasonable options exist to protect areas from harmful storm runoff impacts.

(2) The no-harm evaluation shall be prepared by a registered engineer, who is experienced in hydrology and hydraulics, in accordance with the procedure contained in Appendix 19-B of this Chapter.

(3) The analysis for the no-harm evaluation shall be submitted to the Township Engineer for review and to the Township for approval.

§19-504. Watershed Standards; Robinson Run Watershed District.

1. The stormwater performance standards contained in §19-503 of this Chapter with the exception of the release rate percentages shall be implemented in the Robinson Run Watershed District.

2. Release rate percentages at all points within this district may be assumed to be 100 percent unless shown otherwise in a subsequent Watershed Stormwater Management Plan.

Part 6
Design Criteria for Stormwater Management Controls

§19-601. Design Criteria.

1. *General Design Guidelines.*

A. Developers may select runoff control techniques, or a combination of techniques, which are most suitable to control stormwater runoff from the development site. All stormwater facilities shall be designed to meet or exceed the minimum design standards, specifications and standard details of the Township and shall be subject to the approval of the Township Engineer.

B. In selecting and designing stormwater management systems and controls, applicants may be guided by the following references or their latest releases:

(1) "Urban Hydrology for Small Watersheds," Technical Release No. 55, ASDA, Soil Conservation Service, 1975 (or most recent edition).

(2) "Erosion and Sediment Pollution Control Manual," Pennsylvania Department of Environmental Protection, April 2000.

(3) "Standards and Specifications for Soil Erosion and Sediment Control," Maryland Water Resources Administration, 1983.

(4) "Urban Stormwater Management," Special Report No. 49, American Public Works Administration, 1981.

(5) "Water Resource Protection Measures in Land Development A Handbook," University of Delaware Water Resources Center, April 1974.

(6) "Design and Construction of Sanitary and Storm Sewers," WPCF Manual of Practice No. 9, Water Pollution Control Federation, 1970.

C. *Maintenance of Natural Drainage Ways.* All natural streams, channels, swales, drainage systems and/or areas of surface water concentration shall be maintained in their existing condition unless an alteration is approved by the Township. All encroachment activities shall comply with the requirements of 25 Pa.Code, Chapter 105, "Water Obstructions and Encroachments," of the rules and regulations of the Pennsylvania Department of Environmental Protection.

D. The developer should consider the effect on the proposed stormwater management techniques of any special soils conditions or geological hazards which may exist on the development site. In the event such conditions are identified on the development site, the site, the Township may require in-depth studies by a competent geotechnical engineer.

2. *Criteria for Stormwater Detention/Retention Facilities.*

A. If detention/retention facilities are utilized for the development site, the facility(s) shall be designed such that the post-development peak runoff rates from the developed site are controlled to those rates defined by the subarea release rate percentage or no-harm evaluation for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year design storms.

B. All detention/retention facilities shall be equipped with multi-stage outlet structure to provide discharge controls or the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storm frequencies provisions shall also be made for safely passing the post-development 100-year storm runoff flows without damaging (i.e., impairing the continued function of) the facilities.

C. Where detention facilities will be utilized, multiple-use facilities, such as lakes, ball fields or similar recreational uses, are encouraged wherever feasible.

D. Other considerations which should be incorporated into the design of the detention facilities include:

(1) Inflow and outflow structures shall be designed and installed to prevent erosion, and bottoms of impoundment type structures should be protected from soil erosion.

(2) Control and removal of debris both in the storage structure and in all inlet or outlet devices shall be a design consideration.

(3) Inflow and outflow structures, pumping stations, and other structures shall be protected and designed to minimize safety hazards.

(4) The water depth of a storage pond which is not fenced shall be limited to 2 feet unless approved by the Township Engineer. Otherwise, appropriate landscaped fencing at least 4 feet in height shall be required.

(5) Landscaping shall be provided for the facility which harmonizes with the surrounding area. At no time will the instillation of woody vegetation be permitted on a constructed embankment of a Stormwater Management Facility.

(6) The facility shall be located to facilitate maintenance, considering the frequency and type of equipment that will be required.

(7) The facility shall be equipped with an access road at least 15 feet wide and with a maximum grade of 15 percent.

3. *Criteria for Collection/Conveyance Facilities.*

A. As a general rule, no stormwater may be discharged to unprotected areas such as hillsides without special erosion and/or energy dissipation controls being installed. Stormwater shall either be conveyed to the nearest established stream channel as approved by the Township Engineer, or provided with an approved energy dissipation device. Conveyance shall be by pipe or an erosion protected ditch.

B. The design for culverts, pipes and other stormwater conveyance structures shall be consistent with the design of the other stormwater management facilities.

C. All sites shall be graded to provide drainage away from and around structures to prevent potential flooding damage.

D. Collection/conveyance facilities should not be installed parallel to the top or bottom of major embankments to avoid the possibility of failing or causing the embankments to fail.

E. *Size and Grade.* Storm drains shall be adequate for the anticipated runoff when the area is fully developed. The minimum diameter of storm sewers shall be 15 inches, and the minimum grade shall be 1 percent, unless approved by the Township. Minimum pipe cover shall conform to manufacturer's recommendations. Stormwater conveyance pipes utilized in BMPs shall have a pipe size of 4-inch diameter or larger.

F. *Manholes.* Manholes for pipe sizes of 24 inches or less shall be spaced at a maximum of 400 feet and for larger pipe sizes, the maximum distances between manholes shall be 600 feet. In addition, manholes shall be installed at all points of changes in horizontal alignment and vertical grade. Inlets may be substituted for manholes where practical.

G. *Inlets.* Inlets of the type shown in the Township Construction Standards shall be installed. Inlets at street intersections shall be placed on the tangent and not on the curved portions of the roadway intersection radius.

H. *Castings.* Manholes and inlet castings shall conform to the Pennsylvania Department of Transportation (PennDOT) Form 408 and PennDOT Standards for Roadway Construction. Inlet grates shall be bicycle safe. Frames and grates shall be cast iron or structural steel. Concrete frames shall not be permitted.

I. *Stormwater Roof Drains.* All roof drains shall discharge to an on-lot sump or to a storm sewer system, which is controlled by a detention pond. Outlets from roof drain sumps shall not discharge directly onto fill slopes. Outlets shall not discharge directly to the gutter line of any street. All pipes from roof drains shall be a minimum 4-inch Schedule 40 ABS, PVC or SDR 35 pipe. Four-inch Schedule 40 PVC or ABS pipe is required for a distance of 10 feet from the foundation of the dwelling. No stormwater drainage system shall be permitted to discharge into any sanitary sewer system. No pipes shall be permitted to be constructed through any curbing on any public street.

J. *Unnatural Drainage*. All points of concentrated flow discharge shall outlet directly to a well-defined drainage channel, with a defined bed and bank. Whenever construction stops or concentrates the natural flow of storm drainage in such a way as to affect adjoining properties, approval of the owners shall be obtained in writing. Approval of plans by the Township shall not authorize or sanction drainage affecting adjoining properties.

K. *Watercourses*. Open watercourses shall not be permitted within the right-of-way of streets. The stopping, filling up, confining or other interference with, or changing the course of, drains, ditches, streams and watercourses in the Township shall not be permitted unless approval in writing is obtained from the Township. Documentation that the PaDEP has issued a permit for construction of changes in a watercourse subject to the regulations of the PaDEP.

(1) Open stormwater drainage courses shall be designed for a maximum velocity not to exceed 10 feet per second and a minimum velocity of 5 feet per second. A minimum velocity of 2 feet per second may be authorized by the Township where a greater slope cannot be achieved to permit the standard required minimum velocity. An open stormwater drainage course shall include a lining (riprap, concrete or bituminous) to prevent erosion. The applicant shall obtain approval from the Allegheny County Conservation District (ACCD).

L. *Bridges and Culverts*. All bridges and culverts shall be designed to support expected loads and to carry expected flows and shall be designed to meet current standards of PennDOT. All bridges and culverts shall be:

(1) Stormwater culverts, bridges and similar structures serving public streets, access driveways or other vehicular rights-of-way shall be designed to support HS-20 loading and any other imposed loadings necessary without structurally damaging the drainage system. Stormwater culverts, bridges or other structures which do not serve vehicular traffic shall be designed to support the necessary loading without structurally damaging the pipe or affecting its capacity for drainage. Said design shall be approved by the Township and shall comply with the following requirements:

(a) Conduit size of culverts and other enclosed components of a stormwater drainage system shall be based on computed hydrologic and hydraulic data and computations shall be approved by the Township. The minimum size of any enclosed structure to be maintained by the Township shall be 15-inches in diameter. The minimum size of any enclosed structure to be privately maintained shall be 15 inches in diameter, unless the design calculations, approved by the Township, justify a lesser size. In no case shall larger pipes/culverts be connected to smaller pipes/culverts.

(b) The design of any enclosed drainage course shall provide a minimum cleansing velocity of 3 feet per second. When the design provides for a maximum velocity greater than 10 feet per second, the enclosed components shall be lined or protected to prevent scour.

