

Chapter 149

STORMWATER MANAGEMENT

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[HISTORY: Adopted by the Board of Supervisors of the Township of West Earl 6-9-2014 by Ord. No. 224.1 Amendments noted where applicable.]

GENERAL REFERENCES

Sewers and sewage disposal - See Ch. 138. Streets
and sidewalks - See Ch. 152.
Subdivision and land development - See Ch. 155.

Water - See Ch. 173.
Zoning - See Ch. 184.

ARTICLE I General Provisions

§ 149-1. Short title.

This chapter shall be known and may be cited as the "West Earl Township Stormwater Management Ordinance."

§ 149-2. Statement of findings.

The Board of Supervisors finds that:

- A. Inadequate management of accelerated stormwater runoff resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of existing streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases nonpoint source pollution of water resources.
- B. A comprehensive program of SWM, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, welfare, and the protection of the people of the Township and all the 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 certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their municipal separate storm sewer systems (MS4) under the National Pollutant Discharge Elimination System (NPDES).
- E. Riparian forest buffers enhance water quality by filtering pollutants in runoff, providing light control and temperature moderation, processing pollutants, increasing infiltration

1. Editor's Note: This ordinance also repealed former Ch. 149, Stormwater Management, adopted 2-23-1998 by Ord. No. 136, as amended.

and providing channel and shoreline stability, thus decreasing erosion (DEP Riparian Forest Buffer Guidance, November 27, 2010).

§ 149-3. Purpose.

The purpose of this chapter is to promote health, safety, and welfare by minimizing the harms and maximizing the benefits described in § 149-2 of this chapter through provisions designed to:

- A. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code Chapter 93 to protect, maintain, reclaim, and restore the existing and designated uses of the waters of this commonwealth.
- B. Preserve the natural drainage systems as much as practicable.
- C. Manage stormwater runoff close to the source.
- D. Provide procedures and performance standards for stormwater planning and management.
- E. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
- F. Prevent scour and erosion of stream banks and streambeds.
- G. Provide proper operation and maintenance of all stormwater management best management practices (SWM BMPs) that are implemented within the Township.
- H. Provide standards to meet NPDES permit requirements.
- I. Promote stormwater runoff prevention through the use of nonstructural best management practices (BMPs).
- J. Provide a regulatory environment that supports the proportion, density and intensity of development called for in the comprehensive plan; allow for creative methods of improving water quality and managing stormwater runoff; and promote a regional approach to water resource management.
- K. Help preserve and protect exceptional natural resources, and conserve and restore natural resource systems.
- L. Promote stormwater management practices that emphasize infiltration, evaporation, and transpiration.

§ 149-4. Statutory authority.

- A. Primary authority: The Township is empowered to regulate these activities by the authority of the Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. § 680.1 et seq., as amended, the "Stormwater Management Act," and Act 394 of 1937, as amended, 35 P.S. § 691.1 et seq., the Pennsylvania Clean Streams Law. The Township also is empowered to regulate land use activities that affect stormwater impacts by the authority of the

Second Class Township Code, Act of May 1, 1933, P.L. 103, No. 69, as reenacted and amended by the Act of November 9, 1995, P.L. 350, No. 60, as amended.²

- B. Secondary authority: The Township also is empowered to regulate land use activities that affect runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, The Pennsylvania Municipalities Planning Code, as amended.

§ 149-5. Applicability.

The provisions, regulations, limitations, and restrictions of this chapter shall apply to regulated activities, as defined in this chapter.

§ 149-6. Repeals and continuation of prior regulations.

- A. Except as otherwise required by law, this chapter is intended as a continuation of, and not a repeal of, existing regulations governing the subject matter. To the extent that this chapter restates regulations contained in ordinances previously enacted by the Board of Supervisors, this chapter shall be considered a restatement and not a repeal of such regulations. It is the specific intent of the Board of Supervisors that all provisions of this chapter shall be considered in full force and effect as of the date such regulations were initially enacted. All ordinances or parts of ordinances inconsistent with the provisions of this chapter are hereby repealed. It is expressly provided that the provisions of this chapter shall not affect any act done, contract executed or liability incurred prior to its effective date, or affect any suit or prosecution pending or to be instituted to enforce any rights, rule, regulation or ordinance, or part thereof, or to punish any violation which occurred under any prior stormwater regulation or ordinance. In the event any violation has occurred under any prior stormwater regulation or ordinance of Township, prosecution may be initiated against the alleged offender pursuant to the provisions of said prior stormwater regulation or ordinance, and the provisions and penalties provided in said prior stormwater regulation or ordinance shall remain effective as to said violation.
- B. Any plan (hereinafter defined) pending at the time of the effective date of this chapter shall be allowed to proceed with revisions, finalization and implementation in accordance with any ordinance in effect prior hereto.

§ 149-7. Severability.

Should any section, provision or part thereof of this chapter be declared invalid by a court of competent jurisdiction, such decision shall not affect the validity of any of the remaining provisions of this chapter.

² Editor's Note: See 53 P.S. § 65101 et seq.

§ 149-8. Compatibility with other requirements.

Approvals issued pursuant to this chapter do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance.

§ 149-9. Erroneous permits.

Any permit or authorization issued or approved based on false, misleading or erroneous information provided by an applicant is void without the necessity of any proceedings for revocation. Any work undertaken or use established pursuant to such permit or other authorization is unlawful. No action may be taken by a board, agency or employee of the Township purporting to validate such a violation.

§ 149-10. Municipal liability.

Except as specifically provided by the Pennsylvania Stormwater Management Act, the making of any administrative decision by the Township or any of its officials or employees shall not constitute a representation, guarantee or warranty of any kind by the Township of the practicability or safety of any proposed structure or use with respect to damage from erosion, sedimentation, stormwater runoff, flood, or any other matter, and shall create no liability upon or give rise to any cause of action against the Township and its officials and employees. The Township, by enacting and amending this chapter, does not waive or limit any immunity granted to the Township and its officials and employees by the Governmental Immunity Act, 42 Pa.C.S.A. § 8541 et seq., and does not assume any liabilities or obligations.

§ 149-11. Duty of persons engaged in development of land.

Notwithstanding any provision(s) of this chapter, including exemptions, any landowner or 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 also shall include actions as are required to manage the rate, volume, direction, and quality of resulting stormwater runoff in a manner which otherwise adequately protects health, property, and water quality.

§ 149-12. through § 149-20. (Reserved)

ARTICLE II Definitions of Terms

§ 149-21. Interpretation and word usage.

The language set forth in this chapter shall be interpreted in accordance with the following rules of construction:

- A. Words used or defined in one tense or form shall include other tenses or derivative forms.
- B. Words in the singular number shall include the plural number, and words in the plural number shall include the singular number.
- C. The masculine gender shall include the feminine and neuter. The feminine gender shall include the masculine and neuter. The neuter gender shall include the masculine and feminine.
- D. The word "person" includes individuals, firms, partnerships, joint ventures, trusts, trustees, estates, corporations, associations and any other similar entities.
- E. The word "lot" includes the words "plot," "tract," and "parcel."
- F. The words "shall," "must" and "will" are mandatory in nature and establish an obligation or duty to comply with the particular provision. The words "may" and "should" are permissive.
- G. The time within which any act required by this chapter is to be performed shall be computed by excluding the first day and including the last day. However, if the last day is a Saturday or Sunday or a holiday declared by the United States Congress or the Pennsylvania General Assembly, it shall also be excluded. The word "day" shall mean a calendar day, unless otherwise indicated.
- H. Any words not defined in this chapter or in Section 107 of the MPC shall be construed as defined in standard dictionary usage.
- I. References to officially adopted regulations, standards, or publications of DEP or other governmental agencies shall include the regulation, publication, or standard in effect on the date when a SWM site plan is first filed. It is the intent of the Board of Supervisors in enacting this section to incorporate such changes to statutes, regulations, and publications to the extent authorized by 1 Pa.C.S.A. § 1937.

§ 149-22. Definitions of terms.

As used in this chapter, the following terms shall have the meanings indicated:

ACCELERATED EROSION — The removal of the surface of the land through the combined action of man's activity and the natural processes at a rate greater than would occur because of the natural process alone.

ACCESS EASEMENT — A right granted by a landowner to a grantee, allowing entry for the purpose of inspecting, maintaining and repairing SWM facilities.

ACT 167 PLAN — A plan prepared under the authority of the Stormwater Management Act.

AGRICULTURAL ACTIVITY — Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops and raising livestock including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops, or pasturing and raising of livestock and installation of

conservation practices. Construction of new buildings or impervious areas is not considered an agricultural activity.

ALTERATION — As applied to land, a change in topography as a result of the moving of soil and rock from one location or position to another; also the changing of surface conditions by causing the surface to be more or less impervious; earth disturbance activity.

ANIMAL HEAVY USE AREAS — A barnyard, feedlot, loafing area, exercise lot, or other similar area on an agricultural operation where, due to the concentration of animals, it is not possible to establish and maintain vegetative cover of a density capable of minimizing accelerated erosion and sedimentation by usual planting methods. The term does not include entrances, pathways and walkways between areas where animals are housed or kept in concentration.

APPLICANT — A landowner and/or developer, including his heirs, successors and assigns, who has filed an application to the Township for approval to engage in any regulated activity at a development site located within the Township.

BMP (BEST MANAGEMENT PRACTICE) — Activities, facilities, control measures, planning or procedures used to minimize accelerated erosion and sedimentation and manage stormwater to protect, maintain, reclaim, and restore the quality of waters and the existing and designated uses of waters within this commonwealth before, during and after earth disturbance activities.³ See also "nonstructural BMP" and "structural BMP."

BMP MANUAL — The Pennsylvania Stormwater Best Management Practices Manual of December 2006, or most recent version thereof.

BOARD OF SUPERVISORS - The governing body of the Township.

BUILDING — Any enclosed or open structure, other than a boundary wall or fence, occupying more than four square feet of area and/or having a roof supported by columns, piers, or walls.

CARBONATE GEOLOGY – Limestone or dolomite bedrock. Carbonate geology is often associated with karst topography.

CERTIFICATE OF SWM FACILITY COMPLETION - Documentation verifying that all permanent SWM facilities have been constructed according to the plans and specifications and approved revisions thereto.

CHAPTER 102 – 25 Pa. Code Chapter 102, Erosion and Sediment Control.

CHAPTER 105 - 25 Pa. Code Chapter 105, Dam Safety and Waterway Management.

CHAPTER 106 - 25 Pa. Code Chapter 106, Floodplain Management.

CISTERN – A reservoir or tank for storing rainwater.

CLEAN WATER ACT — The 1972 Amendments to the Federal Water Pollution Control Act, P.L. 92-500 of 1972, 33 U.S.C. § 1251 et seq.

3. Editor's Note: See Article X, References, § 149-101A.

CODE ENFORCEMENT OFFICER — The person or persons appointed by the Board of Supervisors to administer and enforce Article VI, Operations and Maintenance (O&M), and Article VIII, Prohibitions, of this chapter. The Code Enforcement Officer shall not have the power to review applications or plans or issue approvals. **[Added 12-9-2019 by Ord. No. 249]**

CONSERVATION DISTRICT -The Lancaster County Conservation District or any agency successor thereto.

CONSERVATION PLAN — A plan written by an NRCS-certified planner that identifies conservation practices and includes site specific BMPs for agricultural plowing or tilling activities and animal heavy use areas.

CONSERVATION PRACTICES — Practices installed on agricultural lands to improve farmland, soil and/or water quality which have been identified in a current conservation plan.

CONVEYANCE -

- A. Any structure that carries a flow.
- B. The ability of a pipe, culvert, swale or similar facility to carry the peak flow from the design storm.

CULVERT — A structure with appurtenant works which can convey a stream under or through an embankment or fill.

DCNR — The Pennsylvania Department of Conservation and Natural Resources or any agency successor thereto.

DEP (also PA DEP or PADEP) — The Pennsylvania Department of Environmental Protection or any agency successor thereto.

DESIGN STORM -The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a five-year storm) and duration (e.g., 24 hours), used in the design and evaluation of SWM systems.

DETENTION BASIN -An impoundment structure designed to manage stormwater runoff by temporarily storing the runoff and releasing it at a controlled rate.

DEVELOPER -A person who undertakes any regulated activity of this chapter.

DEVELOPMENT SITE (SITE) -The specific area of land where regulated activities in the Township are planned, conducted or maintained.

DISAPPEARING STREAM -A stream in an area underlain by limestone or dolomite that flows underground for a portion of its length.

DISTURBED AREA -An land area where an earth disturbance activity is occurring or has occurred.

DRAINAGE EASEMENT -Rights to occupy and use another person's real property for the installation and operation of stormwater management facilities, or for the maintenance of natural drainageways to preserve and maintain a channel for the flow of stormwater therein, or to safeguard health, safety, property, and facilities.

E&S -Erosion and sediment.

E & S MANUAL -The Erosion and Sediment Pollution Control Program Manual, Number 363-2134-008, prepared by DEP.

E&S PLAN (also EROSION AND SEDIMENT CONTROL PLAN) - A site-specific plan consisting of both drawings and a narrative that identifies BMPs to minimize accelerated erosion and sedimentation before, during and after earth disturbance activities.

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; land development; agricultural plowing or tilling; operation of animal heavy use areas; timber harvesting activities; road maintenance activities; oil and gas activities; well drilling; mineral extraction; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.⁴

ENVIRONMENTALLY SENSITIVE AREA — Slopes greater than 15%, shallow bedrock (located within six feet of ground surface⁵), wetlands, natural heritage areas and other areas designated as conservation or preservation in Greenscapes, the Green Infrastructure Element of the County Comprehensive Plan, where encroachment by land development or land disturbance results in degradation of the natural resource.

EROSION - The natural process by which the surface of the land is worn away by water, wind, or chemical action. See also "accelerated erosion" as defined above.

EXISTING CONDITIONS — The dominant land cover during the five-year period immediately preceding a proposed regulated activity.

FEMA -The Federal Emergency Management Agency or any agency successor thereto.

FLOOD -A general but temporary condition of partial or complete inundation of normally dry land areas from the overflow of streams, rivers, and other waters of this Commonwealth.

FLOOD FRINGE -That portion of the floodplain outside of the floodway.⁶

FLOODPLAIN - Refer to the definition of "floodplain" in Chapter 184, Zoning.

FLOODPLAIN MANAGEMENT ACT - Act of October 4, 1978, P.L. 851, No. 166, as amended, 32 P.S. § 679.101 et seq.

FLOODWAY - Refer to the definition of "floodway" in Chapter 184, Zoning.

FOREST MANAGEMENT/TIMBER OPERATIONS - Planning and activities necessary for the management of forest land. These include conducting a timber inventory and preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation and reforestation.

FREQUENCY -The probability or chance that a given storm event/flood will be equaled or exceeded in a given year.

4. Editor's Note: See Article X, References, § 149-101A.

5. Editor's Note: See Article X, References, § 149-101B.

6. Editor's Note: See Article X, References, § 149-101C.

GRADE -

- A. (n) A slope, usually of a road, channel or natural ground specified in percent and shown on plans as specified herein.
- B. (v) To finish the surface of a roadbed, top of embankment or bottom of excavation.

GROUNDWATER RECHARGE — The process by which water from above the ground surface is added to the saturated zone of an aquifer, either directly or indirectly.

HYDROLOGIC SOIL GROUP (HSG) — Refers to soils grouped according to their runoff-producing characteristics by NRCS. There are four runoff potential groups ranging from A to D.

- A. (Low runoff potential) Soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well to excessively drained sands or gravels.
- B. Soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.
- C. Soils having slow infiltration rates when thoroughly wetted and consisting chiefly of soils with a layer that impedes downward movement of water, or soils with moderately fine to fine texture.
- D. (High runoff potential) Soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious material.

IMPERVIOUS SURFACE (IMPERVIOUS AREA) — Surfaces which prevent the infiltration of water into the ground. All structures, buildings, parking areas, driveways, roads, streets, sidewalks, and any areas of concrete, asphalt, packed stone, and compacted soil shall be considered impervious surface if they prevent infiltration.

IMPOUNDMENT — A retention or detention facility designed to retain stormwater runoff and infiltrate it into the ground (in the case of a retention basin) or release it at a controlled rate (in the case of a detention basin).

INFILTRATION STRUCTURES — A structure designed to direct runoff into the ground (e.g., french drains, seepage pits, seepage trench, rain gardens, vegetated swales, pervious paving, infiltration basins, etc.).

INLET — A surface connection to a closed drain. The upstream end of any structure through which water may flow.

INTERMITTENT — A natural, transient body or conveyance of water that exists for a relatively long time, but for weeks or months of the year is below the local water table and obtains its flow from both surface runoff and groundwater discharges.

INVASIVE VEGETATION (INVASIVES) - Plants which grow quickly and aggressively, spreading, and displacing other plants. Invasives typically are introduced into a region far from their native habitat. See *Invasive Plants in Pennsylvania* by the DCNR.

KARST — A type of topography or landscape characterized by features including but not limited to surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

LAND DEVELOPMENT — Any activity meeting the definition of land development in Chapter 155, Subdivision and Land Development.

LANDOWNER — The legal or beneficial owner or owners of land including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if he is authorized under the lease to exercise the rights of the landowner, or other person having a proprietary interest in land.

LIMITING ZONE — A rock formation, other stratum, or soil condition which is so slowly permeable that it effectively limits downward passage of effluent.⁷ Season high water tables, whether perched or regional also constitute a limiting zone.

LINEAMENT — A linear feature in a landscape which is an expression of an underlying geological structure such as a fault.

MANNING'S EQUATION — An equation for calculation of velocity of flow (e.g., feet per second) and flow rate (e.g., cubic feet per second) in open channels based upon channel shape, roughness, depth of flow and slope. Manning's Equation assumes steady, gradually varied flow.

MAXIMUM EXTENT PRACTICABLE (MEP) — Applies when the applicant demonstrates to the Township's satisfaction that the performance standard is not achievable. The applicant shall take into account the best available technology, cost effectiveness, geographic features, and other competing interests such as protection of human safety and welfare, protection of endangered and threatened resources, and preservation of historic properties in making the assertion that the performance standard cannot be met and that a different means of control is appropriate.⁸

MPC — The Pennsylvania Municipalities Planning Code, Act of 1968, P.L. 805, No. 247, as reenacted and amended, 53 P.S. § 10101 et seq.

MUNICIPAL SEPARATE STORM SEWER — A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains), which is all of the following:

- A. Owned or operated by a state, city, town, borough, township, county, district, association or other public body (created under state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater or other wastes;
- B. Designed or used for collecting or conveying stormwater;

7. Editor's Note: See Article X, References, § 149-101L.

8. Editor's Note: See Article X, References, § 149-101E.

- C. Not a combined sewer; and
- D. Not part of a publicly owned treatment works as defined at 40 CPR 122.2.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) - All separate storm sewers that are defined as "large" or "medium" or "small" municipal separate storm sewer systems pursuant to 40 CPR 122.26(b)(18), or designated as regulated under 40 CPR 122.26(a)(1)(v).

MUNICIPALITY — The Township of West Earl, Lancaster County, Pennsylvania.

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) - A permit issued under 25 Pa. Code Chapter 92a (relating to National Pollutant Discharge Elimination System permitting, monitoring and compliance) for the discharge or potential discharge of pollutants from a point source to surface waters.

NATIVE VEGETATION — Plant species that have evolved or are indigenous to a specific geographical area. These plants are adapted to local soil and weather conditions as well as pests and diseases.

NATURAL DRAINAGEWAY – An existing channel for water runoff that was formed by natural processes.

NATURAL GROUND COVER — Ground cover which mimics the infiltration characteristics of predominant hydrologic soil group found at the site.

NONPOINT SOURCE POLLUTION — Any source of water pollution that does not meet the legal definition of "point source" in Section 502(14) of the Clean Water Act.

NON-STRUCTURAL BMPs — Planning and design approaches, operational and/or behavior-related practices which minimize stormwater runoff generation resulting from an alteration of the land surface or limit contact of pollutants with stormwater runoff.

NRCS — Natural Resources Conservation Service (previously Soil Conservation Service or SCS).

OPEN CHANNEL — A drainage element in which stormwater flows with an open surface. Open channels include, but shall not be limited to, natural and man-made drainage ways, swales, streams, ditches, canals, and pipes flowing partly full. Open channels may include closed conduits so long as the flow is not under pressure.

OUTFALL – Point where water flows from a conduit, stream, pipe, or drain.

PEAK DISCHARGE — The maximum rate of stormwater runoff from a specific storm event.

PennDOT — The Pennsylvania Department of Transportation or any agency successor thereto.

PERVIOUS AREA — Any material/surface that allows water to pass through at a rate equal to or greater than natural ground cover.

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

PLANNING COMMISSION — The Planning Commission of the Township of West Earl, Lancaster County, Pennsylvania.

PLANS – The SWM and erosion and sediment control plans and narratives.

PROCESS WASTEWATER — Water that comes in contact with any raw material, product, by-product, or waste during any production or industrial process.

QUALIFIED PERSON — Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by this chapter.

RATE CONTROL — SWM controls used to manage the peak flows for the purposes of channel protection and flood mitigation.

RATIONAL FORMULA (RATIONAL METHOD) — A rainfall-runoff relation used to estimate peak flow.

REDEVELOPMENT - Any physical improvement to a previously developed lot that involves earthmoving, removal, or addition of impervious surfaces.

REGIONAL STORMWATER MANAGEMENT PLAN — A plan to manage stormwater runoff from an area larger than a single development site. A regional stormwater management plan could include two adjacent parcels, an entire watershed, or some defined area in between. Regional stormwater management plans can be prepared for new development, or as a retrofit to manage runoff from already developed areas.

REGULATED ACTIVITIES - Activities including earth disturbance activities that involve the alteration or development of land in a manner that may affect stormwater runoff. Regulated activities shall include, but not be limited to:

- A. Land development subject to the requirements of Chapter 155, Subdivision and Land Development;
- B. Removal of ground cover, grading, filling or excavation;
- C. Construction of new or additional impervious or semi-impervious surfaces (driveways, parking lots, etc.), and associated improvements;
- D. Construction of new buildings or additions to existing buildings;
- E. Installation or alteration of stormwater management facilities and appurtenances thereto;
- F. Diversion or piping of any watercourse; and
- G. Any other regulated activities where the Township determines that said activities may affect any existing watercourse's stormwater management facilities, or stormwater drainage patterns.

RELEASE RATE — For a specific design storm or list of design storms, the percentage of peak flow rate for existing conditions which may not be exceeded for the proposed conditions.

RELEASE RATE MAP — A graphical representation of the release rates for a specific area.

RETENTION BASIN — A SWM facility that includes a permanent pool for water quality treatment and additional capacity above the permanent pool for temporary runoff storage.

RIPARIAN — Pertaining to a stream, river or other watercourse. Also, plant communities occurring in association with any spring, lake, river, stream or creek through which waters flow at least periodically.⁹

RIPARIAN BUFFER - A BMP that is an area of permanent vegetation along a watercourse.

RIPARIAN CORRIDOR — A narrow strip of land, centered on a stream or river, that includes the floodplain as well as related riparian habitats adjacent to the floodplain.¹⁰

RIPARIAN CORRIDOR EASEMENT - An easement created for the purpose of protecting and preserving a riparian corridor.

RIPARIAN FOREST BUFFER - A type of riparian buffer that consists of permanent vegetation that is predominantly native trees, shrubs and forbs along a watercourse that is maintained in a natural state or sustainably managed to protect and enhance water quality, stabilize stream channels and banks, and separate land use activities from surface waters.

ROOFTOP DETENTION - Temporary ponding and gradual release of stormwater falling directly onto roof surfaces by incorporating controlled-flow roof drains into building designs.

RUNOFF — Any part of precipitation that flows over the land surface.

SCS — U.S. Department of Agriculture, Soil Conservation Service (now known as NRCS).

SEDIMENT — Soils or other materials transported by stormwater as a product of erosion.¹¹

SEDIMENTATION The action or process of forming or depositing sediment in waters of this Commonwealth.¹²

SEDIMENT BASIN — A barrier, dam, retention or detention basin located and designed to retain rock, sand, gravel, silt, or other material transported by water.

SEDIMENT POLLUTION The placement, discharge or any other introduction of sediment into the waters of the commonwealth occurring from the failure to design, construct, implement or maintain control measures and control facilities in accordance with the requirements of this chapter.

SEEPAGE PIT/SEEPAGE TRENCH — An area of excavated earth filled with loose stone or similar coarse material, into which surface water is directed for infiltration into the ground.

SEMI-IMPERVIOUS/SEMI-PERVIOUS SURFACE — A surface which prevents some infiltration of water into the ground.

9. Editor's Note: See Article X, References, § 149-101F.

10. Editor's Note: See Article X, References, § 149-101F.

11. Editor's Note: See Article X, References, § 149-101A.

12. Editor's Note: See Article X, References, § 149-101G.

SHEET FLOW -Runoff which flows over the ground surface as a thin, even layer, not concentrated in a channel.

SMALL PROJECT —Regulated activities that, measured on a cumulative basis from July 1, 2005, create new impervious areas of more than 1,000 square feet and less than 5,000 square feet or involve earth disturbance activity of an area less than 5,000 square feet and do not involve the alteration of stormwater facilities or watercourses.

SMALL STORM EVENT —A storm having a frequency of recurrence of once every two years or smaller.

SOIL-COVER COMPLEX METHOD —A method of runoff computation developed by the SCS (now NRCS) that is based on relating soil type and land use/cover to a runoff parameter called Curve Number (CN). For more information, see "Urban Hydrology for Small WATERSHEDS", Second edition, Technical Release No. 55, SCS, June 1986 (or most current edition).

SOIL GROUP, HYDROLOGIC - See "hydrologic soil group."

STATE WATER QUALITY REQUIREMENTS - The regulatory requirements to protect, maintain, reclaim, and restore water quality under Title 25 of the Pennsylvania Code, the Clean Streams Law and the Clean Water Act.

STORAGE—A volume above or below ground that is available to hold stormwater.

STORM EVENT - A storm of a specific duration, intensity, and frequency.¹³

STORM SEWER - A system of pipes and/or open channels designed to convey stormwater.

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

STORMWATER MANAGEMENT ACT — Act of October 4, 1978, P.L. 864, No. 167, as amended, 32 P.S. § 680.1 et seq.

STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (SWM BMP) — See "BMPs."

STORMWATER MANAGEMENT FACILITY (SWM FACILITY) - Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, infiltrates/evaporates/transpires, cleans or otherwise affects stormwater runoff. Typical SWM facilities include, but are not limited to, detention and retention basins, open channels, watercourses, road gutters, swales, storm sewers, pipes, BMPs, and infiltration structures.

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE PLAN (O & M PLAN) — A plan, including a narrative, to ensure proper functioning of the SWM facilities in accordance with Article VI of this chapter.

13. Editor's Note: See Article X, References, § 149-101G.

STORMWATER MANAGEMENT SITE PLAN (SWM SITE PLAN) — The plan prepared by the developer or his representative indicating how stormwater runoff will be managed at a particular development site according to this chapter.

STREAM — A watercourse.

STRUCTURAL BMPs —Physical devices and practices that capture and treat stormwater runoff. Structural stormwater BMPs are permanent appurtenances to the development site.

STRUCTURE - Any man-made object having an ascertainable stationary location on or in land or water, whether or not affixed to the land.¹⁴

SUBDIVISION — Any activity meeting the definition of subdivision in the MPC.

SWALE — A low-lying stretch of land which gathers or carries surface water runoff.

SWM — Stormwater management.

SWM SITE PLAN — A stormwater management site plan.

TIMBER OPERATIONS — See "forest management."

TIME OF CONCENTRATION (Tc) —The time for surface runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. This time is the combined total of overland flow time and flow time in pipes or channels, if any.

TOP OF STREAMBANK —First substantial break in slope between the edge of the bed of the stream and the surrounding terrain. The top of streambank can either be a natural or constructed (that is, road or railroad grade) feature, lying generally parallel to the watercourse.

TOWNSHIP - West Earl Township, Lancaster County, Pennsylvania.

TREATMENT TRAIN - The sequencing of structural best management practices to achieve optimal flow management and pollutant removal from urban stormwater.

USDA — United States Department of Agriculture or any agency successor thereto.

VOLUME CONTROL — SWM controls, or BMPs, used to remove a predetermined amount of runoff or the increase in volume between the pre- and post-development design storm.

WATERCOURSE — A channel or conveyance of surface water having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

WATERSHED – The entire region or area drained by a watercourse.

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 Pennsylvania.

14. Editor's Note: See Article X, References, § 149-101H.

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

WOODLAND — Land predominantly covered with trees and shrubs. Without limiting the foregoing, Woodlands include all land areas of 10,000 square feet or greater, supporting at least 100 trees per acre, so that either:

- A. At least 50 trees are two inches or greater in diameter at breast height (DBH); or
- B. Fifty trees are at least 12 feet in height.

§ 149-23. through § 149-30. (Reserved)

ARTICLE III

Stormwater Management Standards

§ 149-31. General requirements.

- A. Preparation of a SWM site plan is required for all regulated activities, unless preparation and submission of the SWM site plan is specifically exempted according to § 149-51 or the activity meets the criteria for processing under § 149-52.
- B. No regulated activities shall commence until the municipality issues unconditional written approval of a SWM site plan or stormwater permit.
- C. SWM site plans approved by the Township, in accordance with § 149-55, shall be on site throughout the duration of the regulated activity.
- D. The Township may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this chapter, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law. The Township shall maintain a record of consultations with DEP pursuant to this Subsection. Where an NPDES permit for stormwater discharges associated with construction activities is required, issuance of an NPDES permit shall constitute satisfaction of consultation with DEP.
- E. For all regulated activities, erosion and sediment control and stormwater management BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this chapter 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 E&S manuals and the BMP manual.

15. Editor's Note: See Article X, References, § 149-101I.

- F. Developers have the option to propose a regional stormwater management plan or participate in a regional stormwater management plan developed by others. A regional stormwater management plan may include offsite volume and rate control, as appropriate and supported by a detailed design approved by the Township in accordance with § 149-31D. A regional stormwater management plan must meet all of the volume and rate control standards required by this chapter for the area defined by the regional stormwater management plan, but not necessarily for each individual development site. Appropriate agreements must be established to ensure the requirements of this chapter and the requirements of the regional stormwater management plan are met.
- G. Unless prohibited by Chapter 184, Zoning, or any ordinance which regulates construction and development within the areas of the Township subject to flooding, and any other applicable requirements of the Floodplain Management Act, stormwater management facilities may be located in the floodplain when permitted by the Township and designed and constructed in accordance with the provisions of the BMP manual, regulatory requirements, the requirements of this chapter and any other provisions that the Township deems applicable.
- H. Impervious areas:
- (1) The measurement of impervious area shall include all of the impervious areas in the total proposed development even if development is to take place in stages or phases.
 - (2) For development taking place in stages or phases, the entire development plan must be used in determining conformance with this chapter.
 - (3) Any areas designed to initially be gravel or crushed stone shall be assumed to be impervious.
- I. All regulated activities shall include such measures as necessary to:
- (1) Protect health, safety, and property;
 - (2) Meet the water quality goals of this chapter by implementing measures to:
 - (a) Protect and/or improve the function of floodplains, wetlands, and wooded areas.
 - (b) Protect and/or improve native plant communities including those within the riparian corridor.
 - (c) Protect and/or improve natural drainageways from erosion.
 - (d) Minimize thermal impacts to waters of this commonwealth.
 - (e) Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.
- J. The design of all stormwater management facilities over karst shall include an evaluation of measures to minimize adverse effects.