(c) The design of headwall and endwall structures for enclosed stormwater facilities shall be approved by the Township and shall be in accordance with the Township Construction Standards.

(d) Energy dissipaters shall be required at the outlet side of all enclosed culverts or similar components and shall be designed in accordance with the Township Construction Standards.

(e) The type of materials used for enclosed culverts and similar components shall comply with the Township Construction Standards. No stormwater facility shall be enclosed or covered over until the Township has field reviewed the construction.

M. *Water Quality Inlets*. Storm drainage systems that collect runoff from parking areas and/or loading areas exceeding 10,000 square feet of impervious coverage and discharge to stormwater management systems, including surface and subsurface infiltration systems, shall have a minimum of one water quality inlet per each acre of drainage area. The water quality inlet must provide for the removal of oil, grease and heavy particulates and total suspended solids, hydrocarbons and other floating substances from stormwater runoff.

4. *Runoff Curve Numbers*.

	Hydraulic Soil Group Curve Numbers			
Ground Cover	A	B	C	D
Woodland	30	55	70	77
Meadow	30	58	71	78
Grass	39	61	74	80
Impervious	98	98	98	98
Gravel	89	89	89	89

Wooded sites and developed sites shall assume for the predevelopment condition that the site is wooded in good condition.

5. *Time of Concentration*.

A. Sheet flow lengths shall not exceed 100 feet.
B. Shallow concentrated flow lengths shall not exceed 1,000 feet.

6. *Mannings "n" Values.*

A. Impervious surfaces–"n"=0.011.
B. Agricultural lands–"n"=0.17.
C. Grass, lawn or open space–"n"=0.24.
D. Wooded areas–"n"=0.40.

7. Water quality improvements shall be achieved in conjunction with or as part of infiltration practices. Water quality improvements shall also be provided for drainage areas not otherwise addressed by infiltration practices either at the source of runoff and/or during conveyance away from the source of runoff. Stormwater quality management practices shall be designed to capture and treat stormwater runoff generated by the 1-inch rainfall event. Follow current DEP standards for design of water quality BMPs.

8. The post-development peak discharge rate shall not exceed the predevelopment peak discharge rate multiplied by the subbasin release rate percentage (where determined in the Montour Run watershed) for the 1-year, 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year 24-hour storm event for at least 24 hours.

9. Stormwater shall be infiltrated or discharged within the same drainage area of the stream receiving runoff from the development site prior to development.

10. Structural and non-structural stormwater management practices that make best possible use of infiltration on site shall be considered in all site designs, when appropriate.

11. Construction criteria for stormwater control facilities. Stormwater management facilities shall be constructed in accordance with the following minimum specifications:

A. All workmanship and materials shall conform to the Township Construction Standards. In addition, all workmanship and materials shall conform to the latest edition of PennDOT Form 408 and be supplied by manufacturers or suppliers listed in PennDOT's Bulletin 15.

B. All connections to existing storm sewer pipes shall be made by construction of a suitable junction box (inlet or manhole) to provide access for cleanout. No blind connections shall be permitted.

C. All pond outlet structure pipes shall have suitable gaskets to prevent leakage and piping of water through the pond embankment.

D. All pipe outlets shall discharge onto a stone riprap blanket to prevent erosion of soil. Riprap must be sized considering pipe exit velocities.

E. Controls shall be installed at initial stages of earthmoving and otherwise as outlined in the staging of earthmoving activities section of the erosion and sedimentation control plan.

F. The discharge of stormwater runoff shall be to a well-defined drainage course, which has a defined bed and bank. If stormwater runoff cannot be discharged to a

defined drainage course, documentation of written permission from each downstream property owner shall be provided for all properties between the source of discharge and the defined drainage course.

G. All stormwater detention facilities shall be screened from view of existing roads or streets located within the Township, which is a minimum of 6 feet in height with sufficient access for maintenance vehicles. The screening materials must be approved by the Township. Landscaping of the pond embankment shall not be permitted.

H. Provide a geotechnical report for the construction of all stormwater facilities, including the following: stormwater detention basins and the embankment; drainage swales; and infiltration areas.

Part 7
Erosion and Sedimentation Controls

§19-701. Permits Required.

1. No earthmoving activity, including cuts and fills, excavation, removal of topsoil, trees, or vegetative cover of the land, shall commence until the plans for minimizing soil erosion and sedimentation, both during and after construction, have been approved by the Township Engineer and/or the Allegheny County Conservation District (ACCD).

2. The Pennsylvania Department of Environmental Protection (PaDEP) has regulations that require an erosion and sediment control plan for any earth disturbance activity of 5,000 square feet or more, under 25 Pa.Code §102.4(b).

3. In addition, under 25 Pa.Code, Chapter 92, a PaDEP "NPDES construction activities" permit is required for any earth disturbance 1 acre or more with a point source discharge to surface waters or the Township's storm sewer system, or 5 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 PaDEP regional office or the ACCD must be provided to the Township.

5. A copy of the approved erosion and sediment control plan and any required permits, as required by the PaDEP regulations, shall be available at the project site at all times.

§19-702. Standards and Specifications.

The erosion/sedimentation plan shall be prepared in accordance with the Pennsylvania Erosion and Sedimentation Regulations (25 Pa.Code, Chapter 102) and the standards and specifications of the Allegheny County Conservation District.

§19-703. Erosion/Sedimentation Measures.

Proposed erosion/sedimentation measures shall be submitted with the stormwater management plan as part of the applicant's preliminary and final plans.

§19-704. Details for Erosion/Sedimentation Measures.

The plan should show the type, location, and application of the proposed erosion/sedimentation control measures, and include the calculations and criteria used in designing them.

§19-705. Design Guidelines.

Some of the guides to be followed in designing the erosion/sedimentation measures include:

A. Smallest practicable area of soil should be exposed at any one time during construction, and exposure should be limited to the shortest practicable period of time.

B. Temporary ditches, dikes, vegetation, and/or mulching shall be used to protect critical areas exposed during development.

C. Sediment basins (debris basins, desilting basins, or silt traps) shall be installed and maintained to remove sediment from runoff waters from land undergoing development.

D. Wherever possible, temporary erosion/sedimentation control measures should. be designed to serve as part of a site's permanent stormwater management control system.

E. Permanent vegetation and erosion control structures should be installed as soon as practicable during construction activities.

F. Wherever feasible, natural vegetation should be retained and protected, and natural grade alterations kept to a minimum.

Part 8
Construction and Maintenance Criteria for Stormwater Control Facilities

§19-801. Construction Criteria for Stormwater Control Facilities.

Stormwater management facilities shall be constructed in accordance with the following minimum specifications:

A. All workmanship and materials shall conform to the North Fayette Township Standard Details. In addition, all workmanship and materials shall conform to the latest edition of PennDOT Publication 408 and be supplied by manufacturers or suppliers listed in PennDOT's Bulletin 15.

B. All connections to existing storm sewer pipes shall be made by construction of a suitable junction box (inlet or manhole) to provide access for cleanout. No blind connections will be permitted.

C. All storm sewers constructed in roadway right-of-ways or drainage easements shall be constructed of reinforced cement concrete pipe (RCCP), Class III, or stronger, if required by the Township, or smooth lined, corrugated, high density polyethylene pipe that complies with PennDOT specifications if constructed outside of the road right-of-way.

D. All pond outlet structure pipes shall have suitable gaskets to prevent leakage and piping of water through the pond embankment.

E. All pipe outlets shall discharge onto a stone rip-rap blanket to prevent erosion of soil. Rip-rap will be sized considering pipe exit velocities.

F. Controls shall be installed at initial stages of earthmoving and otherwise as outlined in the staging of earthmoving activities section of the erosion and sedimentation control plan.

G. The discharge of stormwater runoff shall be to a well-defined drainage course, which has a defined bed and bank. If stormwater runoff cannot be discharged to a defined drainage course, documentation of written permission from each downstream property owner shall be provided for all properties between the source of discharge and the defined drainage course.

H. All stormwater detention facilities shall be screened from view of existing roads or streets located within the Township, which is a minimum of 6 feet in height with sufficient access for maintenance vehicles. The screening materials must be approved by the Township. Landscaping of the pond embankment shall not be permitted.

I. Provide a geotechnical report for the construction of all stormwater facilities, including the following: stormwater detention basins and the embankment; drainage swales; and infiltration areas.

§19-802. Standard Details.

The following standard details appear in the "Township of North Fayette Minimum Construction Standards and Details, Revised February 2013,"[1] and shall apply to all stormwater management facilities:

A. Permanent earth dam.
B. Sewer headwall.
C. Anti-seep collar.
D. CMP riser.
E. Manhole riser.
F. Emergency spillway.

§19-803. Maintenance of Stormwater Control Facilities and Systems.

1. *Maintenance Requirements.*

A. Maintenance during development of a project shall be the responsibility of the developer and/or landowner and shall usually include but not be limited to:

(1) Removal of silt from all debris basins, traps or other structures or measures when 40 percent of capacity is filled with silt.

(2) Disposal of collected silt in accordance with the approved erosion and sediment control plan and in a manner which will not adversely affect the environment.

(3) Periodic maintenance of temporary control facilities such as replacement of straw bale dikes, straw filters or similar measures in accordance with the procedures outlined in the PaDEP E&S Manual.

(4) Establishment or re-establishment of vegetation by seeding and mulching or sodding of scoured areas or areas where vegetation has not successfully been established. A developer or landowner retains this obligation as to property he or she has developed or improved even if the proper season for "seeding" occurs initially sometime after the project is otherwise completed in whole or as to a particular phase.

(5) Installation of necessary controls sufficient to protect against problems caused by storm events within design frequencies.

(6) The contractor or developer will be responsible for removal of all temporary measures upon completion of the project.

[1]Editor's Note: The "Township of North Fayette Minimum Construction Standards and Details, Revised February 2013," are on file in the Township Office.

B. After development of the project, maintenance shall be the responsibility of the entity specified in the approved maintenance plan and shall include when necessary:

(1) Mowing to maintain adequate stands of grass and to control weeds. Chemical weed control may be used if State and the Township regulations are met. Selection of seed mixtures should reflect the type of maintenance desired by North Fayette Township.

(2) Removal of silt from all permanent structures which trap silt or sediment to keep this material from building up in grassed waterways, and other permanent structures, thereby reducing their capacity.

(3) Removal of trees and shrubs from pond embankments.

(4) Repair of animal burrows and removal of animals causing the same.

2. *Maintenance Responsibilities.*

A. The stormwater management plan for the development site shall establish responsibilities for the continuing operation and maintenance of all proposed stormwater control facilities.

B. The Township Supervisors shall make the final determination on the continuing maintenance responsibilities as part of development application review and reserve the right to accept the ownership and operating responsibility of any or all of the stormwater management controls.

3. *Maintenance Agreement for Privately-Owned Stormwater Facilities.*

A. Prior to final approval of the site's stormwater management plan, the property owner shall sign and record a maintenance agreement covering all stormwater control facilities which are to be privately owned. The agreement shall stipulate that:

(1) The owner shall maintain all facilities in accordance with the approved maintenance schedule and shall keep all facilities maintained in a safe and attractive manner.

(2) The owner shall convey to the Township easements and/or rights-of-way to assure access for periodic inspections by the Township and maintenance, if required.

(3) The owner shall keep on file with the Township the name, address, and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information will be submitted to the Township within 10 days of the change.

(4) The owners shall establish any special maintenance funds or other financing sources, in accordance with the approved maintenance plan.

(5) The owner shall pay the amount due to the Special Stormwater Facility Maintenance Fund (see subsection .4).

(6) If the owner fails to maintain the stormwater control facilities, following due notice by the Township to correct the problems, the Township shall perform the necessary maintenance or corrective work. The owner shall reimburse the Township for all costs.

B. Other items may be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities. The maintenance agreement shall be subject to the review and approval of the Township Solicitor.

4. *Stormwater Facility Maintenance Fund.*

A. Persons installing stormwater storage facilities will be required to pay a specified amount to the Township of North Fayette Stormwater Facility Maintenance Fund to help defray costs of periodic inspections and annual maintenance expenses for a period of 30 years. The amount of the deposit shall be determined as follows:

(1) If the storage facility(s) is to be privately owned and maintained, the deposit shall cover the cost of semi-annual inspections, as estimated by the Township.

(2) If the storage facility(s) is to be owned and maintained by the Township, the deposit shall cover the estimated annual costs for maintenance and inspection. The Township will establish the estimated annual maintenance costs utilizing information submitted by applicant.

(3) The amount of deposit to the maintenance fund covering annual inspection and maintenance costs, shall be converted to present worth of the annual series values. The Township shall determine the present worth equivalents which shall be subject to the final approval of the Township Supervisors.

B. If a storage facility is proposed, which also serves as a recreation facility such as a lake or ballfield, the Township may reduce or waive the amount of the maintenance fund deposit based on the value of the land for public recreational purposes.

C. If at some future time any storage facility (whether publicly or privately owned) is eliminated due to the installation of a storm facility, the unused portion of the maintenance fund will be applied to the cost of abandoning the facility and connecting to the storm sewer system or other facility. Any amount of the deposit remaining after the costs of abandonment are paid will be returned to the depositor.

5. *Standard Schedule for Maintenance of Stormwater Management Facilities.*

A. The stormwater maintenance plan developed for the project is supplemented by this maintenance plan to help ensure continuing operations of all stormwater facilities.

B. The following is a list of items that shall be inspected and corrective action taken by the owner: (Note: owner refers to the entity ultimately responsible for the stormwater facility condition and function.)

(1) Outlet conditions in the detention facility.

(2) Storm sewers, swales, concrete gutters, and other conveyance devices.

(3) Catch basins, manholes, and other stormwater catchment/transition structures.

(4) Access for maintenance.

C. The following actions will be taken by the owner to ensure the facilities shown on the plan and identified above are in working order:

(1) Replace or repair facilities so as to function as intended.

(2) Remove silt debris and trash in detention facility.

(3) Repair outlet structures.

(4) Remove any silt, debris, and trash in detention facility.

(5) Disposal of collected silt, debris and trash in a manner, which will not adversely affect the environment.

(6) Replace eroded material and revegetate eroded areas. Seed and mulch disturbed areas.

(7) The corrective actions to be taken are not limited to those listed above.

6. *Stormwater Facilities Maintenance Plan.*

A. The inspection shall be taken by a minimum of two persons at least two times a year on or before March 1, and October 1. Additional inspections will be required if it becomes apparent facilities are not functioning properly. Corrective actions will then be taken within 30 days of the discovery of the deficiencies as required to help ensure continuing operation of stormwater facilities. Any deficiencies noted in items inspected by the owner shall be documented and corrective actions taken by the owner. This recommended maintenance plan shall not be considered a guarantee as to the adequacy of the stormwater management facilities in the future.

B. The Township may require other items to be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities. If stormwater facilities are not maintained by the Township, the owner shall maintain all facilities in accordance with the approved maintenance schedule and shall keep all facilities maintained in a safe and attractive manner. The owner shall convey to the Township easements and/or rights-of-way to assure access for periodic inspections by the Township and maintenance if required. The owner shall keep on file with the Township the name, address, and telephone number of the person or company responsible for maintenance activities and an as-built drawing of all stormwater facilities.

C. In the event of a change new information will be submitted to the Township within 10 days of the change. The owner shall establish any special maintenance funds or other financing sources, in accordance with the approved maintenance plan. If the owner fails to maintain the stormwater control facilities, following due notice (30 days) by the Township to correct deficiencies, the Township shall perform the necessary maintenance or corrective work. The owner shall reimburse the Township for all costs associated with the required maintenance of the stormwater control facilities.

§19-804. Post-Construction Stormwater Runoff Control Requirements for New Development and Redevelopment, Including Operations and Maintenance of Stormwater BMPs.

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

2. The BMPs must be designed to protect and maintain existing uses (e.g., drinking water use; cold water fishery use) and maintain the level of water quality necessary to protect those uses in all streams, and to protect and maintain water quality in "special protection" streams, as required by Statewide regulations at 25 Pa.Code, Chapter 93 (collectively referred to herein as "State water quality requirements").

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

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

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

C. *Streambank and Streambed Protection*. Management of volume and rate of post-construction stormwater discharges to prevent physical degradation of receiving waters (e.g., from scouring and erosion).

4. PaDEP has regulations that require municipalities to ensure design, implementation and maintenance of BMPs that control runoff from new development and redevelopment (hereinafter referred to as "development") after regulated earth disturbance activities are complete. These requirements include the need to implement post-construction stormwater BMPs with assurance of long-term operations and maintenance of those BMPs.

5. Evidence of any necessary permit(s) for regulated earth disturbance activities from the PaDEP regional office or ACCD must be provided to the Township.

6. *Alterations of BMPs.*

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

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

§19-805. Post-Construction Stormwater Runoff Plan

A. Prior to issuance of an Occupancy Permit or utilization of the proposed improvements, the Applicant must provide the Borough a copy of a recorded Post-Construction Stormwater Management Plan and the Proof of Recording for any projects containing stormwater management facilities including storm sewers and BMPs.

B. The Owner shall provide a digital file, on State Plain Coordinate System, of the location of all BMP's constructed on the property.

Part 9
Permits, Fees, Bonds and Penalties

§19-901. Permits.

1. *Building Permit.* No structure as defined by and regulated by this Chapter shall hereafter be erected or structurally altered until a building permit has been issued by the Township. Such permit shall state that the proposed structure shall comply with all laws of North Fayette Township relating thereto.

2. *Grading Permit.* No earth disturbance activity, as defined by and regulated by this Chapter, shall commence until a grading permit has been issued by the Township. Such permit shall state that the proposed activity shall comply with the North Fayette Township Grading Ordinance [Chapter 9].