- K. Infiltration BMPs shall 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 chapter. Infiltration BMPs shall include pretreatment BMPs unless shown to be unnecessary.
- L. Infiltration BMPs intended to receive runoff from developed areas shall be selected based on suitability of soils and development site conditions and shall be constructed on soils that have the following characteristics:
- (1) A minimum depth of 24 inches between the bottom of the facility and the limiting zone, unless it is demonstrated to the satisfaction of the Township that the selected BMP has design criteria which allow for a smaller separation.
 - (2) A stabilized infiltration rate sufficient to accept the additional stormwater load and drain completely as determined by field tests conducted by the applicant's professional designer.
 - (a) The stabilized infiltration rate is to be determined in the same location and within the same soil horizon as the bottom of the infiltration facility.
 - (b) The stabilized infiltration rate is to be determined as specified in the BMP manual.
- M. The calculation methodology to be used in the analysis of volume and peak rates of discharge shall be as required in § 149-35.
- N. A planting plan is required for all vegetated stormwater BMPs.
- (1) Native or naturalized/noninvasive vegetation suitable to the soil and hydrologic conditions of the development site shall be used unless otherwise specified in the BMP Manual.
 - (2) Invasive vegetation may not be included in any planting schedule.
 - (3) The limit of existing, native vegetation to remain shall be delineated on the plan along with proposed construction protection measures.
 - (4) Prior to construction, a tree protection zone shall be delineated at the dripline of the tree canopy. All trees scheduled to remain during construction shall be marked; however, where groups of trees exist, only the trees on the outside edge need to be marked. A forty-eight-inch-high snow fence or forty-eight-inch-high construction fence mounted on steel posts located eight feet on center shall be placed along the tree protection boundary. No construction, storage of material, temporary parking, pollution of soil, or regrading shall occur within the tree protection zone.
 - (5) All planting shall be performed in conformance with good nursery and landscape practice. Plant materials shall conform to the standards recommended by the American Association of Nurseryman, Inc., in the American Standard of Nursery Stock.
 - (a) Planting designs are encouraged to share planting space for optimal root growth whenever possible.

- (b) No staking or wiring of trees shall be allowed without a maintenance note for the stake and/or wire removal within one year of planting.
- O. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase to maintain maximum infiltration capacity. Staging of earthmoving activities and selection of construction equipment should consider this protection.
- P. Infiltration BMPs shall not be constructed nor receive runoff from disturbed areas until the entire contributory drainage area to the infiltration BMP has achieved final stabilization.
- Q. A minimum twenty-foot wide access easement shall be provided for all stormwater facilities with tributary areas equal or greater than 1,000 square feet and not located within a public right-of-way. Easements shall provide for ingress and egress to a public right-of-way. Stormwater facilities shall be centered within easements.
- R. Drainage easements shall be provided where the conveyance, treatment, or storage of stormwater, either existing or proposed, is identified on the SWM site plan. Drainage easements shall be provided to contain and convey the one-hundred-year frequency flood.
- S. The Township may require additional stormwater control measures for stormwater discharges to special management areas including but not limited to:
 - (1) Water bodies listed as "impaired" on Pennsylvania's Clean Water Act 303(d)/305(b) Integrated List.
 - (2) Any water body or watershed with an approved total maximum daily load (TMDL).
 - (3) Critical areas with sensitive resources (e.g., state-designated special protection waters, cold water fisheries, carbonate or other groundwater recharge areas highly vulnerable to contamination, drainage areas to water supply reservoirs, source water protection zones, etc.).
- T. Roof drains and sump pumps shall be tributary to infiltration or vegetative BMPs. Use of catchment facilities for the purpose of reuse is also permitted.
- U. Non-structural BMPs shall be utilized for all regulated activities unless proven to be impractical.
- V. Where a development is traversed by a watercourse, drainageway, channel or stream, there shall be provided a drainage easement conforming substantially with the line of such watercourse, drainageway, channel or stream and of such width as will be adequate to preserve the unimpeded flow of natural drainage or for the purpose of widening, deepening, relocating, improving or protecting such drainage facilities.

§ 149-32. Volume controls.

Volume control BMPs are intended to maintain existing hydrologic conditions for small storm events by promoting groundwater recharge and/or evapotranspiration as described in this

section. Runoff volume controls shall be implemented using the Design Storm Method described in Subsection A below, or through continuous modeling approaches or other means as described in the BMP Manual. Small projects may use the method described in Subsection B to design volume control BMPs.

A. The Design Storm Method is applicable to any size of regulated activity. This method requires detailed modeling based on site conditions.

- (1) Do not increase the post development total runoff volume for all storms equal to or less than the two-year twenty-four-hour storm event.
- (2) For modeling purposes:
 - (a) Existing (predevelopment) nonforested pervious areas must be considered meadow in good condition.
 - (b) When the existing project site contains impervious area, 20% of existing impervious area to be disturbed shall be considered meadow in good condition in the model for existing conditions.
 - (c) The maximum loading ratio for volume control facilities in karst areas shall be 3:1 impervious drainage area to infiltration area and 5:1 total drainage area to infiltration area. The maximum loading ratio for volume control facilities in nonkarst areas shall be 5:1 impervious drainage area to infiltration area and 8:1 total drainage area to infiltration area. A higher ratio may be approved by the Township if justification is provided. Hydraulic depth may be used as an alternative to an area based loading ratio if the design hydraulic depth is shown to be less than the depth that could result from the maximum area loading ratio.

B. Volume control for small projects.

- (1) At least the first three inches of runoff from new impervious surfaces or an equivalent volume shall be permanently removed from the runoff flow; i.e., it shall not be released into the surface waters of this commonwealth. Removal options include reuse, evaporation, transpiration and infiltration.
- C. A detailed geologic evaluation of the development site shall be performed in areas of carbonate geology to determine the design parameters of recharge facilities. A report shall be prepared in accordance with § 149-45A of this chapter.
- D. Storage facilities, including normally dry, open top facilities, shall completely drain the volume control storage over a period of time not less than 24 hours and not more than 72 hours from the end of the design storm. Any designed infiltration at such facilities is exempt from the minimum twenty-four hour standard, i.e., may infiltrate in a shorter period of time, provided that none of this water will be discharged into waters of this commonwealth.
- E. Any portion of the volume control storage that meets all of the following criteria may also be used as rate control storage:

- (1) Volume control storage that depends on infiltration is designed according to the infiltration standards in § 149-31.
 - (2) The volume control storage which will be used for rate control is that storage which is available within 24 hours from the end of the design storm based on the stabilized infiltration rate and/or the evapotranspiration rate.
- F. Volume control storage facilities designed to infiltrate shall avoid the least permeable hydrologic soil group(s) at the development site.

§ 149-33. Rate controls.

Rate control for large storms, up to the one-hundred-year event, is essential to protect against immediate downstream erosion and flooding.

- A. Match pre-development hydrograph. Applicants shall provide infiltration facilities or utilize other techniques which will allow the post-development one-hundred-year hydrograph to match the pre-development one-hundred-year hydrograph, along all parts of the hydrograph, for the development site. To match the pre-development hydrograph, the post development peak rate must be less than or equal to the pre-development peak rate, and the post development runoff volume must be less than or equal to the pre-development volume for the same storm event. A shift in hydrograph peak time of up to five minutes may be allowable.
- B. Where the pre-development hydrograph cannot be matched, one of the following shall apply:
- (1) For areas not covered by a release rate map from the approved Cocalico Creek Watershed Act 167 Plan or the approved Conestoga River Watershed Act 167 Plan: Post development discharge rates shall not exceed the predevelopment discharge rates for the two-, ten-, twenty-five-, fifty-, and one-hundred-year twenty-four-hour storm events*. If it is shown that the peak rates of discharge indicated by the post development analysis are less than or equal to the peak rates of discharge indicated by the predevelopment analysis for two-, ten-, twenty-five-, fifty-, and one-hundred-year, twenty-four-hour storms*, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

NOTE:

- * A twenty-four-hour SCS type II storm or an IDF Curve Rational Method storm. See Table III-1 in § 149-35.

- (2) For areas covered by a release rate map from the approved Cocalico Creek Watershed Act 167 Plan or the approved Conestoga River Watershed Act 167 Plan: For the two-, ten-, twenty-five-, fifty-, and one-hundred-year storm events*, the post development peak discharge rates will follow the applicable approved release rate maps.

NOTE:

- * A twenty-four-hour SCS type II storm or an IDF Curve Rational Method storm. See Table ID-1 in § 149-35.

- C. Normally dry, open top, storage facilities shall completely drain the rate control storage over a period of time less than or equal to 24 hours from the peak one-hundred-year water surface design elevation.
- D. A variety of BMPs should be employed and tailored to suit the development site. The following is a partial listing of BMPs which can be utilized in SWM systems for rate control where appropriate:
 - (1) Decreased impervious surface coverage.
 - (2) Routed flow over grass.
 - (3) Grassed channels and vegetated strips.
 - (4) Bio-retention areas (rain gardens).
 - (5) Concrete lattice block or permeable surfaces.
 - (6) Seepage pits, seepage trenches or other infiltration structures.
 - (7) Rooftop detention.
 - (8) Parking lot detention.
 - (9) Cisterns and underground reservoirs.
 - (10) Amended soils, only where permitted by the Township.
 - (11) Retention basins.
 - (12) Detention basins.
 - (13) Other methods as may be found in the BMP Manual.
- E. Small projects are not required to provide for rate control.

§ 149-34. Stormwater management performance standards.

- A. Runoff from impervious areas shall be drained to pervious areas within the development site, unless the site has 85% or more impervious cover and is a redevelopment,¹⁶ in which case the portion of the site that discharges to pervious areas shall be maximized.
- B. Stormwater runoff from a development site to an adjacent property shall flow directly into a natural drainageway, watercourse, or into an existing storm sewer system, or onto adjacent properties in a manner similar to the runoff characteristics of the

16. Editor's Note: See Article X, References, § 149-101J.

pre-development flow. Concentration of post development stormwater runoff and direct overland discharge to adjacent properties is strictly prohibited.

- C. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification of the adjacent property owner(s) by the developer. Such stormwater flows shall be subject to the requirements of this chapter, including the establishment of a drainage easement. Copies of all such notifications shall be included in SWM site plan submissions.
- D. Existing on-site natural and man-made SWM facilities shall be used to the maximum extent practicable.
- E. Stormwater runoff shall not be transferred from one sub-watershed to another unless they are sub-watersheds of a common watershed that join together within the perimeter of the development site and the effect of the transfer does not alter the peak discharge onto adjacent lands.
- F. Minimum floor elevations for all structures that would be affected by a basin, other temporary impoundments, or open conveyance systems where ponding may occur shall be two feet above the one-hundred-year water surface elevation. If basement or underground facilities are proposed, detailed calculations addressing the effects of stormwater ponding on the structure and waterproofing and/or floodproofing design information shall be submitted for approval.
- G. All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) shall be designed to convey a twenty-five-year storm event.* All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) conveying water originating from offsite shall be designed to convey a fifty-year storm event.* Safe conveyance of the one-hundred-year runoff event* to appropriate peak rate control BMPs must be demonstrated in the design.

NOTE:

* A twenty-four-hour SCS Type II storm or an IDF Curve Rational Method storm.

- H. Erosion protection shall be provided along all open channels, and at all points of discharge. Flow velocities from any storm sewer may not result in erosion of the receiving channel.
- I. Where existing storm sewers are reasonably accessible, proposed developments shall be required, if necessary, to connect therewith.
- J. The developer shall include a note on a sheet of the plan to be recorded which grants the Township the right of access to all stormwater management easements on the development site via the access drives, driveways, parking areas, and similar features within the development site.
- K. All developments shall include design provisions that allow for the overland conveyance of the postdevelopment one-hundred-year storm event flows through the site without damage to any private or public property.

- L. Stormwater roof drains and pipes, wherever possible, shall discharge water into a stormwater runoff dispersion and infiltration control device and not into storm sewers or street gutters.
- M. All existing and natural watercourses, channels drainage systems and areas of surface water concentration shall be maintained in their existing condition unless an alteration is approved by the Township.

§ 149-35. Calculation methodology.

- A. Any stormwater runoff calculations involving drainage areas greater than 25 acres and time of concentration (Tc) greater than 60 minutes, including on- and off-site areas, shall use generally accepted calculation techniques based on the NRCS soil-cover complex method.
- B. Stormwater runoff from all development sites shall be calculated using either the modified rational method, a soil-cover-complex methodology, or other method acceptable to the Township. Table III-1 summarizes acceptable computation methods. It is assumed that all methods will be selected by the design professional based on the individual limitations and suitability of each method for a particular development site.

Table 111-1

Acceptable Computation Methodologies for Stormwater Management Plans

Method		
Method	Developed By	Applicability
TR-20 (or commercial computer package based on TR-20)	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary.
Win TR-55 (or commercial computer package based on TR-55)	USDA NRCS	Applicable for land development plans within limitations described in TR-55.
HEC-1/HEC-HMS	US Army Corps of Engineers	Applicable where use of full hydrologic computer model is desirable or necessary.
Rational Method (or commercial computer package based on Rational Method)	Emil Kuichling (1889)	For development sites less than 25 acres, Tc<60 minimum or as approved by the Township.
EFH2	USDA NRCS	Applicable in rural and undeveloped areas subject to the Program Limits.
Other methods	Varies	Other methodologies approved by the Township.

- C. If the SCS method is used, Antecedent Moisture Condition 1 is to be used in areas of carbonate geology when required by the Township. Antecedent Moisture Condition 2 is to be used in all other areas. A Type II distribution shall be used in all areas.
- D. If the Rational Method is used, the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 data (see Subsection B above) or PennDOT Publication 584, PennDOT Drainage Manual, 2008 Edition, or latest, shall be used to determine the rainfall intensity in inches per hour based on the information for the five-through sixty-minute duration storm events.
- E. Hydrographs may be obtained from NRCS methods such as TR-55, TR20, or from use of the "modified" or "unit hydrograph" rational methods. If "modified" or "unit hydrograph" rational methods are used, the ascending leg of the hydrograph shall have a length equal to three times the time of concentration ($3 \times T_c$) and the descending leg shall have a length equal to seven times the time of concentration ($7 \times T_c$) to approximate an SCS Type II hydrograph. ¹⁷ The Township may require longer time of concentration values or other alternate analysis for rational method hydrographs to evaluate runoff volumes from impervious areas and resulting stormwater management facility storage capacity.
- F. Runoff calculations shall include a hydrologic and hydraulic analysis indicating volume and velocities of flow and the grades, sizes, and capacities of water-carrying structures, sediment basins, retention and detention structures and sufficient design information to construct such facilities. Runoff calculations shall also indicate both pre-development and post-development rates for peak discharge of stormwater runoff from all discharge points.
- G. For the purpose of calculating pre-development peak discharges, all runoff coefficients, both on-site and off-site, shall be based on actual land use assuming summer or good land conditions. Post-development runoff coefficients for off-site discharges used to design conveyance facilities shall be based on actual land use assuming winter or poor land conditions.
- H. Criteria and assumptions to be used in the determination of stormwater runoff and design of management facilities are as follows:
 - (1) Runoff coefficients shall be based on the information contained in Appendix B-1 and B-2 if the actual land use is listed in those appendices. If the actual land use is not listed in these appendices, runoff coefficients shall be chosen from other published documentation, and a copy of said documentation shall be submitted with the SWM site plan.
 - (2) A sample worksheet for calculating T_c is provided in Appendix B-4.19 Times of concentration (T_c) shall be based on the following design parameters:
 - (a) Sheet flow: The maximum length for each reach of sheet or overland flow before shallow concentrated or open channel flow develops is 150 feet. Flow lengths greater than 100 feet shall be justified based on the actual conditions

17. Editor's Note: See Article X, References, § 149-10IK.

18. Editor's Note: Said appendix is included as an attachment to this chapter.

19. ~~19.~~ Editor's Note: Said appendix is included as an attachment to this chapter.

at each development site. Sheet flow may be determined using the Manning's kinematic solution shown in the sheet flow section of Worksheet No. 1 in Appendix B-3.²⁰

- (b) Shallow concentrated flow: Travel time for shallow concentrated flow shall be determined using Figure 3-1 from TR-55, Urban Hydrology for small watersheds, as shown in Appendix B-4.²¹
 - (c) Open channel flows: At points where sheet and shallow concentrated flows concentrate in field depressions, swales, gutters, curbs, or pipe collection systems, the travel times to downstream end of the development site between these design points shall be based upon Manning's Equation and/or acceptable engineering design standards as determined by the Township Engineer.
 - (d) Times of concentration calculations shall consider the impact of runoff from impervious areas and the resulting hydrograph volume created when the Modified Rational Method is used.
- (3) The developer may use stormwater credits for nonstructural BMPs in accordance with the BMP manual. The allowable reduction will be determined by the Township.
 - (4) Peak rate control is not required for off-site runoff. Off-site runoff may be bypassed around the site provided all other discharge requirements are met. If offsite runoff is routed through rate control facilities, runoff coefficients for off-site discharges used to design those rate control facilities shall be based on actual land use assuming winter or poor land conditions.
- I. Times of concentration shall be calculated based on the methodology recommended in the respective model used. Times of concentration for channel and pipe flow shall be computed using Manning's equation. Supporting documentation and calculations must be submitted for review and approval.

§ 149-36. Riparian corridors.

- A. In order to protect and improve water quality, a riparian corridor easement shall be created and recorded as part of any subdivision or land development that encompasses a riparian corridor.
- B. Except as otherwise required by Chapter 102, the riparian corridor easement shall be measured to be the greater of the limit of the one-hundred-year floodplain or 35 feet from the top of streambank (on each side).
- C. Minimum management requirements for riparian corridors.

20. Editor's Note: Said appendix is included as an attachment to this chapter.

21. Editor's Note: Said appendix is included as an attachment to this chapter.

- (1) Existing native vegetation shall be protected and maintained within the riparian corridor easement.
 - (2) Whenever practicable invasive vegetation shall be actively removed and the riparian corridor easement shall be planted with native trees, shrubs and other vegetation to create a diverse native plant community appropriate to the intended ecological context of the site.
- D. The riparian corridor easement shall be enforceable by the Township and shall be recorded in the Lancaster County Recorder of Deeds Office, so that it shall run with the land and shall limit the use of the property located therein. The easement shall allow for the continued private ownership and shall count toward the minimum lot area as required by Chapter 184, Zoning, unless otherwise specified.
- E. Any permitted use within the riparian corridor easement shall be conducted in a manner that will maintain the extent of the existing one-hundred-year floodplain, improve or maintain the stream stability, and preserve and protect the ecological function of the floodplain.
- F. The following conditions shall apply when public and/or private recreation trails are permitted within riparian corridors:
- (1) Trails shall be for nonmotorized use only.
 - (2) Trails shall be designed to have the least impact on native plant species and other sensitive environmental features.
- G. Septic drainfields and sewage disposal systems shall not be permitted within the riparian corridor easement and shall comply with setback requirements established under 25 Pa. Code Chapter 73.

§ 149-37. Stormwater management facility design standards.

- A. Aboveground storage facilities. Aboveground storage facilities consist of all SWM facilities which store, infiltrate/evaporate/transpire, clean or otherwise affect stormwater runoff and the top of which is exposed to the natural environment. Aboveground storage facilities are located above the finished ground elevation. Aboveground storage facilities do not include SWM facilities designed for conveyance or cisterns.
- (1) Design criteria. Aboveground storage facilities shall comply with the design criteria in the following table:

Aboveground Storage Facility Design Criteria				
		Facility Depth		
		Less than 2 feet	2 feet to 8 feet	Greater than 8 feet
(a)	Embankment geometry			
	[1] Top width (minimum)	2 feet	5 feet	8 feet

Aboveground Storage Facility Design Criteria

		Facility Depth		
		Less than 2 feet	2 feet to 8 feet	Greater than 8 feet
	[2] Interior side slope (maximum)	2:1	3:1	5:1
	[3] Exterior side slope (maximum)	2:1	3:1	3:1
(b)	Embankment construction			
	[1] Key trench	Not required	Required	Required
	[2] Pipe collar	Not required	Required	Required
	[3] Compaction density	Not required	Required	Required
(c)	Internal construction			
	[1] Dewatering feature	N/A	Required	Required
	[2] Pretreatment elements	Not required*	Required	Required
(d)	Outlet structure			
	[1] Pipe size (minimum)	6 inches	12 inches	15 inches
	[2] Pipe material	SLHDPE, PVC, RCP	SLHDPE, RCP	RCP
	[3] Anticlogging devices	Required	Required	Required
	[4] Antivortex design	Not required	Required	Required
	[5] Watertight joints in piping	No	Yes	Yes
(e)	Spillway requirements			
	[1] Spillway freeboard (minimum)	Not required	3 inches	6 inches
	[2] Width (minimum)	Not required	10 feet	20 feet
	[3] Width (maximum)	Not required	50 feet	50 feet
	[4] Spillway channel design	Not required	Required	Required
	[5] Routing of one-hundred-year storm	Permitted	Permitted	Permitted

NOTES:

*		Pretreatment required for infiltration BMPs unless shown to be unnecessary.
N/A	=	Not applicable
SLHDPE	=	Smooth lined high density polyethylene pipe
PVC	=	Polyvinyl chloride
RCP	=	Reinforced concrete pipe

(2) Facility depth.

- (a) For the purposes of the design criteria, the facility depth is defined to be the depth between the bottom invert of the lowest orifice and the invert of the spillway. If there is no spillway, the top of the berm shall be used. For basins with no orifices or outlet structure, the bottom elevation of the basin shall be used.
- (b) Facilities with a facility depth greater than eight feet shall not be permitted in residential areas.
- (c) Facilities with a facility depth greater than 15 feet require a dam permit from DEP.

(3) Embankment construction.

- (a) Impervious core/key trench. An impervious core/key trench, when required, shall consist of a cutoff trench (below existing grade) and a core trench (above existing grade). A key trench may not be required wherever it can be shown that another design feature, such as the use of an impermeable liner, accomplishes the same purpose.

[1] Materials. Materials used for the core shall conform to the Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the No. 200 sieve.

[2] Dimensions.

- [a] The dimensions of the core shall provide a minimum trench depth of two feet below existing grade, minimum width of four feet and side slope of 1H:1V or flatter.
- [b] The core should extend up both abutments to the ten-year water surface elevation or six inches below the emergency spillway elevation, whichever is lower.
- [c] The core shall extend four feet below any pipe penetrations through the impervious core. The core shall be installed along or parallel to the centerline of the embankment.

[3] Compaction.

- [a] Compaction requirements shall be the same as those for the embankment to assure maximum density and minimum permeability.
 - [b] The core shall be constructed concurrently with the outer shell of the embankment.
 - [c] The trench shall be dewatered during backfilling and compaction operations.
- (b) Pipe collars. All pipe collars, when required, shall be designed in accordance with Chapter 7 of the E&S Manual. The material shall consist of concrete or otherwise nondegradable material around the outfall barrel and shall be watertight.
 - (c) Embankment fill material. The embankment fill material shall be taken from an appropriate borrow area which shall be free of roots, stumps, wood, rubbish, stones greater than six inches, frozen or other objectionable materials.
 - (d) Embankment compaction. When required, embankments shall be compacted by sheepsfoot or pad roller. The loose lift thickness shall be nine inches or less, depending on roller size, and the maximum particle size is six inches or less (two-thirds of the lift thickness). Five passes of the compaction equipment over the entire surface of each lift is required. Embankment compaction to visible nonmovement is also required.
- (4) Internal construction.
- (a) Bottom slope. The minimum bottom slope of facilities not designed for infiltration shall be 1%. A flatter slope may be used if an equivalent dewatering mechanism is provided.
 - (b) Dewatering features. When required, dewatering shall be provided through the use of underdrain, surface device, or alternate approved by the Township Engineer. If the facility is to be used for infiltration, the dewatering device should be capable of being disconnected and only be made operational if the basin is not dewatering within the required timeframe.
 - (c) Pretreatment elements. When required, pretreatment elements shall consist of forebays, or alternate approved by the Township Engineer, to keep silt to a smaller portion of the facility for ease of maintenance.
 - (d) Infiltration basins. Within basins designed for infiltration, existing native vegetation shall be preserved, if possible. For existing unvegetated areas or for infiltration basins that require excavation, a planting plan shall be prepared in accordance with § 149-31N and the BMP manual which is designed to promote infiltration.
- (5) Outlet configuration.

- (a) For facilities with a depth of two feet or greater, a Type D-W endwall or riser box outlet structure shall be provided.
 - (b) For facilities with a depth less than two feet, no outlet structure is required.
 - (c) All discharge control devices with appurtenances shall be made of reinforced concrete and stainless steel. Bolts/fasteners shall be stainless steel.
 - (d) All outlet structures and emergency spillways shall include a satisfactory means of dissipating the energy of flow at its outlet to assure conveyance of flow without endangering the safety and integrity of the basin and the downstream drainage area.
- (6) Spillway.
- (a) Material. The spillway shall be designed to provide a nonerosive, stable condition when the project is completed.
 - (b) Nonemergency use. Use of the spillway to convey flows greater than the fifty-year design storm is permitted.
 - (c) Emergency use. The spillway shall be designed to convey the one-hundred-year post-development peak inflow.
 - (d) When required, freeboard shall be measured from the top of the water surface elevation for emergency use.
- (7) Breach analysis. The Township may require a breach analysis based on site-specific conditions and concern of threat for downstream property. When required, the breach analysis shall be conducted in accordance with the NRCS methodology, the US Army Corps of Engineers methodology (HEC-1) or other methodologies as approved by the Township.
- B. Subsurface storage facilities. Subsurface storage facilities consist of all stormwater facilities which store, infiltrate/evaporate/transpire, clean or otherwise affect stormwater runoff and the top of which is not exposed to the natural environment. Subsurface facilities are located below the finished ground elevation. Subsurface facilities do not include stormwater management facilities designed for conveyance.
- (1) Design criteria. Subsurface storage facilities shall comply with the design criteria in the following table:

Subsurface Storage Facility Design Criteria

		Facility Type	
		Infiltration and Storage	Storage without Infiltration
(a)	Facility geometry		
	[1] Depth from surface (maximum)	2 feet less than limiting zone	N/A

Subsurface Storage Facility Design Criteria

		Facility Type	
		Infiltration and Storage	Storage without Infiltration
	[2] Loading ratio (maximum)	Per BMP Manual*	N/A
(b)	Distribution system requirements		
	[1] Pipe size (minimum)	4 inches	4 inches
	[2] Pretreatment	Required	Required
	[3] Loading/balancing	Required	Not required
	[4] Observation/access ports	Required	Required

NOTES:

- * Unless otherwise determined by professional geologic evaluation.

(2) Distribution system requirements.

- (a) Pretreatment requirements. The facility shall be designed to provide a method to eliminate solids, sediment, and other debris from entering the subsurface facility.
- (b) Loading/balancing. The facility shall be designed to provide a means of evenly balancing the flow across the surface of the facility to be used for infiltration.
- (c) Observation/access ports.
 - [1] For facilities with the bottom less than five feet below the average grade of the ground surface, a clean-out shall be an acceptable observation port.
 - [2] For facilities with the bottom five feet or more below the average grade of the ground surface, a manhole or other means acceptable to the Township shall be provided for access to and monitoring of the facility.
 - [3] The number of access points shall be sufficient to flush or otherwise clean out the system.

(3) Materials.

- (a) Pipe material. Distribution system piping may be PVC, SLHDPE, or RCP.
- (b) Stone for infiltration beds. The stone used for infiltration beds shall be clean washed, uniformly graded coarse aggregate (AASHTO No. 3 or equivalent approved by the Township). The void ratio for design shall be assumed to be 0.4.

- (c) Backfill material. Material consistency and placement depths for backfill shall be (at a minimum) per all applicable pipe manufacturer's recommendations, further providing it should be free of large (not exceeding six inches in any dimension) objectionable or detritus material. Select nonaggregate material should be indigenous to the surrounding soil material for nonvehicular areas. Backfill within vehicular areas shall comply with this section unless otherwise specified in Chapter 152, Streets and Sidewalks, or Chapter 155, Subdivision and Land Development. Furthermore, if the design concept includes the migration of runoff through the backfill to reach the infiltration facility, the material shall be well drained, free of excess clay or clay like materials and generally uniform in gradation.
 - (d) Lining material. Nonwoven geotextiles shall be placed on the sides and top of subsurface infiltration facilities. No geotextiles shall be placed on the bottom of subsurface infiltration facilities.
- (4) Cover.
- (a) When located under pavement, the top of the subsurface facility shall be a minimum of three inches below the bottom of pavement subbase.
 - (b) Where located under vegetative cover, the top of the subsurface facility shall be a minimum of 12 inches below the surface elevation or as required to establish vegetation.
- (5) Where not specified in this chapter, subsurface storage facilities shall be designed in accordance with the BMP manual.
- (6) Subsurface facilities shall be designed to safely convey and/or bypass flows from storms exceeding the design storm.
- C. Conveyance facilities. Conveyance facilities consist of all SWM facilities which carry flow, which may be located either above or below the finished grade. Conveyance facilities do not include SWM facilities which store, infiltrate/evaporate/transpire, or clean stormwater runoff.
- (1) Design criteria. Conveyance facilities shall comply with the design criteria in the following table:

Conveyance facility design criteria			
Location	Within public street right-of-way	Outside public street right-of-way	
		Vehicular loading	Non- vehicular loading
Loading	All		
(a) Pipe design			

Conveyance facility design criteria

Location		Within public street right-of-way	Outside public street right-of-way	
Loading		All	Vehicular loading	Non- vehicular loading
[1]	Material	SLHDPE, RCP	PVC, SLHDPE, RCP	PVC, SLHDPE, RCP
[2]	Slope (minimum)	0.5%	0.5%	0.5%
[3]	Cover	1 foot to stone subgrade	1 foot to stone subgrade	1 foot to surface
[4]	Diameter (minimum)	15 inches	15 inches	8 inches
[5]	Street crossing angle	75° to 90°	N/A	N/A
[6]	Access/ maintenance port frequency (maximum)	400 feet	400 feet	600 feet
(b)	Inlet design			
[1]	Material	Concrete	Concrete	N/A
[2]	Grate depression	2 inches	2 inches	1 inch minimum
(c)	Manhole design			
[1]	Material	Concrete	Concrete	Concrete
(d)	Swale design			
[1]	Freeboard (minimum)	6 inches	N/A	6 inches
[2]	Velocity (maximum)	Stability check	N/A	Stability check
[3]	Slope (minimum)	1%	N/A	1%
[4]	Side slopes (residential area)	4:1 max	N/A	4:1 max
[5]	Side slopes (non-residential area)	4:1 max	N/A	3:1 max
[6]	Bottom width to flow depth ratio	12:1	N/A	12:1
(e)	Outlet design			

Conveyance facility design criteria

Location		Within public street right-of-way		Outside public street right-of-way
		All		Non- vehicular loading
Loading	[1] End treatment	Headwall/ endwall	Headwall/ endwall	Headwall/ endwall or flared end section
	[2] Energy dissipater	Required	Required	Required

NOTES:

N/A = Not applicable or no criteria specified

SLHDPE = Smooth lined high density polyethylene pipe

PVC = Polyvinyl chloride

RCP = Reinforced concrete pipe

- (2) Conveyance pipes, culverts, manholes, inlets and endwalls within the public street right-of-way or proposed for dedication shall conform to the requirements of PennDOT Standards for Roadway Construction, Publication No. 72M. Conveyance pipes, culverts, manholes, inlets and endwalls which are otherwise subject to vehicular loading shall be designed for the HS-25 loading condition.
- (3) Conveyance pipes.
 - (a) Backfill requirements. Backfill material. Material consistency and placement depths for backfill shall be (at a minimum) per all applicable pipe manufacturer's recommendations, further providing it should be free of large (not exceeding six inches in any dimension) objectionable or detritus material. Select nonaggregate material should be indigenous to the surrounding soil material for nonvehicular areas. Backfill within vehicular areas shall comply with this section unless otherwise specified in Chapter 152, Streets and Sidewalks, or Chapter 155, Subdivision and Land Development.
 - (b) Inlets or manholes shall be placed at all points of changes in the horizontal or vertical directions of conveyance pipes. Curved pipe sections are prohibited.
 - (c) Access/maintenance ports. An access/maintenance port is required may either be an inlet or manhole.
 - (d) Watertight joints shall be provided where pipe sections are joined, except for perforated pipe installed as pavement base drain.