3. *Expiration of Permits.* All such building and grading permits shall expire 1 year from the date of issuance unless an extension of the permit is issued by the Township upon application by the permit holder to the Township Building Inspector.

4. *Issuance of Permits.* No permit required by this Chapter shall be issued until all stormwater management plans have been approved by the Township.

5. *Application for Permit.* All application for permits required by this Chapter shall be made on printed forms as approved by the North Fayette Township Board of Supervisors. Such applications shall describe the stormwater control structure and/or earth disturbance activity. Such application shall be presented to the Township along with duly approved plans and such fees and bonds as required by §§19-902 and 19-903 of this Chapter.

§19-902. Fees.

1. *Filing Fees.* A filing fee shall accompany the application for permits. No application shall be accepted by the Township or acted upon unless payment is made to the Township. The Township shall by resolution create a schedule of fees to be paid by the developer to defray the cost of processing the plans required by this Chapter.

2. *Inspection and Engineering Fee.* An inspection and engineering fee shall accompany the application for permits required by this Chapter. The amount of the fee shall be determined from time to time by resolution of the Board of Supervisors and shall be sufficient to cover the costs of:

A. Reviewing the plan's engineering details.
B. Site inspection.
C. Inspecting required improvements during construction.
D. Final inspection of completion of installation of the required improvements.

Should additional fees be required for inspection and engineering review, the developer shall pay promptly to North Fayette Township such fees upon invoice. The developer is responsible for all engineering review and inspection costs incurred by the Township.

3. *Stormwater Facility Maintenance Fee.* A stormwater facility maintenance fee is required. The amount of such fee shall be determined by the Township and approved by the Township Supervisors in accordance with the procedures specified in §19-803.4 of this Chapter. Payment terms of the stormwater facility maintenance fee shall be stipulated in the developer's agreement. The fee shall be paid prior to placing the facility in service, and in no case shall the Township accept the facility until the fee is paid.

§19-903. Bonds.

The developer or landowner shall provide bonds in accordance with the provisions of the Township Subdivision and Land Development Ordinance [Chapter 22].

§19-904. Penalties.

1. It shall be unlawful for any person to:

A. Undertake any earth disturbing activity on any property unless a stormwater management plan has been approved by the Township and the required permits issued as provided herein.

B. Continue work on the offending portion of a project after receipt of a stop work order, other than remedial work to bring the project into compliance, unless said stop work order is reversed, cancelled or suspended by the Township.

C. Fail to complete the recommended remedial action within the time allowed under those circumstances set forth in §19-1003 of this Chapter.

2. Any person, firm or corporation who shall violate any provision of this Part, upon conviction thereof in an action brought before a magisterial district judge in the manner provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure, shall be sentenced to pay a fine of not more than $1,000 plus costs and, in default of payment of said fine and costs, to a term of imprisonment not to exceed 90 days. Each day that a violation of this Part continues or each Section of this Part which shall be found to have been violated shall constitute a separate offense. In the case of firms or associations, the penalty may be imposed upon any of the partners or members thereof, and in the case of corporations, upon any of the officers thereof or any of its agents, who may have executed any applications for permits on its behalf.

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

Part 10
Administration, Inspection and Enforcement

§19-1001. Administration.

The Township Zoning Officer or his designee is hereby designated to be the administrator of this Chapter and as such will be responsible for the enforcement of this Chapter.

§19-1002. Inspections.

1. The Zoning Officer or a designated representative shall inspect the construction of all temporary and permanent stormwater management facilities for the development. The permittee shall notify the Zoning Officer and Engineer 48 hours in advance of the completion of the following key development phases:

   A. At the completion of preliminary site preparation, including striping of vegetation, stockpiling of topsoil, and construction of temporary stormwater management and erosion control facilities.

   B. At the completion of rough grading, but prior to placing top soil, permanent drainage, or other site development improvements and ground covers.

   C. During construction of the permanent stormwater facilities at such time as specified by the Zoning Officer.

   D. Completion of permanent stormwater management facilities, including established ground covers and plantings.

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

2. No work shall commence on any subsequent phase until the preceding one has been inspected and approved. If there are deficiencies in any phase, the Zoning Officer shall issue a written description of the required corrections and stipulate the time by which they must be made.

3. If, during construction, the contractor or permittee identifies any site condition, such as subsurface soil conditions, alterations in surface or subsurface drainage, which could adversely affect the construction or performance of the approved stormwater facilities, the Zoning Officer must be notified within 24 hours of the discovery of such condition and request a field inspection. The Zoning Officer shall determine if the condition requires a stormwater plan modification.

   1. In cases where stormwater facilities are to be installed in areas of landslide prone soils or other special site conditions exist, the Township may require special precautions such as soil tests and core borings, full-time resident inspectors, and/or similar measures. All costs of any such measures shall be borne by the permittee

2. Right of Entry

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

§19-1003. Enforcement.

1. *Adherence to Plan.* After approval of the required plans as set forth herein, the developer shall be required to adhere strictly to the plans as approved and shall be required to construct and properly maintain any control measures contained on said approved plan. If the developer adheres to said plan including continued maintenance of any control measures during the clearing and development operations as approved, he shall not be deemed in violation of this Chapter, however, it is not intended that this shall relieve such person of any civil liability including injunctive relief, to any property owner who believes he has been wronged by some action or inaction of the developer.

2. *Enforcement.* If the Township Zoning Officer determines that clearing and development of the land is not being carried out in accordance with the approved plan or that approved control measures have not been constructed or are not being properly maintained in accordance with the approved plan, then he is authorized to:

A. Immediately issue a written notice to the developer indicating the nature and location of the alleged noncompliance which, at the discretion of the Township may be accompanied by documentary evidence, including but not limited to photographs demonstrating failure to comply with the approved plan, and specifying what remedial steps are necessary to bring the project into compliance. The developer shall immediately, conditions permitting, commence the recommended remedial action and shall have 7 working days after receipt of said notice, or such longer time as may be allowed by the Zoning Officer, to complete the remedial action set forth in said notice.

B. If the remedial work is not completed within the time allowed or in the manner prescribed, then the Zoning Officer is authorized to issue a stop work order specifying where the noncompliance has occurred and specifying what remedial steps are necessary to bring the project into compliance. Said order is to be directed to the developer, directing him to cease and desist all or any portion of the work on any geographical portion of the project which is contributing to unacceptable on-site generated erosion, sedimentation, runoff or other problems regulated by this Chapter except such remedial work as is deemed necessary to bring the project into compliance.

C. If the developer fails to complete the recommended remedial action within the time allowed, or fails to take the recommended remedial action after issuance of a stop work order under paragraph .B, then the Zoning Officer shall issue a stop work order on all or any portion of the project.

3. *Notification of Noncompliance.* A copy of any notice or stop work order issued under paragraph .B above shall be served upon the developer by either personal delivery or certified mail.

4. *Cancellation of Notice.* Upon completion of remedial steps required by a notice under paragraph .B above, the Zoning Officer shall forthwith issue a notice of compliance and cancellation of said notice of noncompliance or stop work order.

§19-1004. Review of Stop Work Order.

Any person who feels aggrieved by any stop work order that is issued by the Zoning Officer under this Chapter, or by failure to cancel the same after performance of remedial steps, shall have the right to request a hearing within 15 days after making said request. At said hearing, the Zoning Officer and the aggrieved person shall present any evidence bearing on the propriety of said stop work order or continuation of same. At the conclusion of the hearing, and based upon the evidence presented to it, the Township shall:

A. Affirm the stop work order and the remedial steps required therein and direct continuing effect and enforcement of said stop work order until the offending portion of the project has been brought into compliance.

B. Affirm the stop work order, but upon such modified remedial steps as the Township may find necessary and appropriate.

C. Reverse, cancel or suspend the stop work order upon a finding that remedial steps are not necessary or that required remedial steps have been taken, or upon a finding that a stop work order is not appropriate or necessary during the performance of required remedial steps.

§19-1005. Revocation of Permit.

The Township Supervisors, upon request by the Zoning Officer, at the next regular meeting of the Township, after at least 3 days' notice in writing to the developer, may revoke the permit issued pursuant to this Chapter for any project which the Township finds, upon evidence presented to it that the developer has proceeded with work on the offending portion of any project, except specified remedial work to bring the project into compliance with the approved plan, while under a valid stop work order which has neither been reversed, cancelled nor suspended by the Township.

Part 11
Appeals

§19-1101. Appeal to Court.

Any person aggrieved by any decision of the North Fayette Township Board of Supervisors or any Township Officer appointed thereby, may appeal there from within 30 days, to the Court of Common Pleas of Allegheny County.

Appendix 19-A

Release Rates for Montour Run Watershed

Subshed	Release Rate Percentage
1	75
2	75
3	75
4	75
5	75
6	80
7	75
8	75
9	80
10	80
11	80
12	80
13	100
14	70
15	70
16	90
17	100
18	100
19	100
20	100
21	100
22	100
23	100
24	100
25	100
26	100
27	100
Midfield Terminal	100

Note: The above release rates apply to runoff conditions resulting from proposed (new) development in the subsheds and are applicable for all design events to be analyzed.