- (e) The street crossing angle shall be measured between the pipe centerline and the street centerline.
- (f) Elliptical pipe of an equivalent cross-sectional area may be substituted in lieu of circular pipe where cover or utility conflict conditions exist.
- (g) The roughness coefficient (Manning "n" values) used for conveyance pipe capacity calculations should be determined in accordance with PennDOT Publication 584, PennDOT Drainage Manual, or per the manufacturer's specifications.

(4) Inlets.

- (a) All pipes must enter inlets completely through one of the sides. No corner entry of pipes is permitted.
- (b) Within the public street right-of-way, the gutter spread based on the twenty-five-year storm shall be no greater than 1/2 of the travel lane and have a maximum depth of three inches at the curb line. A parking lane shall not be considered as part of the travel lane. In the absence of pavement markings separating a travel lane from the parking lane, the parking lane shall be assumed to be seven feet wide if parking is permitted on the street.
- (c) Flow depth within intersections. Within intersections of streets, the maximum depth of flow shall be 1.5 inches based on the twenty-five-year storm.
- (d) Curbed streets.
 - [1] Inlets in streets shall be located along the curb line at or beyond the curb radius points.
 - [2] Top units shall be PennDOT Type "C". The hood shall be aligned with the adjacent curb height.
- (e) All inlets placed in paved areas shall have heavy duty bicycle-safe grating consistent with PennDOT Publication 72M, latest edition. A note to this effect shall be added to the SWM site plan or inlet details therein.
- (f) Inlets, junction boxes, or manholes greater than five feet in depth shall be equipped with ladder rungs and shall be detailed on the SWM site plan.
- (g) Inlet capacity shall be based on design data provided by the manufacturers and accepted by the Township. Where ponding occurs, inlet capacity shall be based on accepted engineering design practices.

(5) Swales.

- (a) A swale shall be considered as any man-made ditch designed to convey stormwater directly to another SWM facility or surface waters.
- (b) Inlets within swales shall have PennDOT Type "M" top units or equivalent approved by the Township engineer.

- (c) Swale capacities shall be computed using the Manning equation using the following design parameters:
 - [1] Vegetated swales.
 - [a] The evaluation shall consider swale capacity based upon a higher degree of retardance ("n" = 0.05); and
 - [b] All vegetated swales shall have a minimum slope of 1% unless otherwise approved by the Township Engineer.
 - [2] The "n" factors to be used for paved or riprap swales or gutters shall be based upon accepted engineering design practices, as approved by the Township Engineer.
- (d) All swales shall be designed to maximize infiltration and concentrate low flows to minimize siltation and meandering, unless geotechnical conditions do not permit infiltration.
- (6) Culverts. In addition to the material requirements in this section, culverts designed to convey waters of the commonwealth may be constructed with either a smooth lined high density polyethylene pipe or a precast concrete culvert. Culverts shall be evaluated for both inlet and outlet control.
- (7) Level spreaders.
 - (a) Shall discharge at existing grade onto undisturbed vegetation.
 - (b) Discharge at a depth not exceeding 3.0 inches for a fifty-year, twenty-four-hour design storm.
- (8) Energy dissipaters. Energy dissipaters shall be designed in accordance with the requirements in the E&S Manual.
- (9) End treatments.
 - (a) Where the connecting pipe has a diameter 18 inches or greater, headwalls and endwalls shall be provided with a protective barrier device to prevent entry of the storm sewer pipe by unauthorized persons. Such protection devices shall be designed to be removable for cleaning.
 - (b) Headwalls and endwalls shall be constructed of concrete unless otherwise permitted by the Township.
 - (c) Flared end sections, when permitted by the Township, shall be of the same material as the connecting pipe and be designed for the size of the connecting pipe.
- D. SWM facilities which qualify as a dam per DEP regulations or facilities deemed a potential threat to the life, safety or welfare of the general public shall be subject to the following requirements:

- (1) Facilities which qualify as a dam per DEP regulation shall obtain the required permit through DEP and design the facility in accordance with DEP standards.
- (2) Additional requirements and analysis may be required by the Township to prove that the proposed facility has been designed to limit the potential risk to the life, safety or welfare of the general public.

§ 149-38. Erosion and sediment control.

- A. All earthmoving activities shall be conducted in such a way as to minimize accelerated erosion and resulting sedimentation.
- B. Measures to control erosion and sedimentation shall, at a minimum, meet the standards of the Conservation District and Chapter 102.
- C. The erosion and sedimentation control plan must be available at all times at the project site. When required, a permit allowing earthmoving activity shall be obtained by the developer before any construction on the project site shall begin.
- D. Approval of an erosion and sedimentation control plan by the Township shall not be construed as an indication that the plan complies with the standards of any agency of the commonwealth.
- E. In order to prevent pollution of any watercourse and to reduce erosion of soil, sediment control devices shall be installed prior to any grading, filling or excavation. Such devices shall be designed to retain sediment on the site.
- F. Calculations should be provided verifying the sizing of all erosion control facilities.
- G. For all projects with greater than one acre of site disturbance, the erosion and sedimentation control plan shall be submitted to the Conservation District for its review and approval. For projects with site disturbance between 5,000 square feet and one acre, the Township may require the erosion and sedimentation control plan be submitted to the Conservation District for its review and approval.

§ 149-39. Capture and reuse facilities.

- A. Capture and reuse facilities include those SWM facilities which capture stormwater within a site and store the water for reuse through rainwater harvesting, which includes, but is not limited to, irrigation reuse, potable water reuse, and toilet flushing reuse. Water storage facilities for use with capture and reuse facilities include, but are not limited to, cisterns and similar SWM facilities. Rain barrels shall not be considered acceptable capture and reuse facilities to meet the requirements of this chapter.
- B. Design requirements. Capture and reuse facilities shall meet all of the following design standards:

- (1) Calculations shall be provided for all of the following:
 - (a) Reuse of water to insure adequate capacity is available for storage of follow-up rainfall events.
 - (b) Verification of conveyance pipe capacity for water to enter the facility, including roof leaders.
 - (c) The water storage facility shall be designed to store the runoff volume of a one-hundred-year storm event for the area which it serves. The required runoff volume may be reduced if the water storage facility includes a detention component so that the facility does not rely entirely on retention.
- (2) The applicant shall specifically identify the use and/or the method for withdrawal of the stored volume and shall provide the estimated volume of water which will be used by the proposed method.
- (3) The water storage container shall be protected from direct sunlight to minimize algae growth.
- (4) Water storage containers shall be watertight with smooth interior surfaces.
- (5) Every water storage facility shall be provided with an overflow or emergency spillway. The overflow shall be designed to discharge away from buildings and other structures and toward existing nature or manmade channels, other stormwater facilities or vegetated slopes. Discharge from the overflow shall not adversely affect downstream or adjacent properties.
- (6) Plans proposing a water storage facility shall include the following:
 - (a) All calculations and assumptions used in the design;
 - (b) Sufficient detail showing the proposed method of dewatering (i.e., pump); and
 - (c) Structural details.
- (7) Maintenance responsibilities for water storage and reuse facilities shall include flushing the storage units to remove any accumulated sediment.
- (8) Water shall not be allowed to freeze in the devices.

§ 149-40. (Reserved)

ARTICLE IV
Stormwater Management Site Plan Requirements

§ 149-41. General plan requirements.

- A. The SWM site plan shall consist of a narrative and all applicable calculations, maps, plans and supplemental information necessary to demonstrate compliance with this chapter.
- B. All landowners of land included in the SWM site plan shall be required to execute all applications and final documents.
- C. All SWM site plans shall be prepared by a qualified person.
- D. Where the regulated activity constitutes subdivision or land development as hereinabove defined; the SWM site plan shall be submitted with and form an integral part of the plans required under Chapter 155, Subdivision and Land Development.

§ 149-42. Drafting standards.

- A. The plan should be clearly and legibly drawn.
- B. If the plan is prepared in two or more drawing sheets, a key map showing the location of the sheets and a match line shall be placed on each sheet.
- C. Each sheet shall be numbered to show the relationship to the total number of sheets in the plan (e.g., Sheet 1 of 5).
- D. Drawings or maps of the project area shall be drawn at one inch equals 50 feet or larger scale (i.e., one inch equals 40 feet, one inch equals 30 feet, one inch equals 20 feet, one inch equals 10 feet) and shall be submitted on twenty-four-inch-by-thirty-six-inch sheets.
- E. SWM site plans shall be prepared in a form that meets the requirements for recording for the Office of the Recorder of Deeds of Lancaster County.
- F. The total development site boundary and size with distances marked to the nearest foot and bearings to the nearest degree.

§ 149-43. SWM site plan information.

The following items shall be included in the SWM site plan:

- A. The date of the SWM site plan and latest revision, graphic scale, written scale and North arrow.
- B. The name of the development, the name and address of the owner of the property, and the name of the individual or firm preparing the plan.
- C. The file or project number assigned by the firm that prepared the plan.

- D. The total acreage of the project site and the tract of land on which the project site is located.
- E. Bulk and area requirements as listed in Chapter 184, Zoning.
- F. All coordinates as depicted on the plan shall be based on the PA South Zone State Plane Coordinate System (NAD83 for horizontal and NAVD88 for vertical).
- G. A statement, signed by the landowner, acknowledging the SWM facilities to be permanent fixtures that cannot be altered or removed unless a revised plan is approved by the Township.
- H. The following signature block for the Township:

Township of West Earl SWM Site Plan Approval Certification

At a meeting on _____, 20____, the West Earl Township Board of Supervisors approved this project, and all conditions have been met. This approval includes the complete set of plans and information that are filed with the Township in File No. _____, based upon its conformity with the standards of the Chapter 149, Township of West Earl Stormwater Management Ordinance.

Governing Body Signature

Governing Body Signature

- I. For SWM facilities located off-site:
 - (1) A note on the plan referencing a recorded stormwater operation and maintenance (O&M) agreement that indicates the location and responsibility for maintenance of the off-site SWM facilities.
 - (2) All off-site SWM facilities shall meet the performance standards specified in this chapter.
- J. A note informing the owner that the Township shall have the right of entry for the purposes of inspecting all stormwater conveyance, treatment, or storage facilities.
- K. A location map, drawn to a scale of a minimum of one inch equals 2,000 feet, showing the relation of the tract to adjoining property and to all streets and Township boundaries existing within 1,000 feet of any part of the tract of land on which the project site is proposed to be developed.
- L. A plan showing the project location and its total watershed(s) and additional maps as necessary to clearly show the delineation of all drainage areas, both on site and off site, used in all stormwater runoff computations for all SWM facilities and all storm drainage facilities.
- M. Existing features.
 - (1) Tract boundaries showing distances, bearings and curve data, as located by field survey or by deed plotting.

- (2) In areas of disturbance, contours at intervals of one or two feet. In areas of steep slopes (greater than 15%) and areas undisturbed, five-foot contour intervals may be used. The location of the benchmark and the datum used shall also be indicated.
- (3) The locations of all existing utilities (including on lot disposal systems and wells), sanitary sewers, and water lines and associated easements.
- (4) Physical features including flood hazard boundaries, wetlands, sinkholes, streams, lakes, ponds and other waterbodies, existing drainage courses, karst features, areas of native vegetation including trees greater than six-inch diameter at breast height, woodlands, other environmentally sensitive areas and the total extent of the upstream area draining through the development site.
- (5) An overlay showing soil names and boundaries.
- (6) The names of all owners of all immediately adjacent unplatted land, the names of all proposed or existing developments immediately adjacent and the locations and dimensions of any streets or easements shown thereon.
- (7) The names, locations and dimensions of all existing streets, railroads, watercourses, drainage facilities, floodplains and other significant features within 200 feet of any part of the tract proposed to be developed and the location of all buildings and approximate location of all tree masses within the tract.

N. Proposed features.

- (1) Changes to the land surface and vegetative cover, including final proposed contours at intervals of one or two feet in areas of disturbance. In areas of steep slopes (greater than 15%) and areas undisturbed, five-foot contour intervals may be used.
- (2) The locations and dimensions of all proposed streets, parks, playgrounds and other public areas; sewer and water facilities; lot lines and building locations; and parking compounds and other impervious and semi-pervious surfaces.
- (3) The location of any proposed on-lot disposal systems, replacement drainfield easements, and water supply wells.
- (4) A note indicating existing and proposed land use(s).
- (5) Where pervious pavement is to be installed, pavement material and construction specifications shall be included.
- (6) The location of all existing and proposed easements, including drainage easements, access easements and riparian corridor easements.
- (7) A planting plan shall be provided for all vegetated BMPs in accordance with § 149-31N.

O. Stormwater management facilities.

- (1) All storm sewers, along with any proposed connections to existing facilities.
 - (2) Groundwater recharge methods such as seepage pits, beds or trenches. When these structures are used, the locations of infiltration areas must be shown.
 - (3) Other control devices or methods such as rooftop storage, grass swales, parking lot ponding, vegetated strips and detention or retention basins.
 - (4) Plans and profiles of all proposed stormwater management facilities, including vertical and horizontal alignment, size and type of material. This information shall be of the quality required for the construction of all facilities. All swales and open channels shall have center line invert elevations shown every 100 feet and at changes in grade.
 - (5) When plan applications are submitted in sections, a generalized stormwater management plan for the entire project site, in addition to the detailed stormwater management plan for the proposed section. This generalized plan shall demonstrate how the stormwater of the proposed section will relate to the entire development. If temporary facilities are required for construction of a section, such facilities shall be included in the submitted plans.
 - (6) A note on the plan indicating any area that is not to be offered for dedication, along with a statement that the Township is not responsible for maintenance of any area not dedicated to and accepted for public use and that no alteration to swales or basins or placement of structures shall be permitted within easements.
 - (7) A note on the plan indicating the maximum impervious surface coverage for which the SWM facilities have been designed for each lot on the stormwater management plan.
- P. Erosion and sedimentation controls. The type, location and extent of all erosion and sedimentation control measures shall be shown on an erosion and sedimentation control plan that conforms to the requirements of the E&S manual.

§ 149-44. Additional information.

- A. General description of the development site, including a description of existing natural and hydrologic features and any environmentally sensitive areas.
- B. General description of the overall SWM concept for the project, including a description of permanent SWM techniques, non-structural BMPs to be employed and construction specifications of the materials to be used for structural SWM facilities. The narrative shall include a description of any treatment trains and how the facilities are meant to function with each other to manage stormwater runoff.
- C. The effect of the project (in terms of runoff volumes, water quality and peak flows) on adjacent properties and on any existing Township stormwater management facilities that may receive runoff from the development site.

- D. Stormwater runoff calculations for both predevelopment and post-development conditions including complete hydrologic, hydraulic, and structural computations for all SWM facilities.
- E. Expected project time schedule.

§ 149-45. Supplemental information.

- A. In areas of carbonate geology, a detailed geologic evaluation prepared by a registered professional geologist (PG) shall be submitted as part of the SWM site plan. The report shall include, but not limited to the following:
 - (1) The location of the following karst features;
 - (a) Sinkholes.
 - (b) Closed depressions.
 - (c) Lineaments in carbonate areas.
 - (d) Fracture traces.
 - (e) Caverns.
 - (t) Intermittent lakes.
 - (g) Ephemeral disappearing streams.
 - (h) Bedrock pinnacles (surface or subsurface).
 - (2) A plan for remediation of any identified karst features.
 - (3) Impacts of SWM facilities on adjacent karst features, and impacts of karst features on adjacent SWM facilities.
 - (4) A statement indicating whether infiltration is recommended at the proposed stormwater facility locations.
 - (5) Specific recommendations stating what measures, procedures and materials shall be utilized as part of installing the proposed SWM facilities.
 - (6) A discussion of the total area and impervious area loading ratios and the impact on the underlying geology.
- B. An E&S Plan, including all approvals, as required by Chapter 102, shall be provided to the Township prior to unconditional SWM site plan approval.
- C. For any activities that require a DEP joint permit application and are regulated under Chapter 105 or Chapter 106, require a PennDOT highway occupancy permit, or require any other permit under applicable state or federal regulations, the permit(s) shall be part of the SWM site plan and must be obtained prior to unconditional final plan approval.
- D. An operation and maintenance (O&M) plan that addresses the requirements of § 149-63.