Appendix 19-B
Procedures for Performing No-Harm Evaluation
Montour Run Watershed

1. Identify the discharge control points, as shown on the subarea map, which are downstream of the proposed development site and at which the existing peak flow from the subarea in which the development site is located is greater than 20 percent of the watershed peak flow rate at that point. These points of interest so identified shall be used for comparison in subsequent steps of the no-harm evaluation.

2. Compute the pre- and post-development peak rate of runoff for the subarea in which the development site is located for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year design storms, using one of the methods addressed in §19-502.

3. Using the same method of calculation, determine the pre- and post-development peak flow rate at the points of interest identified in Step 1 above. For determining the contributing flow of subareas (other than that in which the development is located) at a point of interest, the applicant shall use the existing conditions runoff hydrograph for that subarea prepared for the watershed plan. Copies of this information may be obtained from the Allegheny County Conservation District.

4. When the computed post-development discharges for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storms at all designated points of interest do not exceed the computed predevelopment discharges at the same points, then the applicant shall have demonstrated, within reasonable limits, that no harm or adverse effects will occur downstream.

5. Computed post-development discharges may exceed computed pre-development discharges at a designated point of interest, provided that the applicant can demonstrate that the potential for flooding is not increased at that point of interest.

APPENDIX 19-C
LOW IMPACT DEVELOPMENT PRACTICES
ALTERNATIVE APPROACH FOR MANAGING STORMWATER RUNOFF

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

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

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

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

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

- **Avoiding introduction of impervious areas.** Careful site planning should consider reducing impervious coverage to the maximum extent possible. Building footprints,

sidewalks, driveways and other features producing impervious surfaces should be evaluated to minimize impacts on runoff.

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

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

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

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

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

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

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

- **Constructing Cluster Developments.** Cluster developments can also reduce the amount of impervious area for a given number of lots. The biggest savings is in street length, which also will reduce costs of the development. Cluster development clusters the

construction activity onto less-sensitive areas without substantially affecting the gross density of development.

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

APPENDIX 19-D
STORMWATER BEST MANAGEMENT PRACTICES
OPERATIONS AND MAINTENANCE AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 200__, by and between _____, (hereinafter the "Landowner"), and _____, _____ County, Pennsylvania, (hereinafter "Municipality");

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 stormwater management BMP Operations and Maintenance Plan approved by the Municipality (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 the Municipality, provides for management of stormwater within the confines of the Property through the use of Best Management Practices (BMP's); and

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

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

- **BMP** - "Best Management Practice;" activities, facilities, designs, measures or procedures used to manage stormwater impacts from land development, to protect and maintain water quality and groundwater recharge and to otherwise meet the purposes of the Municipal Stormwater Management Ordinance, including but not limited to infiltration trenches, seepage pits, filter strips, bioretention, wet ponds, permeable paving, rain gardens, grassed swales, forested buffers, sand filters and detention basins.

- **Infiltration Trench** - A BMP surface structure designed, constructed, and maintained for the purpose of providing infiltration or recharge of stormwater into the soil and/or groundwater aquifer,

- **Seepage Pit** - An underground BMP structure designed, constructed, and maintained for the purpose of providing infiltration or recharge of stormwater into the soil and/or groundwater aquifer,

- **Rain Garden** - A BMP overlain with appropriate mulch and suitable vegetation designed, constructed, and maintained for the purpose of providing infiltration or recharge of stormwater into the soil and/or underground aquifer, and

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

NOW, THEREFORE, in consideration of the foregoing promises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The BMPs shall be constructed by the Landowner in accordance with the plans and specifications identified in the Plan.

2. The Landowner shall operate and maintain the BMP(s) as shown on the Plan in good working order acceptable to the Municipality and in accordance with the specific maintenance requirements noted on the Plan.

3. The Landowner hereby grants permission to the Municipality, its authorized agents and employees, to enter upon the property, at reasonable times and upon presentation of proper identification, to inspect the BMP(s) whenever it deems necessary. Whenever possible, the Municipality shall notify the Landowner prior to entering the property.

4. In the event the Landowner fails to operate and maintain the BMP(s) as shown on the Plan in good working order acceptable to the Municipality, the Municipality or its representatives may enter upon the Property and take whatever action is deemed necessary to maintain said BMP(s). This provision shall not be construed to allow the Municipality to erect any permanent structure on the land of the Landowner. It is expressly understood and agreed that the Municipality is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Municipality.

5. In the event the Municipality, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the Municipality for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the Municipality.

6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMP(s) 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 the Municipality's employees and designated representatives from all damages, accidents, casualties, occurrences or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMP(s) by the Landowner or Municipality. In the event that a claim is asserted against the Municipality, its designated representatives or employees, the Municipality shall promptly notify the Landowner and the Landowner shall defend, at his own expense, any suit based on the claim. If any judgment or claims against the Municipality's employees or designated representatives shall be allowed, the Landowner shall pay all costs and expenses regarding said judgment or claim.

8. The Municipality shall inspect the BMP(s) 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 the Municipality:

_____

(SEAL) For the Landowner:

_____

ATTEST:

_____ (City, Borough, Township)

County of _____, Pennsylvania

I, _____, a Notary Public in and for the County and State aforesaid, whose commission expires on the _____ day of _____, 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)**

Worksheet 11 – BMPs for Pollution Prevention		
Does the site design incorporate the following BMPs to address nitrate pollution? A summary "yes" rating is achieved if at least 2 Primary BMPs are provided across the site. "Provided across the site" is taken to mean that the specifications for that BMP set forward in Chapters 5 and 6 are satisfied.		
	Yes	No
BMPs for Pollution Prevention:	☐	☐
NS BMP 5.4.1 – Protect Sensitive/Special Value Features	☐	☐
NS BMP 5.4.2 – Protect/Conserve/Enhance Riparian Buffers	☐	☐
NS BMP 5.4.3 – Protect/Utilize Natural Flow Pathways in Overall Stormwater Planning and Design	☐	☐
NS BMP 5.5.1 – Cluster Uses at Each Site; Build on the Smallest Area Possible	☐	☐
NS BMP 5.6.1 – Minimize Total Disturbed Area - Grading	☐	☐
NS BMP 5.6.2 – Minimize Soil Compaction in Disturbed Areas	☐	☐
NS BMP 5.6.3 – Re-Vegetate/Re-Forest Disturbed Areas (Native Species)	☐	☐
NS BMP 5.7.1 – Reduce Street Imperviousness	☐	☐
NS BMP 5.7.2 – Reduce Parking Imperviousness	☐	☐
NS BMP 5.8.1 – Rooftop Disconnection	☐	☐
NS BMP 5.8.2 – Disconnection from Storm Sewers	☐	☐
NS BMP 5.9.15 – Street Sweeping	☐	☐
Structural BMP 6.7.1 – Riparian Buffer Restoration	☐	☐
Structural BMP 6.7.2 – Landscape Restoration	☐	☐
Structural BMP 6.7.3 – Soils Amendment and Restoration	☐	☐

Worksheet 12 – Water Quality Analysis of Pollutant Loading from All Disturbed Areas

Total Site Area (AC)	
Total Disturbed Area (AC)	
Disturbed Area Controlled by BMPs (AC)	

Total Disturbed Areas:

		Pollutant					Pollutant Load		
	Land Cover Classification	TSS EMC (mg/l)	TP EMC (mg/l)	Nitrate-Nitrite EMC (mg/l as N)	Cover (Acres)	Runoff Volume (AF)	TSS** (LBS)	TP** (LBS)	NO_3 (LBS)
Pervious Surfaces	Forest	39	0.15	0.17					
	Meadow	47	0.19	0.3					
	Fertilized Planting Area	55	1.34	0.73					
	Native Planting Area	55	0.40	0.33					
	Lawn, Low-Input	180	0.40	0.44					
	Lawn, High-Input	180	2.22	1.46					
	Golf Course Fairway/Green	305	1.07	1.84					
	Grassed Athletic Field	200	1.07	1.01					
Impervious Surfaces	Rooftop	21	0.13	0.32					
	High Traffic Street/Highway	261	0.40	0.83					
	Medium Traffic Street	113	0.33	0.58					
	Low Traffic/Residential Street	86	0.36	0.47					
	Res. Driveway, Play Courts, etc.	60	0.46	0.47					
	High Traffic Parking Lot	120	0.39	0.60					
	Low Traffic Parking Lot	58	0.15	0.39					
						TOTAL LOAD			
						REQUIRED REUCTION (%)	85%	85%	50%
						REQUIRED REDUCTION (LBS)			

*Pollutant Load = [EMC, mg/l] X [Volume, AF] X [2.7, Unit Conversion]

**TSS and TP calculations only required for projects not meeting CG1/CG2 or not controlling less than 90% of the disturbed area

Worksheet 13 – Pollutant Reduction Through BMP Applications*

*Fill this worksheet out for each BMP type with different pollutant removal efficiencies. Sum pollutant reduction achieved for all BMP types on final sheet.