- E. The filing fee and/or inspection fee in the amount specified on the Fee Schedule, as may be amended from time to time, adopted by resolution of the Board of Supervisors.
- F. Financial security for the completion of SWM facilities, as set forth in § 149-57.

§ 149-46. through § 149-50. (Reserved)

ARTICLE V
Plan Processing Procedures

§ 149-51. Exemption from plan submission requirements.

- A. The following regulated activities are specifically exempt from the SWM site plan preparation and submission requirements articulated in § 149-31A and Articles IV and V of this chapter:
 - (1) Agricultural activity (see definitions) provided the activities in accordance with a conservation plan or erosion and sedimentation control plan approved by the Conservation District and are performed according to the requirements of Chapter 102.
 - (2) Forest management and timber operations (see definitions) provided the activities are performed according to the requirements of Chapter 102.
 - (3) Conservation practices being installed as part of the implementation of a conservation plan written by an NRCS-certified planner.
 - (4) For existing developed properties as of July 1, 2005, the installation of 1,000 or fewer square feet of impervious surface coverage, provided that the activities meet the criteria of § 149-51C below and are conducted in accordance with all requirements of this chapter.
 - (5) Domestic landscape and/or vegetable gardening.
 - (6) Installation of additional impervious surface coverage on a lot where all of the following conditions have been met:
 - (a) The lot has a previously approved SWM site plan which included SWM facilities designed in accordance with the requirements of this chapter to handle such future impervious surface coverage.
 - (b) The SWM facilities on the approved SWM site plan were installed and inspected and approved by the Township Engineer.
 - (c) The Township approved the SWM site plan not more than five years before the application to add the impervious surface coverage was submitted to the Township or, if the Township approved the SWM site plan more than five years before the application to add the impervious surface coverage was submitted to the Township, there have been no amendments to the design

standards of this chapter between the date of approval of the SWM site plan and the submission of the application to add impervious surface coverage.

- B. The Township may deny or revoke any exemption pursuant to this section at any time for any project that the Township believes may pose a threat to public health, safety, property or the environment.
- C. An applicant proposing the cumulative installation of 1,000 square feet or less of impervious surface coverage may be exempt from the design, plan submittal, and processing requirements of Articles III, IV, and V of this chapter if the proposal meets the criteria in § 149-51C. No person or activity is exempted from compliance with § 149-65 and Article VII, VIII, and IX of this chapter. Exemptions 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. Exemption shall not relieve an applicant from implementing such measures as necessary to meet compliance with any NPDES permit requirements. Any exemption based on false, misleading, or erroneous information provided by an applicant is void without the necessity of any proceedings for revocation. Any work undertaken or use established pursuant to such permit or other authorization is unlawful.
- (1) Any applicant desiring exemption from design, plan submission, and plan processing requirements shall complete an application for exemption in the form set forth in Appendix A²² and pay any applicable filing fee.
 - (2) The applicant for exemption under this § 149-51C shall provide the Township with all information necessary for the Township to determine that:
 - (a) There shall be no disturbance of land within floodplains, wetlands, riparian forest buffers, slopes greater than 15%, and natural heritage and other areas designated as conservation or preservation in Greenscapes.
 - (b) No impervious surface coverage shall be installed and no grading or excavation shall be conducted within any existing drainage or stormwater easement created by or shown on any recorded plan.
 - (c) The applicant shall minimize soil disturbance, take steps to minimize erosion during construction activity, and promptly reclaim all disturbed areas with topsoil and vegetation.
 - (d) The applicant shall take steps that runoff be directed to pervious areas on the subject property. No runoff shall be directed onto an abutting street or neighboring property.
 - (e) The proposed impervious surface shall not adversely impact any existing known problem areas or downstream property owners or the quality of runoff entering any municipal separate storm sewer system.
 - (f) The proposed impervious surface shall not create erosion.

22. Editor's Note: Said appendix is included as an attachment to this chapter.

- (3) If the proposed activity does not meet all of the criteria set forth in § 149-51C(2) above, the applicant shall follow the small project processing procedure in § 149-52.
- (4) No applicant and no activity is exempt from complying with any state or federal requirements applicable if the subject property is located in a high quality (HQ) or exceptional value (EV) watershed.
- (5) No applicant and no activity shall violate or cause to be violated: the Federal Clean Water Act or any regulation issued thereunder, an NPDES permit, any recorded stormwater management or operations and maintenance agreement, or any requirement applicable to a municipal separate storm sewer system.

§ 149-52. Alternate plan submission and processing for certain regulated activities.

- A. Regulated activities that, measured on a cumulative basis from July 1, 2005, create new impervious areas of more than 1,000 square feet and less than 5,000 square feet or involve earth disturbance activity of an area less than 5,000 square feet and do not involve the alteration of stormwater facilities or watercourses may apply the modified requirements presented in the "Simplified Approach to Stormwater Management for Small Projects" (Simplified Approach) (Appendix A).²³ Appendix A includes instructions and procedures for preparation, submittal, review and approval of documents required when using the Simplified Approach and shall be adhered to by the applicant. All other provisions of this chapter shall apply. The applicant shall contact the Township Engineer to:
 - (1) Confirm that the proposed project is eligible for use of the Simplified Approach and is not otherwise exempt from these provisions.
 - (2) Determine what components of the proposed project are to be considered as impervious surfaces.
 - (3) Determine if other known site or local conditions exist that may preclude the use of any techniques included in the Simplified Approach.
- B. Regulated activities associated with agricultural activities on properties with an implemented conservation plan. Where a development site is located within the Agricultural Zone (A), the proposed regulated activity shall meet the following criteria to be eligible for alternate plan submission and processing. Fulfilling all of the following requirements shall be considered compliance with this chapter for installation of impervious surface coverage where all of the following criteria are met. The proposed regulated activity shall:
 - (1) Be directly associated with an agricultural activity;
 - (2) Be located on a farm with an implemented conservation plan as verified by documentation from the Conservation District or appropriate entity as determined by the Township;

23. Editor's Note: Said appendix is included as an attachment to this chapter.

- (3) Include less than 10,000 square feet of proposed new or expanded impervious surface;
 - (4) Divert runoff from the proposed new or expanded impervious surfaces (including vehicle parking and movement area) entirely away from animal management, waste management and crop farming areas and any other source of pollutants;
 - (5) Include BMP(s) that will permanently retain at least one inch of rainfall runoff from the total area of proposed new or expanded impervious surfaces;
 - (6) Be designed so that any point of discharge of runoff from the proposed new or expanded impervious surface including vehicle movement area:
 - (a) Is not directly connected to any constructed conveyance that is connected to a municipal separate storm sewer system or public roadway;
 - (b) Is located at least 150 feet from any municipal separate storm sewer system or public roadway, or any constructed conveyance connected to any municipal separate storm sewer system or public roadway.
 - (c) Is located at least 150 feet from any property line, watercourse or conveyance system.
 - (7) Either have all proposed new or expanded impervious surfaces and proposed vehicle parking and movement areas and BMP(s):
 - (a) Included within the conservation plan for the farm; or
 - (b) Be constructed per design plans prepared and sealed by a licensed professional (or Conservation District staff person designated by NRCS) that comply with USDA NRCS standards and specifications, and for which completion of construction will be certified by the licensed (or NRCS-designated design) professional responsible for the design;
 - (8) Not require an NPDES permit; and
 - (9) A submission to the Township documenting:
 - (a) Information to demonstrate there shall be no disturbance of land within floodplains, wetlands, environmentally sensitive areas, riparian forest buffers, or slopes greater than 15%.
 - (b) A plan depicting the information required for minor stormwater site plans as listed in Appendix A, Section VI.²⁴
- C. Where regulated activities meet the small project criteria in § 149-52A and/or regulated activities associated with agricultural activities in § 149-52B above, the applicant may be required to install stormwater management facilities and provide associated plans and/or calculations as required in this chapter should the Township determine that there is a

24. Editor's Note: Said appendix is included as an attachment to this chapter.

potential for stormwater runoff associated with the proposed regulated activity to adversely affect adjacent or downstream public or private properties.

§ 149-53. Preapplication meeting.

Applicants are encouraged to schedule a preapplication meeting to review the overall stormwater management concept with Township staff/engineer. The preapplication meeting is not mandatory and shall not constitute formal filing of a plan with the Township. Topics discussed may include the following;

- A. Available geological maps, plans and other available data.
- B. Findings of the site analysis including identification of any environmentally sensitive areas, wellhead protection areas, riparian corridors, hydrologic soil groups, existing natural drainageways, karst features, areas conducive to infiltration to be utilized for volume control, etc.
- C. Results of infiltration tests.
- D. Applicable Subdivision and Land Development and/or Zoning ordinance provisions.²⁵
- E. The conceptual project layout, including proposed structural and non-structural BMPs.

§ 149-54. Stormwater management site plan submission.

- A. When a stormwater management site plan is required, the applicant shall submit the following to the Township:
 - (1) Four copies to the SWM site plan prepared in accordance with the requirements of Article IV of this chapter.
 - (2) Two copies of all supplemental data.
 - (3) A digital copy in PDF format of the SWM site plan, any other plans that may be required (e.g., E&S plan, PennDOT plan, etc.) and all supporting documentation (e.g., stormwater management report, geologic evaluation, etc.)
 - (4) A filing fee (in accordance with the Township's current fee schedule).
- B. The SWM site plan shall be submitted in a format that is clear, concise, legible, neat and well organized.
- C. The applicant is responsible for submitting plans to any other agencies such as the Conservation District, PennDOT, DEP, etc., when permits from these agencies are required. Final approval shall be conditioned upon the applicant obtaining all necessary permits.
- D. Incomplete submissions as determined by the governing body or its designee shall be returned to the applicant within seven days, along with a statement that the submission is

²⁵. Editor's Note: See Ch. 155, Subdivision and Land Development, and Ch. 184, Zoning, respectively.

incomplete, and stating the deficiencies found. Otherwise, the application shall be deemed accepted for filing as of the date of submission. Acceptance of the application shall not, however, constitute an approval of the plan or a waiver of any deficiencies or irregularities. The applicant may appeal the Township's decision not to accept a particular application in accordance with § 149-94 of this chapter.

- E. At its sole discretion and in accordance with this article, when a SWM site plan is found to be deficient, the Township may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, may accept submission of revisions.
- F. The Township Secretary shall submit a copy of the plan to the Township Planning Commission and the Township Engineer for their respective reviews and recommendations.

§ 149-55. Municipal review.

- A. When the regulated activity constitutes a subdivision or land development, the SWM site plan and subdivision/land development plan shall be processed concurrently according to the plan processing procedure outlined in Chapter 155, Article III.
- B. When the regulated activity constitutes a small project, the Township shall review and take action on the small project application.
- C. When the regulated activity does not constitute a subdivision or land development or small project, the Township Engineer shall review the SWM site plan for conformance with the provisions of this chapter.
- D. Following receipt of the Township Engineer's report and within 90 days following the date of the first regular meeting of the Board of Supervisors after the date the application is filed, the Board of Supervisors will schedule the SWM site plan application for action at a regularly scheduled public meeting.
- E. Within 15 days of the meeting at which the SWM site plan application is acted upon by the Board of Supervisors, written notice of the Board of Supervisors action shall be sent to the following individuals:
 - (1) Landowner or his agent.
 - (2) Applicant.
 - (3) Firm that prepared the plan.
 - (4) Lancaster County Conservation District.
- F. If the Township disapproves the SWM site plan, the Township will state the reasons for the disapproval in writing. The Township also may approve the SWM site plan with conditions and, if so, shall provide the acceptable conditions for approval in writing. Such conditional approval shall be contingent upon the applicant's written acceptance of the conditions.

- G. Approval of a SWM site plan by the Township shall not be construed as an indication that the plan complies with the standards of any agency of the commonwealth.
- H. Approval of a SWM site plan by the Township shall be obtained by a developer prior to the issuance of a zoning permit by the Township. No construction of SWM facilities may begin until a zoning permit is obtained by the developer in accordance with Chapter 184, Zoning.
- I. Upon approval and certification of a SWM site plan by the Township, the applicant shall record the Plan in the office of the Lancaster County Recorder of Deeds. No approved SWM site plan may be recorded unless it bears the signature of an authorized representative of the Township denoting approval of the SWM site plan. A recording number and a complete SWM site plan with all signatures, stamps and seals must be provided to the Township before any permits are issued.

§ 149-56. Revision of plans.

- A. Revisions to a SWM site plan after submission but before municipal action shall require a re-submission of the modified SWM site plan consistent with § 149-54 and be subject to review as specified in § 149-55.
- B. For the purposes of review deadlines, each resubmission required under § 149-56A (after submission but before approval) shall constitute a new submission for the purposes of time limits as set forth in the MPC and this chapter.
- C. Any substantial revisions to a SWM site plan after approval shall be submitted as a new plan to the Township, accompanied by the applicable fee.

§ 149-57. Financial security.

- A. A financial security (bond, restricted account or letter of credit) for stormwater-related improvements shall be supplied by the developer in conjunction with the subdivision/land development approval, or in conjunction with the SWM site plan approval if no subdivision/land development plan is required.
- B. The applicant shall provide a financial security to the Township for the timely installation and proper construction of all SWM facilities, including E&S BMPs, as required by the approved SWM site plan and this chapter and, as applicable, in accordance with the provisions of Sections 509, 510, and 511 of the MPC.
- C. Where required, the developer shall file with the Board of Supervisors financial security in an amount sufficient to cover the costs of all stormwater management facilities required by this chapter. Without limitation as to other types of financial security which the Township may approve, which approval shall not be unreasonably withheld, federal- or commonwealth-chartered lending institution irrevocable letters of credit and restrictive or escrow accounts in such lending institutions shall be deemed acceptable financial security. Such financial security shall be posted with a bonding company or federal or commonwealth chartered lending institution chosen by the developer provided said bonding company or lending institution is authorized to conduct such business within the

commonwealth. Such bond, or other security, shall provide for, and secure to the public, completion of all stormwater management facilities within one year of the date fixed on the final approved plan for such facilities. The amount of financial security shall be equal to 110% of the cost of the required facilities for which financial security is to be posted. The cost of the facilities shall be established in accordance, with the procedure in the MPC. If the developer requires more than one year from the date of posting of the financial security to complete the required facilities, the amount of financial security may be increased by an additional 10% for each one-year period beyond the first anniversary date from posting of financial security, or to an amount not exceeding 110% of the cost of completing the required facilities, as reestablished on or about the expiration of the preceding one-year period by using the above procedure.

- D. In the case where development is projected over a period of years, the Board of Supervisors may authorize submission of SWM Plan applications by section or stages of development subject to such requirements or guarantees as to stormwater management facilities in future sections or stages of development as it finds essential for the protection of any finally approved section of the development.
- E. As the work of installing the required SWM facilities proceeds, the party posting the financial security may request the Board of Supervisors to release or authorize the release, from time to time, such portions of the financial security necessary for payment to the contractor or contractors performing the work. Any such requests shall be in writing addressed to the Board of Supervisors, and the Board of Supervisors shall have 45 days from receipt of such request within which to allow the Township Engineer to certify, in writing, to the Board of Supervisors that such portion of the work upon the SWM facilities has been completed in accordance with the approved SWM site plan. Upon such certification, the Board of Supervisors shall authorize release by the bonding company or lending institution of an amount as estimated by the Township Engineer fairly representing the value of the SWM facilities completed. The Board of Supervisors may, prior to final release at the time of completion and certification by its Engineer, require retention of 10% of the estimated cost of the aforesaid SWM facilities.
- F. Schedule of inspections.
 - (1) During the construction of the development, the Township Engineer or other authorized Township official may inspect the premises to determine that the work is progressing in compliance with the information provided on the approved SWM site plan and with all applicable Township laws and ordinances.
 - (2) The cost for the conducting of inspections by the Township Engineer or other authorized Township official shall be borne by the developer in accordance with the inspection fee adopted by resolution of the Board of Supervisors.
 - (3) In the event the Township Engineer or other authorized Township official discovers that the work does not comply with the approved SWM site plan or any applicable laws or ordinances, the Developer shall take all actions necessary to bring the work into compliance with the approved SWM site plan or other applicable laws or ordinances.

- (4) If, at any stage of the work, the Township Engineer or authorized official determines that the soil or other conditions are not as stated or shown in the approved application, or that there has been a false statement or misrepresentation by the developer, the Township Engineer or authorized official may refuse to approve further work until a revised plan is submitted and approved, as required by § 149-56.

G. Final inspection.

- (1) When the developer has completed all the required facilities, he shall notify the Township in writing by certified or registered mail, and shall send a copy of such notice to the Township Engineer. The Township shall, within 10 days after receipt of such notice, authorize the Township Engineer to inspect the required facilities. The Township Engineer shall promptly file a report, in writing, with the Township and shall mail a copy of the report to the developer by certified or registered mail. The report shall be made and mailed within 30 days after receipt by the Township Engineer of the aforesaid authorization by the Township.
- (2) Based on the report of the Township Engineer, the Township shall indicate approval or rejection of the stormwater management facilities, either in whole or in part; and if not approved, state reasons for the rejection. The Township shall immediately notify the developer, in writing by certified or registered mail, of its actions.
- (3) If any portion of said improvements is not approved or is rejected by the Township, the developer shall proceed to complete the same and, upon completion, the same procedure of notification outlined herein shall be followed.
- (4) At the completion of the project, and as prerequisite for the release of the financial security, the applicant shall provide certification of SWM facility completion from an engineer, landscape architect, surveyor or other qualified person verifying that all permanent SWM facilities have been constructed according to the plans and specifications and approved revisions thereto.
- (5) No improvements shall be considered finally completed until record drawings of such improvements have been prepared, submitted to the Township, and approved by the Township Engineer. Where an NPDES permit has been issued for a project, the SWM facilities shall not be considered complete until the Township has been provided with an executed NPDES notice of termination.

- H. In the event that any SWM facilities which may be required have not been installed as provided in the approved SWM site plan, the Board of Supervisors is hereby granted the power to enforce any corporate bond, or other security by appropriate legal and equitable remedies. If proceeds of such bond, or other security are insufficient to pay the cost of installing or making repairs or corrections to all the SWM facilities covered by said security, the Board of Supervisors may, at its option, install part of such SWM facilities and may institute appropriate legal or equitable action to recover the monies necessary to complete the remainder of the SWM facilities.

§ 149-58. Authorization to construct and term of validity.

Approval of a SWM site plan shall be valid for a period not to exceed five years. This time period shall commence on the date that the Township approves the SWM site plan. If a certificate of SWM facility completion as required by § 149-57 of this chapter has not been submitted within the specified time period, then the Township may consider the SWM site plan disapproved and may revoke any and all permits issued by the Township. SWM site plans that are considered disapproved by the Township may be resubmitted in accordance with § 149-54 of this chapter.

§ 149-59. Record drawings.

- A. Upon completion of the plan improvements and prior to the release of financial security, the applicant shall submit record drawings to the Township. The record drawings must show the final design specifications for all stormwater management facilities and be sealed by a registered professional engineer.
- B. Review by Township Engineer.
 - (1) Record drawings shall be reviewed by the Township Engineer to verify the plan includes all of the SWM facilities on the subject property and the facilities are shown at the correct location. Record drawings shall indicate that the required grading, SWM facilities, BMPs, riparian buffers, and other facilities associated with stormwater management have been installed in substantial conformance with the approved plan and that the project has been completed in a manner consistent with all initial stormwater design assumptions. The record drawings shall clearly specify all deviations from the previously approved plan.
 - (2) Following approval of the record drawing and prior to release of financial security, digital copies of the record drawing shall be provided to the Township in AutoCAD format and as a PDF. All coordinates as depicted on the plan shall be based on the PA South Zone State Plane Coordinate System (NAD83 for horizontal and NAVD88 for vertical).
 - (3) The Township Engineer shall either approve the record drawings or identify corrections required.
 - (4) If the Township Engineer identifies corrections required to the record drawings, the applicant shall submit revised record drawings to the Township addressing the corrections.
- C. Digital inventory.
 - (1) A digital inventory shall be submitted following approval of the Record Drawings.
 - (2) Digital inventory requirements.
 - (a) The digital inventory shall be in an electronic format acceptable to the Township Engineer.

- (b) The digital inventory shall include all information included and shown on the approved record drawings.
- (c) All coordinates as depicted on the plan shall be based on the PA South Zone State Plan Coordinate System (NAD83 for horizontal and NAVD88 for vertical).

§ 149-60. (Reserved)

ARTICLE VI
Operation and Maintenance (O&M)

§ 149-61. Responsibilities of developers and landowners.

- A. The landowner, successor and assigns shall maintain all SWM facilities in good working order in accordance with the approved O&M plan.
- B. The landowner shall convey to the Township easements to assure access for inspections and maintenance, if required.
- C. The landowner 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.
- D. The landowner shall enumerate permanent SWM facilities as permanent real estate appurtenances and record as deed restrictions or easements that run with the land.
- E. The record owner of the development site shall sign and record an operation and maintenance (O&M) agreement covering all SWM facilities, including riparian buffers and riparian forest buffers, which are to be privately owned. Said agreement, designated as Appendix C,²⁶ is attached and made part hereto. The O&M plan and agreement shall be recorded as a restrictive covenant agreement that runs with the land.

§ 149-62. Operation and maintenance agreements.

The operation and maintenance agreement shall be subject to the review and approval of the Township solicitor and Board of Supervisors.

§ 149-63. Operation and maintenance (O&M) plan contents.

- A. The O&M plan shall clearly establish the operation and maintenance necessary to ensure the proper functioning of all temporary and permanent SWM facilities and erosion and sedimentation control facilities.
- B. The following shall be addressed in the O&M plan:

²⁶ Editor's Note: Said appendix is included as an attachment to this chapter.

- (1) Description of maintenance requirements, including, but not limited to, the following:
 - (a) Regular inspection of the SWM facilities. To assure proper implementation of BMPs, maintenance and care SWM BMPs should be inspected by a qualified person, which may include the landowner, or the owner's designee, according to the following minimum frequencies:
 - [1] Annually for the first five years.
 - [2] Once every three years thereafter.
 - [3] During or immediately after the cessation of a ten-year or greater storm.
 - [4] As specified in the O&M agreement pursuant to § 149-62.
 - (b) All pipes, swales and detention facilities shall be kept free of any debris or other obstruction and in original design condition.
 - (c) Removal of silt from all permanent structures which trap silt or sediment in order to keep the material from building up in grass waterways, pipes, detention or retention basins, infiltration structures, or BMPs, and thus reducing their capacity to convey or store water.
 - (d) Re-establishment of vegetation of scoured areas or areas where vegetation has not been successfully established. Selection of seed mixtures shall be subject to approval by the Township.
- (2) Riparian forest buffer management plan prepared in accordance with Chapter 102 § 14(b)(4) if required.
- (3) Identification of a responsible individual, corporation, association or other entity for ownership and maintenance of both temporary and permanent stormwater management and erosion and sedimentation control facilities.
- (4) Establishment of suitable easements for access to all facilities.

§ 149-64. Maintenance of facilities during development.

Maintenance of SWM facilities during development of a project site shall be the responsibility of the developer and the landowner and shall include but not be limited to:

- A. Removal of silt from all debris basins, traps or other structures or measures when 60% of the capacity is filled with silt; provided, however, that in no case shall the sediment level be permitted to build up higher than one foot below the principal outlet crest. At this elevation, clean out shall be performed to restore the original design volume to the basin or other structure. The elevation corresponding to the maximum allowable sediment level shall be determined and stated in the design data as a distance below the top of the riser. The elevation shall be clearly marked on the riser to enable proper maintenance.

- B. Periodic maintenance of temporary control facilities, such as replacement of straw bale dikes, straw filters or similar measures.
- C. Establishment or reestablishment of vegetation by seeding and mulching or sodding of scoured areas or areas where vegetation has not successfully been established.
- D. Installation of necessary controls to correct unforeseen problems caused by storm events within design frequencies.
- E. Removal of all temporary stormwater management control facilities upon installation of permanent SWM facilities at the completion of the development.

§ 149-65. Maintenance of facilities after development.

It is the purpose and intent of this chapter that the Township shall not become responsible for maintenance and supervision of SWM facilities unless such facilities are within rights-of-way dedicated to and accepted by the Township or unless such SWM facilities are specifically accepted by the Township. The plan shall reflect and/or be accompanied by supporting documentation identifying the ownership of and the responsibility to maintain all SWM facilities. The responsibility for SWM facility maintenance falls upon the developer of the project site who shall remain responsible for those areas of the project site which are subject to the requirements of this chapter. This responsibility may be retained or assigned to third persons as is deemed most acceptable to the developer.

- A. It is the intent of this chapter that the purposes of this chapter shall be carried out through the exercise of responsibility of private parties, and, therefore, it is anticipated that stormwater management plans shall be designed with a view towards facilities which can effectively be contained within the tracts to be owned and maintained by private parties. To foster this purpose, SWM facilities which will not otherwise become part of Township property shall become the responsibility of the individual property owners on whose properties such stormwater management facilities lie, including but not limited to retention ponds, detention ponds, sediment basins, energy dissipators or grassed waterways, or may be maintained by a private entity.
- B. In accordance with § 149-61E, O&M, the Township and the developer shall enter into an O&M agreement, which shall be recorded, setting forth such maintenance responsibilities. Persons, including developers, conveying property within a project site to another party which contains any SWM facilities shall include a specific deed reference to such grantee's responsibility for the maintenance and care of the SWM facilities as are included within such grantee's property. The agreement shall impose responsibilities upon said property owner for the maintenance of the portions of the SWM facilities within the boundary lines of said property as may be necessary for proper maintenance of the SWM facilities in accordance with the terms of this chapter or it may impose such responsibilities upon a private entity in accordance with the requirements of this section and § 149-67.
- C. Required maintenance of SWM facilities shall include at a minimum the following:

- (1) Liming and fertilizing vegetated channels and other areas according to specifications in the Erosion and Sedimentation Control Handbook of Lancaster County.
 - (2) Reestablishment of vegetation by seeding and mulching or sodding of scoured areas or areas where vegetation has not been successfully established.
 - (3) Mowing as necessary to maintain adequate stands of grass and to control weeds. Chemical weed control may be used if state and local regulations are met.
 - (4) Removal of silt from all permanent structures which trap silt or sediment in order to keep the material from building up in the grass waterways thus reducing their capacity.
 - (5) Regular inspection of the areas in question to assure proper maintenance and care.
 - (6) Removal of silt from all permanent drainage structures in order to maintain the design storage volumes. Regular maintenance programs shall be established and maintained.
- D. The O&M agreement shall also include notice that in the event that the individual property owner or other responsible entity should fail to comply with the terms of this chapter for the maintenance and care of the land in question, the Township shall have the authority to carry out those duties hereby imposed upon individual property owners or other responsible entity. The Township may, after giving notice to an individual property owner or other responsible entity, as applicable, that he or it is not properly maintaining the areas subject to this chapter, and by making demand that such compliance shall be made within the time period set forth in the notification, enter upon said property and take such actions as may be required to bring the area into compliance with this chapter. The Township shall further have the right to file a municipal lien against such property or, if a private entity is responsible for maintenance, to file a municipal lien as set forth in Section 705 of the MPC to recover the cost of maintenance work carried out under this section, plus a penalty of 10% of the costs of such work. The Township shall, in addition to the filing of a municipal lien, have any other remedies provided by law against any property owner or other entity who should fail to comply with the terms of this chapter.

§ 149-66. Maintenance of facilities accepted by Township.

- A. The Township reserves the right to accept or reject any proposal to dedicate ownership and operating responsibility of any SWM facilities to the Township and/or to impose conditions under which the Township will accept dedication of SWM facilities.

§ 149-67. Maintenance of facilities by private entity.

In cases where permanent maintenance of SWM facilities is to be performed by a private entity, such as a homeowners' association or a condominium unit owners' association, such entity shall be responsible for the maintenance of such facilities and shall enter into a legally binding agreement with the Township. Such agreement shall provide the Township rights, in

accordance with Section 705 of the MPC relating to the maintenance of common open space should the private entity fail to adequately maintain the SWM facilities.

§ 149-68. Maintenance of existing facilities/BMPs.

- A. SWM facilities existing on the effective date of this chapter, which have not been accepted by the Township or for which maintenance responsibility has not been assumed by a private entity such as a homeowners' association, shall be maintained by the individual landowners. Such maintenance shall include at a minimum those items set forth in § 149-63B(l) above. If the Township determines at any time that any permanent SWM facility has been eliminated, altered, blocked through the erection of structures or the deposit of materials, or improperly maintained, the condition constitutes a nuisance and the Township shall notify the landowner of corrective measures that are required, and provide for a reasonable period of time, not to exceed 30 days, within which the property owner shall take such corrective action. If the landowner does not take the required corrective action, the Township may either perform the work or contract for the performance of the work and bill the landowner for the cost of the work plus a penalty of 10% of the cost of the work. If such bill is not paid by the property owner within 30 days, the Township may file a municipal claim against the property upon which the work was performed in accordance with the applicable laws. The Township shall have the right to choose among the remedies and may use one or more remedies concurrently.

§ 149-69. through 149-70. (Reserved)

**ARTICLE VII
Fees and Expenses**

§ 149-71. General.

The Township may include all costs incurred in the fees charged to an applicant.

§ 149-72. Expenses covered by fees.

The fees may include, but not be limited to, costs for the following:

- A. Administrative and clerical costs.
- B. Review of the SWM site plan and associated information, small projects application and plan, and exemption application.
- C. Review of the stormwater operation and maintenance plan and stormwater agreement by the Township Solicitor/staff.
- D. Inspections.
- E. Any additional work required to enforce any permit provisions regulated by this chapter, correct violations, and assure proper completion of stipulated remedial actions.

§ 149-73. through § 149-80. (Reserved)**ARTICLE VII
Prohibitions****§ 149-81. Prohibited discharges and connections.**

- A. The following connections are prohibited.
- (1) Any drain or conveyance, whether on the surface or subsurface, that allows any nonstormwater discharge including sewage, process wastewater, and wash water to enter a municipal separate storm sewer (if applicable), or waters of this commonwealth, and any connections to the storm sewer from indoor drains and sinks; and
 - (2) Any drain or conveyance connected from a commercial or industrial land use to the municipal separate storm sewer (if applicable) which has not been documented in plans, maps, or equivalent records, and approved by the Township.
- B. No person shall allow, or cause to allow, discharges into surface waters of this Commonwealth which are not composed entirely of stormwater, except:
- (1) As provided in § 149-81D below; and
 - (2) Discharges allowed under a state or federal permit.
- C. No person shall place any structure, fill, landscaping or vegetation into a SWM facility or within a drainage easement that will limit or diminish the functioning of the SWM facility in any manner.
- D. The Township may allow discharges based on a finding by the Township that the discharge(s) do not significantly contribute to pollution to surface waters of the commonwealth. The Township may allow the following:
- (1) Discharges from firefighting activities;
 - (2) Potable water sources including water line flushing;
 - (3) Irrigation drainage;
 - (4) Air conditioning condensate;
 - (5) Springs;
 - (6) Water from crawl space pumps;
 - (7) Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used;
 - (8) Flows from riparian habitats and wetlands;

- (9) Uncontaminated water from foundations or from footing drains;
 - (10) Lawn watering;
 - (11) Dechlorinated swimming pool discharges;
 - (12) Uncontaminated groundwater;
 - (13) Water from individual residential car washing;
 - (14) Routine external building wash down (which does not use detergents or other compounds);
 - (15) Diverted stream flows;
 - (16) Rising ground waters.
- E. In the event that the Township or DEP determines that any of the discharges identified in § 149-81D above significantly contribute to pollution of the waters of this commonwealth, the Township or DEP will notify the responsible person(s) to cease the discharge.
- F. Roof drains shall not be connected to streets, sanitary or storm sewers or roadside ditches, except as provided in § 149-81D.
- G. No person shall throw, deposit, leave, maintain, keep, or permit to be thrown, deposited, left, or maintained in or upon any public or private property, driveway, parking area, street, alley, sidewalk, or other component of the Township's separate storm sewer system, any refuse, rubbish, garbage, litter, or other discarded or abandoned objects, articles, and accumulations, so that the same may cause or contribute to pollution. Wastes deposited in streets in proper waste receptacles for the purposes of collection are exempted from this prohibition.