BMP Type: _____

Disturbed Area Controlled by this BMPs (AC)

Disturbed Area Controlled by this BMPs:

		Pollutant					Pollutant Load**		
	Land Cover Classification	TSS EMC (mg/l)	TP EMC (mg/l)	Nitrate-Nitrite EMC (mg/l as N)	Cover (Acres)	Runoff Volume (AF)	TSS** (LBS)	TP** (LBS)	NO_3 (LBS)
Pervious Surfaces	Forest	39	0.15	0.17					
	Meadow	47	0.19	0.3					
	Fertilized Planting Area	55	1.34	0.73					
	Native Planting Area	55	0.40	0.33					
	Lawn, Low-Input	180	0.40	0.44					
	Lawn, High-Input	180	2.22	1.46					
	Golf Course Fairway/Green	305	1.07	1.84					
	Grassed Athletic Field	200	1.07	1.01					
Impervious Surfaces	Rooftop	21	0.13	0.32					
	High Traffic Street/Highway	261	0.40	0.83					
	Medium Traffic Street	113	0.33	0.58					
	Low Traffic/Residential Street	86	0.36	0.47					
	Res. Driveway, Play Courts, etc.	60	0.46	0.47					
	High Traffic Parking Lot	120	0.39	0.60					
	Low Traffic Parking Lot	58	0.15	0.39					
	TOTAL LOAD TO THIS BMP TYPE								
	POLLUTANT REMOVAL EFFICIENCIES FROM APPENDIX A. STORMWATER MANUAL (%)								
	POLLUTANT REDUCITON ACHIEVED BY THIS BMP TYPE (LBS)								

POLLUTANT REDUCTION ACHIEVED BY ALL BMP TYPES (LBS)			
REQUIRED REDUCTION from WS12 (LBS)			

*Pollutant Load = [EMC, mg/l] X [Volume, AF] X [2.7, Unit Conversion]

**TSS and TP calculations only required for projects not meeting CG1/CG2 or not controlling less than 90% of the disturbed area

Small Project Stormwater Management Submission

Calculation of Impervious Area

Per the Township Stormwater Management Ordinance, a stormwater management plan is required whenever more than 2,500 square feet of impervious surface is proposed. The calculations of proposed impervious area shall cumulatively include all new impervious area constructed within the last five years. The stormwater management plan must provide both volume controls and rate controls. An impervious surface is a surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) shall include, but not be limited to: roofs; additional indoor living spaces, patios, garages, storage sheds, driveways, porches, decks and similar structures; and any new streets or sidewalks.

Table 1: Calculation of Impervious Surfaces

Surface Type	Length	X	Width	=	Proposed Impervious Area
Building		x		=	
		x		=	
		x		=	
		x		=	
		x		=	
Driveway		x		=	
		x		=	
		x		=	
Parking Areas		x		=	
		x		=	
		x		=	
Patios and Sidewalks		x		=	
		x		=	
		x		=	
		x		=	
		x		=	
Other		x		=	
		x		=	
		x		=	
		x		=	
		x		=	
Total Impervious Surface Area to Manage					

If the Total Impervious Surface Area is LESS THAN 2,500 Square Feet, please read, acknowledge and sign below.

If the Total Impervious Surface Area EXCEEDS 2,500 Square Feet, complete the remainder of the Application.

If the Total Impervious Surface Area EXCEEDS 5,000 Square Feet, a complete stormwater management plan, prepared by a registered professional engineer must be submitted.

Based Upon the information you have provided a ***Stormwater Management Plan IS NOT required*** for this regulated activity. The Township of North Fayette may request additional information and/or SWM for any reason.

Property Owner Acknowledges that submission of inaccurate information may result in a stop work order or permit revocation. Acknowledgement of such is by signature below. I declare that I am the owner or owner's legal representative. I further acknowledge that the information provided is accurate and employees of the Township of North Fayette are granted access to the above described property for review and inspection as may be required.

Property Owner _____ **Date** _____

Volume Controls

Calculation of Required Capture Volume and Credit 1: Disconnection of Impervious Area

When runoff from impervious areas is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration (i.e. a vegetated filter strip), all or parts of the impervious areas may qualify as Disconnected Impervious Area (DIA). Using the criteria below, determine the portion of the impervious area that can be excluded from the calculation of total impervious area.

Criteria: An impervious area is considered to be completely or partially disconnected if it meets the requirements listed below:

1. Rooftop area draining to a downspout is less than 500 square feet.
2. Paved area draining to a discharge is less than 1000 square feet.
3. The flow path of the impervious area is not more than 75 feet.
4. The soil at the discharge area is not designated as hydrologic soil group "D".
5. The flow path at the discharge area has a positive slope of less than 5%.
6. A gravel strip or other spreading device is required at paved discharges.

Credit for disconnection of impervious areas shall be applied in accordance with the following table:

Table 2: DIA Credit Factors

Length of Pervious Flow Path from Discharge Point	DIA Credit Factor
0-14	1
15-29	0.8
30-44	0.6
45-59	0.4
60-74	0.2
75 or more	0

Note: The flow plan cannot include impervious surfaces and must be at least 15 feet from any impervious surface.

Table 3: Calculation of Required Capture Volume

Surface Type	**Impervious Area (from Table 1)**	**X**	**DIA Credit Factor**	**=**	**Impervious Area to be Managed**	**÷**	**6**	**=**	**Required Capture Volume**
Building		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
Driveway		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
Parking Areas		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
Patios and Sidewalks		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
Other		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
		x		=		÷	6	=	
Required Capture Volume									

Credit 2: Tree Planting

Perhaps the best BMP is a tree as they intercept rainfall, increase evapotranspiration and increase time of concentration. A portion of the required capture volume can be reduced provided the criteria are met.

Criteria

To receive credit for planting trees, the following must be met:

1. Trees must be native species, minimum 2" caliper and 6 feet tall (min).
2. Trees shall be adequately protected during construction.
3. Trees shall be maintained until redevelopment occurs.
4. No more than 25% of the runoff volume can be mitigated through the use of trees.
5. Dead trees shall be replaced within 6 months.
6. Non-native species are not applicable.

Credits

Volume reduction credits may be applied as follows:

1. Deciduous Trees – 6 ft^3 per tree planted.
2. Evergreen Trees – 10 ft^3 per tree planted.

Table 4: Calculation of Tree Planting Credit

Type of Tree	Number of Trees	X	Reduction Factor	=	Tree Planting Credit
Deciduous Tree		x	6 ft^3	=	
Evergreen Tree		x	10 ft^3	=	
			Tree Planting Credit (ft^3)		

Table 5: Calculation of Total Capture Volume to be Managed

Total Required Capture Volume (Table 3)	-	Tree Planting Credit (Table 4)	=	Total Capture Volume to be Managed*
	-		=	

*The Total Capture Volume to be Managed should inserted on the Small Project SWM Plan Worksheet.

Small Project SWM Plan Worksheet

Based upon the information you have provided a ***Stormwater Plan IS Required*** for this development activity. The Township Stormwater Management Ordinance requires rate and volume controls be provided for development s resulting in the creation of greater than 2,500 square feet of impervious area.

Regulated activities shall be conducted only after the Township approves a stormwater management plan. The Township Stormwater Management Ordinance will assist you in preparing the necessary information and plans for the Township to review and approve. **This document will constitute an approved plan if all of the relevant details are to be installed in their entirety AND no part of the stormwater system adversely affects any other property, nor adversely affect any septic systems or drinking water wells on this, or any other, parcel.** If an alternative system is to be used a plan will need to be submitted to North Fayette Township for approval. A design by a qualified professional may be required for more complex sites.

PLEASE INITIAL BELOW TO INDICATE THE STORMWATER MANAGEMENT PLAN FOR THIS SITE

☐ Minimum Control #1: Erosion & Sediment Pollution Control
Minimum Control #2: Source Control of Pollution
Minimum Control #3: Preservation of Natural Drainage Systems and Outfalls

---

☐ The relevant details from Township Stormwater Management Ordinance will be installed in their entirety AND the system will be located as not to adversely affect other property, nor any septic systems or drinking water wells on this, or any other, parcel.

To meet volume control requirements, the following will be installed and maintained:

Capture Volume to be Managed (ft3) (From Table 5)		X	Conversion	=	Surface Area of BMP (ft2)
	Rain Garden 6" Ponding, 2' Soil Depth	x	1.20	=	
	Dry Well or Infiltration Trench 2 1/2' Aggregate Depth	x	1.50	=	
	Total				

To meet rate control requirements, a gravel sump will be installed and maintained. The sump shall be sized per the following figure:

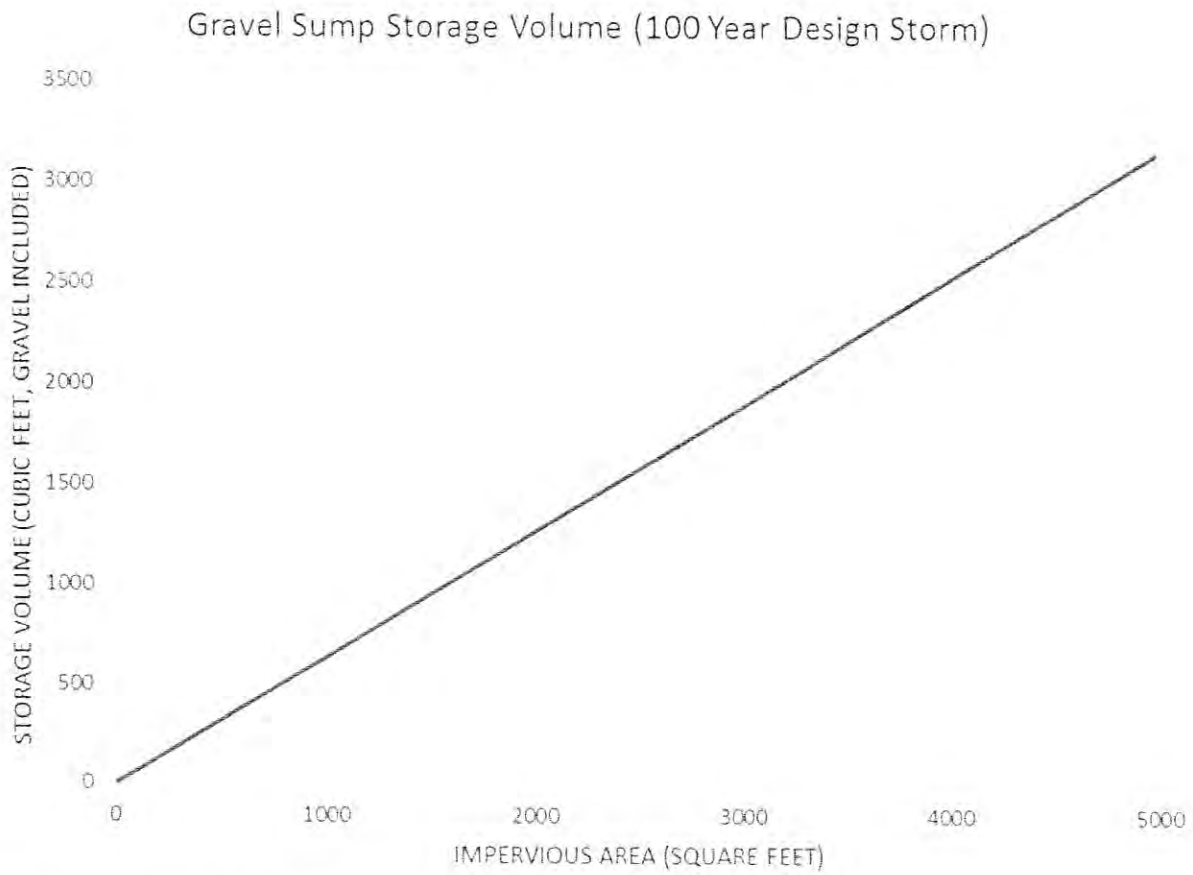


Figure 1: Gravel Sump Sizing Chart

Total Proposed Impervious Area: _____ square feet

Gravel Sump Storage Volume: _____ cubic feet

☐ In lieu of meeting the above, an alternative and/or professional design is attached for approval AND the system will be location as not to adversely affect other property, any septic systems or drinking water wells on this, or any other, parcel.

☐ **Site Sketch Plan showing:**

- Property Lines with dimensions
- Proposed buildings with dimensions
- Proposed impervious surfaces with dimensions
- Proposed sanitary sewer lateral or septic system, as applicable
- Proposed water service or well site, as applicable
- Proposed stormwater management system(s)

☐ **Operations and Maintenance Agreement**

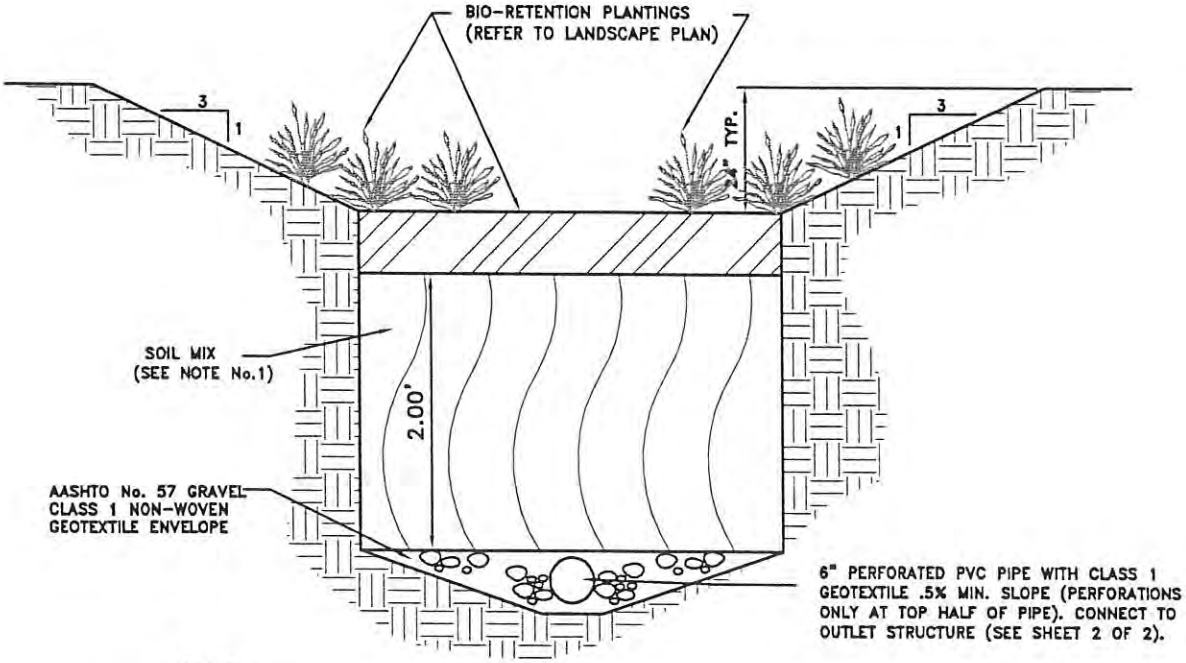
- Execute and record a Stormwater Maintenance and Agreement (Refer to 19-D of the Township Stormwater Management Ordinance)
- Payment has been made to the Township's Stormwater Facility Maintenance Fund. The initial deposit shall be in the amount of $500 for developments proposing greater than 2,500 square feet. The minimum initial deposit when greater than 5,000 square feet is proposed is $1,000.

Condition of approval - The stormwater management plan must be fully implemented prior to a request for final inspection of the building or zoning permit.

Acknowledgement – By executing below, the Owner acknowledges the following:

- I declare I am the owner of the property.
- The information provided is accurate.
- I further acknowledge that municipal representatives are granted access to the above described property for review and inspection as may be required.

Owner _____ **Date**_____



NOTES:

1. DO NOT COMPACT SOIL MIX ONCE PLACED.
2. PROVIDE A MINIMUM OF 6" OF STONE ABOVE AND BELOW THE PERFORATED PIPE.

* SOIL MIX SHALL CONTAIN AND BE INSTALLED AS FOLLOWS:

(1) 10-15% COMPOST
70-80% SAND
10-20% TOPSOIL
(2) SOIL MIX SHALL NOT BE COMPACTED.
(3) SOIL MIX MUST BE PLACED AT A 2-FOOT DEPTH
(4) SOIL MIX MUST BE PLACED AT THE ENTIRE BOTTOM FACILITY.

RAIN GARDEN/BIO-RETENTION AREA DETAIL

N.T.S.

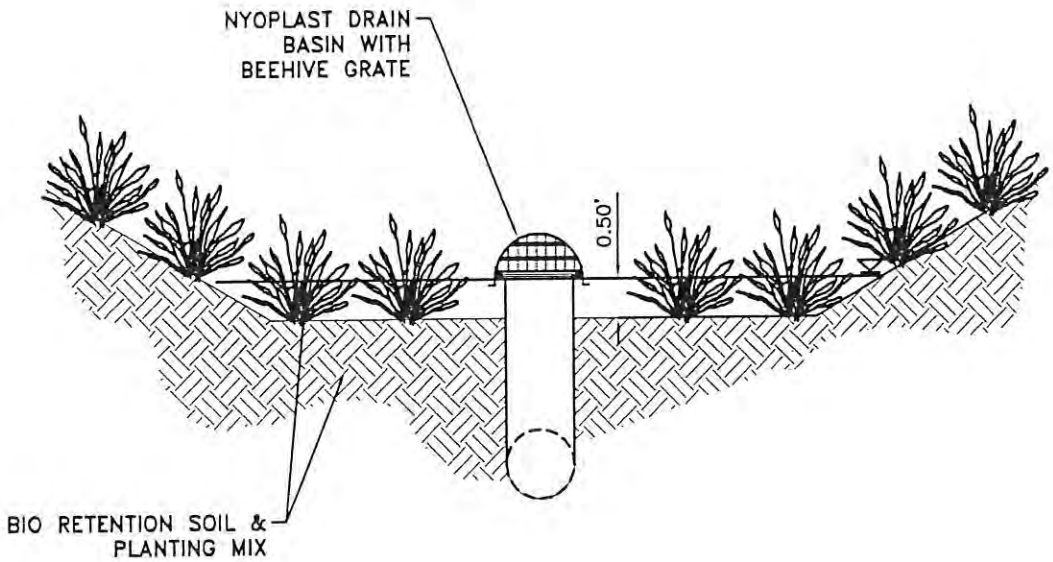
Rain Garden - Sheet 1 of 2

SCALE: N.T.S.

DATE: March 2015 FILE: Small SWM Details.dwg

North Fayette Township
Allegheny County, Pennsylvania
400 North Branch Road
Oakdale, PA 15071

N:\PROJ\448\448-09\dwg\Small SWM Details.dwg Layout=Rain Garden User=Shawn Wingrove Plotted=2/26/2015 3:40 PM



BIO-RETENTION FACILITY OUTLET STRUCTURE DETAIL

N.T.S.

PLANT LIST - BIO RETENTION AND STORMWATER MANAGEMENT FACILITIES

BOTANIC NAME	COMMON NAME	SIZE	SPACING
Retention Basin Floor Seeding Low Maintenance Grass Like Species (ERNMIX-126)	N/A	N/A	SEEDING RATE: 1/3-1/2lb per 1,000 S.F.
Rain Garden Seed Mix (ERNMIX-180)	N/A	N/A	SEEDING RATE: 1/3-1/2lb per 1,000 S.F.

*SOIL MIX MUST CONTAIN AND BE INSTALLED AS FOLLOWS:

(1) 20% ORGANIC MATERIAL SUCH AS COMPOST OR SHREDDED HARDWOOD
30% SAND, PEA GRAVEL, OR CRUSHED SLAG
50% TOPSOIL.

(2) SOIL MIX MUST CONTAIN NO MORE THAN 10% CLAY.

(3) SOIL MIX MUST NOT BE COMPACTED.

(4) SOIL MIX MUST BE PLACE AT A 2-FOOT DEPTH MINIMUM.

(5) SOIL MIX TO BE PLACED AT THE ENTIRE BOTTOM OF THE BIO-RETENTION FACILITY.

Rain Garden - Sheet 2 of 2

SCALE: N.T.S.

DATE: March 2015 FILE: Small SWM Details.dwg

North Fayette Township
Allegheny County, Pennsylvania
400 North Branch Road
Oakdale, PA 15071

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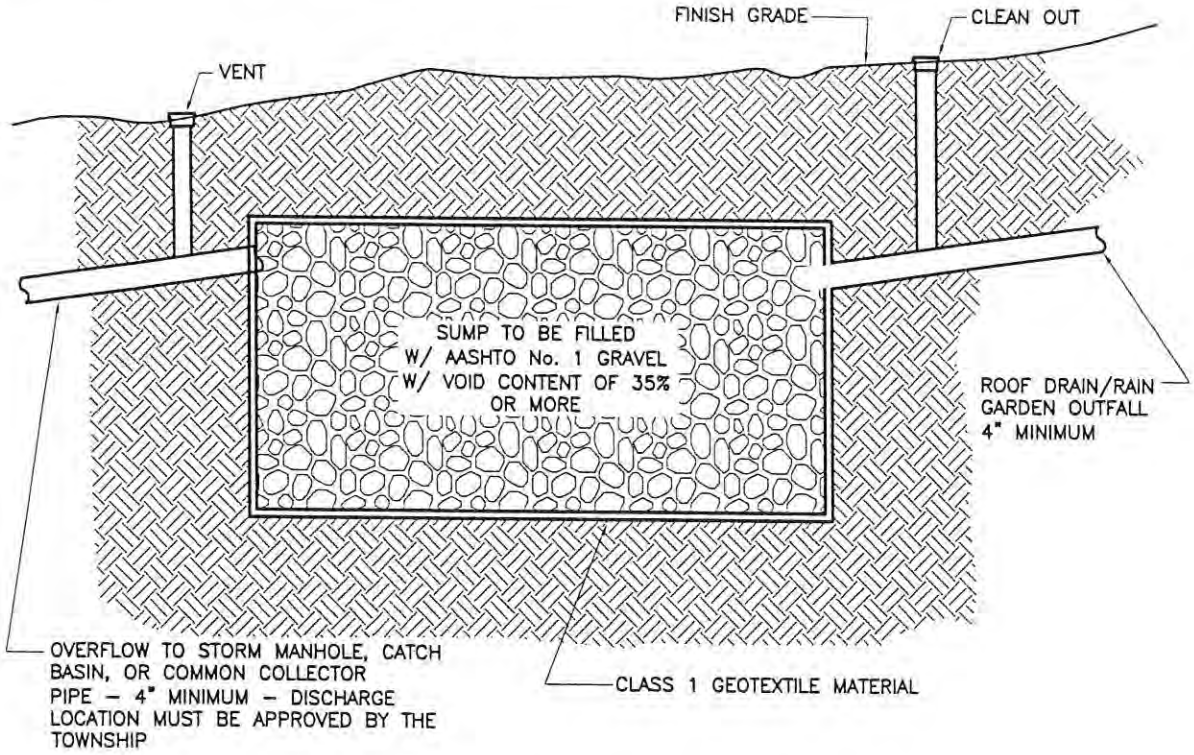
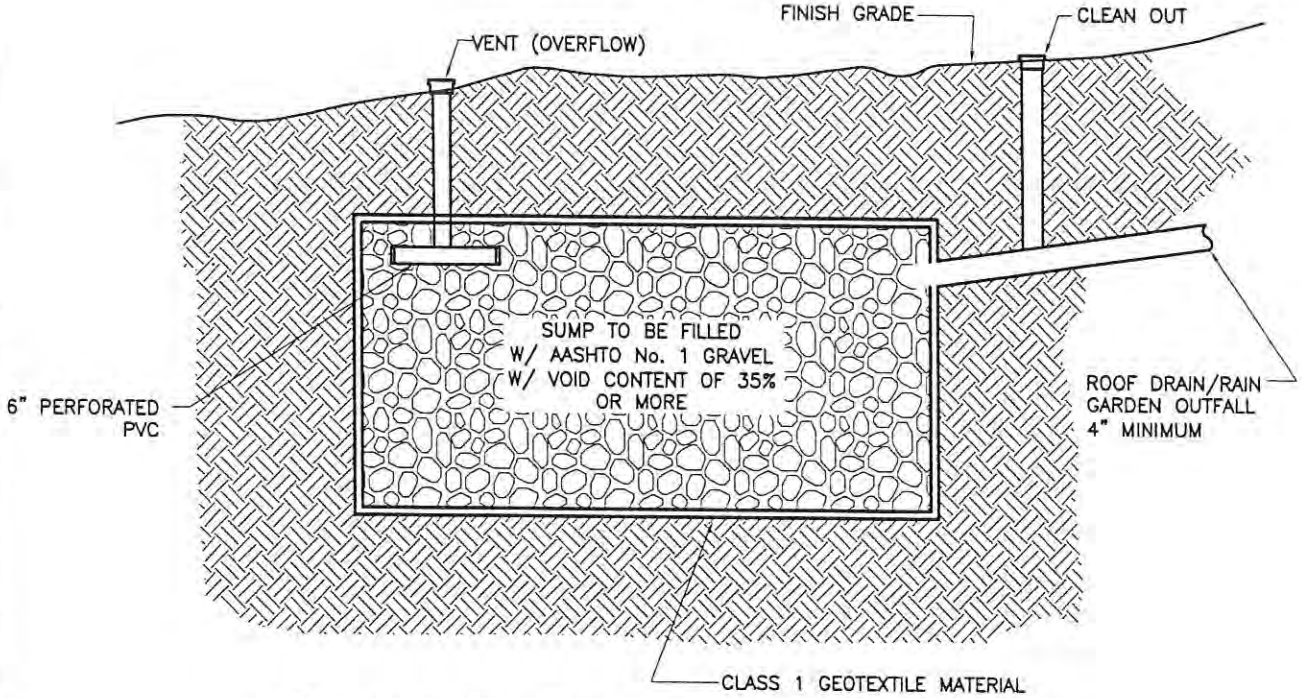


GRAVEL SUMP WITH OUTFALL

N.T.S.



GRAVEL SUMP WITHOUT OUTFALL

N.T.S.

NOTES:
1. ALL PIPE SHALL BE PVC SCHEDULE 40
2. ALL SUMPS MINIMUM 10' FROM HOUSE

Gravel Sump

SCALE: N.T.S.

DATE: March 2015 FILE: Small SWM Details.dwg

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