§ 149-82. Alteration of SWM BMPs.

No person shall modify, remove, fill, landscape or alter stormwater management facilities or stormwater BMPs which may have been installed on a property unless a stormwater management plan has been approved which authorizes such modification, removal, filling, landscaping or alteration. No person shall place any structure, fill, landscaping or vegetation into a SWM facility or within a drainage easement which will limit or alter the functioning of the SWM facility or easement in any manner.

§ 149-83. through § 149-90. (Reserved)

ARTICLE IX

Enforcement and Penalties**§ 149-91. Right-of-entry.**

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

§ 149-92. Enforcement. [Amended 12-9-2019 by Ord. No. 249]

The Board of Supervisors is hereby authorized and directed to enforce all of the provisions of this chapter. The Board of Supervisors hereby designates the Code Enforcement Officer to enforce Articles VI and VIII of this chapter.

- A. Any permit or approval issued by the Township pursuant to this chapter may be suspended by the Township for:
 - (1) Noncompliance with or failure to implement any provision of the approved SWM site plan or O&M agreement.
 - (2) A violation of any provisions of this chapter or any other applicable law, ordinance, rule, or regulation relating to the regulated activity.
 - (3) The creation of any condition or the commission of any act during construction or development that constitutes or creates a hazard, nuisance, pollution or endangers the life or property of others.
- B. A suspended permit may be reinstated by the Township when:
 - (1) The Township has inspected and approved the corrections to the violation that caused the suspension;
 - (2) The Township is satisfied that the violation has been corrected.
- C. The Code Enforcement Officer may issue notices of violation for violations of provisions of Articles VI and VIII of this chapter and may, with or without issuing a notice of violation, institute summary criminal proceedings.

§ 149-93. Violations and penalties; remedies.

- A. It shall be a violation of this chapter to commit or permit any other person to commit any of the following acts:
 - (1) To commence regulated activities prior to obtaining unconditional approval of a SWM site plan or in violation of the terms or conditions of a SWM site plan approved under this chapter.
 - (2) To install, repair, modify or alter SWM facilities prior to obtaining approvals under this chapter, or, in a manner which violates the terms and conditions of any Approval issued under this chapter.

- (3) To misuse or fail to maintain any SWM facility installed upon a property.
 - (4) To construct any improvements upon, grade, fill or take any other action which will impair the proper functioning of any SWM facility.
 - (5) To place false information on, or, omit relevant information from an application for approval under this chapter.
 - (6) To fail to comply with any other provisions of this chapter.
- B. For each violation of the provisions of this chapter, the owner, agent, lessee, or contractor or any other person who commits, takes part in, or assists in any such violation shall be liable upon conviction thereof in a summary proceeding to pay a fine of not less than \$200 nor more than \$1,000 for each offense, together with the costs of prosecution. Each day or portion thereof in which a violation exists shall be considered a separate violation of this chapter, and each section of this chapter which is violated shall be considered a separate violation.
- C. The Township may also institute suits to restrain, prevent, or abate a violation of this chapter in equity or at law. Such proceedings in equity or at law may be initiated before any court of competent jurisdiction. In cases of emergency where, in the opinion of the court, the circumstances of the case require immediate abatement of the unlawful conduct, the court may, in its decree, fix a reasonable time during which the person responsible for the unlawful conduct shall correct or abate the same. The expense of such proceedings shall be recoverable from the violator in such manner as may now or hereafter be provided by law.
- D. The Board of Supervisors may also take actions relating to suspension or revocation of permits set forth in this chapter.
- E. The Board of Supervisors may, by resolution, appoint a code enforcement officer to enforce this chapter and may authorize such code enforcement officer to institute summary criminal proceedings without prior action by the Board of Supervisors.

§ 149-94. Appeals.

- A. Any person aggrieved by any administrative action of the Township of West Earl may appeal to the Board of Supervisors within 30 days of that action. Any such appeal shall be governed by the procedures of Article V of the Local Agency Law, 2 Pa.C.S.A. § 501 et seq.
- B. Any person aggrieved by any decision of the Board of Supervisors may appeal to the Lancaster County Court of Common Pleas, in accordance with Article VII of the Local Agency Law, 2 Pa.C.S.A. § 701 et seq., within 30 days of that decision.

§ 149-95. Modification of provisions.

- A. The provisions of this chapter not relating to water quality are intended as minimum standards for the protection of the public health, safety, and welfare. The Township reserves the right to modify or to extend them conditionally in individual cases as may be necessary in the public interest; provided, however, that such variation shall not

have the effect of nullifying the intent and purpose of this chapter, and that the applicant shows that to the satisfaction of the Township that the applicable regulation is unreasonable, or will cause undue hardship, or that an alternative proposal will allow for equal or better results. The list of such modifications, along with an explanation of and justification for each modification, shall be included on the plan. This section does not apply during an enforcement action.

- B. In granting waivers/modifications for provisions of this chapter not relating to water quality, the Township may impose such conditions as will, in its judgment, secure substantially the objectives of the standards and requirements of this chapter.

§ 149-96. through § 149-100. (Reserved)

ARTICLE X

References

§ 149-101. References.

References are as follows:

- A. 25 Pennsylvania Code, Chapter 102 Erosion and Sediment Control.
- B. Minnesota Pollution Control Agency.
- C. Code of Federal Regulations - Title 44: Emergency Management and Assistance, § 9.4 Definitions.
- D. 25 Pa. Code Chapter 105.
- E. Based on definition in Wisconsin Department of Natural Resources Administrative Rule NR 151.006.
- F. Pennsylvania Department of Environmental Protection. No. 363-0300-002 (December 2006), as amended and updated. Pennsylvania Stormwater Best Management Practices Manual. Harrisburg, PA.
- G. City of Jacksonville website, <http://www3.coj.net/Departments/CityFees/Glossary.aspx>.
- H. Lancaster County Model Subdivision and Land Development Ordinance.
- I. Pennsylvania Department of Environmental Protection. No. 363-2134-008 (March 2012), as amended and updated. Erosion and Sediment Pollution Control Program Manual. Harrisburg, PA.
- J. CSN Technical Bulletin No. 5, Stormwater Design for High Intensity Redevelopment Projects in the Chesapeake Bay Watershed, version 2.0. Chesapeake Stormwater Network, January 5, 2011 - page 43.
- K. "Penn State Urban Hydrology Model User Manual" by Thomas A. Seybert, PE, David F. Kibler, PE, and Elizabeth I. White, PE, August 1993 page 70 and VT/PSUHM help screen.

L. 25 Pa. Code, Chapter 71 Administration of Sewage Facilities Planning Program, § 71.1.

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STORMWATER MANAGEMENT

149 Attachment I

Township of West Earl

APPENDIX A Simplified Approach to Stormwater Management for Small Projects in West Earl Township, Lancaster County, Pennsylvania

TABLE OF CONTENTS

- I. Introduction
- II. Importance of Stormwater Management
- III. Standard Terms Used in the Manual
- IV. Determining What Type of Stormwater Management Submission is Needed
- V. Using the Stormwater Management Worksheets
- VI. Minor Stormwater Site Plan Requirements
- VII. Selecting Stormwater BMPs
- VIII. Small Project Application & Worksheets
- IX. Stormwater Management/BMP Facilities & Maintenance Agreement

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I. Introduction:

This design manual has been created as a tool to help property owners manage stormwater on their property and streamline the process of designing on-site stormwater management facilities for Regulated Activities that are new, relatively minor residential and accessory structure projects (less than 5,000 square feet). Through the use of this manual, residents have the ability to determine the appropriate facilities for their property, project and budget. This design method is not intended to be used with large-scale subdivision/land development projects or activities that include infrastructure such as roadways.

The Stormwater Best Management Practices (Stormwater BMPs) listed in this manual should be used as a guide and are not a comprehensive list of options. Residents should contact West Earl Township to discuss alternative solutions for site specific applications.

II. Importance of Stormwater Management:

Stormwater is the runoff produced by precipitation, snow melt, or ice melt. When land is developed or changed, the flow patterns of water, volume of water and quality of water are also changed. Land development activities can affect characteristics of stormwater runoff, including the rate of runoff, volume of runoff, and quality of runoff. When runoff is not managed, the increased volume may aggravate flooding.

The objective of stormwater management is to prevent or mitigate the adverse impacts of the increase in rate and volume of stormwater runoff, while also protecting health, safety, and property. Stormwater BMPs aim to maintain water quality, encourage infiltration in appropriate areas, promote groundwater recharge, maintain the natural drainage characteristics of the site to the maximum extent practicable, and protect stream banks and beds.

III. Standard Terms Used in the Manual:

BMP (Best Management Practice) - Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from Regulated Activities, to provide water quality treatment, infiltration, volume reduction, and/or peak rate control, to promote groundwater recharge, and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one (1) of two (2) 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 Site.

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

Earth Disturbance (or 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; land development; agricultural plowing or tilling; operation of animal heavy use areas; timber harvesting activities; road maintenance activities; oil and gas activities; well drilling; mineral extraction; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

Flow Path - The path that stormwater follows from the discharge point to the nearest property line or channelized flow (i.e. stream, drainage ditch, etc.). The length of the path is measured along the ground slope.

Impervious Surface (or Impervious Area) - Surfaces which prevent the infiltration of water into the ground. All structures, buildings, parking areas, driveways, roads, streets, sidewalks, decks, and any areas of concrete, asphalt, packed stone, and compacted soil shall be considered impervious surface if they prevent infiltration.

Karst - A type of topography or landscape characterized by features including but not limited to surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

Minor Stormwater Site Plan - A site plan prepared and submitted for Regulated Activities which meet the Small Project and Minor Stormwater Site Plan criteria. The plan depicts existing conditions on the property, proposed impervious areas, and, if required, the location of proposed Stormwater BMPs.

Regulated Activities - Activities, including Earth Disturbance Activities that involve the alteration or development of land in a manner that may affect stormwater runoff. Regulated activities shall include, but not be limited to:

- Land Development subject to the requirements of the Township of West Earl Subdivision and Land Development Ordinance;
- Removal of ground cover, grading, filling or excavation;
- Construction of new or additional impervious or semi-impervious surfaces (driveways, parking lots, etc.), and associated improvements;
- Construction of new buildings or additions to existing buildings;
- Installation or alteration of stormwater management facilities and appurtenances thereto;
- Diversion or piping of any watercourse; and,
- Any other regulated activities where the Township determines that said activities may affect any existing watercourse's stormwater management facilities, or stormwater drainage patterns.

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

Small Project - Regulated activities that, measured on a cumulative basis from July 1, 2005, create new impervious areas of more than 1,000 sq. ft. and less than 5,000 sq. ft. or involve

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Earth Disturbance Activity of an area less than 5,000 sq. ft. and do not involve the alteration of stormwater facilities or watercourses.

IV. Determining What Type of Stormwater Management Submission is Needed:

The following chart provides a guide to determine what type of stormwater submission is needed. Some projects will be eligible for an exemption from preparing a stormwater management plan, but documentation of the project must still be filed with West Earl Township. Completion of the West Earl Township Stormwater Management Worksheets will determine what type of documentation is required for each project.

This manual is designed to assist those with Regulated Activities that qualify for the use of a Minor Stormwater Site Plan. If a SWM Site Plan is required in accordance with the West Earl Township Stormwater Management Ordinance, **please consult a qualified professional (ex. Engineer, Surveyor).**

Stormwater Management Ordinance Status	Proposed New Impervious Area	Proposed Earth Disturbance	Next Steps
Eligible for Exemption	Less than 1,000 ft ²	Less than 5,000 ft ²	File Stormwater Management Worksheet
Small Project	1,000 ft ² to ≤ 5,000 ft ²	Less than 5,000 ft ²	Prepare a Minor Stormwater Site Plan
Non-Exempt	Greater than 5,000	Greater than 5,000 ft ²	Prepare a SWM Site Plan per Article IV

* Note: Regulated Activities must meet BOTH Proposed New Impervious Area and Proposed Earth Disturbance requirements to be eligible for an Exemption or a Small Project.

The Applicant should first review the planned project with West Earl Township to confirm the following:

- That the proposed project is not otherwise exempt from the stormwater management control and the engineered Stormwater Management Site Plan requirements of the Township's Stormwater Management Ordinance;
- That the proposed project is eligible to follow the Small Project-Minor Stormwater Site Plan requirements;
- To determine which components of the proposed project must be included in the calculation of "impervious surfaces (areas)"; and,
- Whether any local conditions are known to the Township that would preclude the use of any of the techniques included in the Simplified Approach for Small Projects.

The following shall be submitted to West Earl Township depending on the proposed project:

- Eligible for Exemption
 - o Stormwater Management Worksheet
- Small Project
 - o Stormwater Management Worksheet

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- o Owner Acknowledgement (signed)
- o Minor Stormwater Site Plan
- o Signed and notarized Stormwater Best Management Practices Operation, Maintenance and Inspection Plan and Agreement. Following approval and signature by the Township, the Landowner must have the Agreement recorded at the Lancaster County Office of the Recorder of Deeds, so that the Agreement will be applicable to future landowners.
- Non-Exempt
 - o SWM Site plan and associated calculations prepared by a Professional Engineer, Landscape Architect or Surveyor in accordance with Articles III and IV of this Stormwater Management Ordinance.

V. Using the Stormwater Management Worksheets:

Determining the new impervious area of a proposed project is the first step in using this Manual. Completing the attached West Earl Township Stormwater Management Worksheets will assist the property owner, or applicant, and West Earl Township in determining the impervious area of a proposed project and providing guidance through ensuing steps.

Step 1: Step 1 of the West Earl Township Stormwater Management Worksheet provides a table and directions on how to calculate the new impervious area proposed to be created. If the total new impervious area is less than 1,000 square feet, the project may be exempt from the volume, rate, and SWM Site Plan requirements of the West Earl Township Stormwater Management Ordinance. After completing Step 1 of the worksheet, the applicant will sign the Acknowledgement statement on the worksheet and file it with West Earl Township.

West Earl Township will use this as a record of exempt projects and keep a running total of proposed impervious area since the adoption of the West Earl Township Stormwater Management Ordinance. After exceeding 1,000 square feet of impervious area since the adoption of the West Earl Township Stormwater Management Ordinance, a property owner will need to prepare a Minor Stormwater Site Plan or a Stormwater Management Site Plan in accordance with Article IV.

However, applicants shall note that Regulated Activities that meet the exemption criteria may be required to manage stormwater runoff and provide plans and/or calculations as required in this ordinance should West Earl Township determine that there is a potential for stormwater runoff associated with the proposed Regulated Activity to adversely affect adjacent or downstream public or private properties.

If the total new impervious area is 1,000 square feet or greater and less than 5,000 square feet, the applicant will go on to Step 2. If the Regulated Activity involves only Earth Disturbance less than 5,000 square feet, the applicant shall contact West Earl Township for additional guidance.

Step 2: Step 2 of the West Earl Township Stormwater Management Worksheet provides guidance to calculate the total volume of stormwater runoff from new impervious surfaces that

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must be controlled using stormwater BMPs. Upon completion of these calculations, continue to Step 3.

Step 3: Step 3 of the West Earl Township Stormwater Management Worksheet provides guidance regarding the preparation of a Minor Stormwater Site Plan, as outlined in this design manual, for approval by West Earl Township. This includes determining the types, sizes, and location of proposed Stormwater BMPs to be employed for a given project. The worksheets, Minor Stormwater Site Plan, and Owner Acknowledgement will be submitted to West Earl Township for approval. West Earl Township will use this submission as a record to keep a running total of proposed impervious area since the adoption of the West Earl Township Stormwater Management Ordinance, and to monitor the installation of the required Stormwater BMPs necessary to support the project.

VI. Minor Stormwater Site Plan Requirements

A Minor Stormwater Site Plan depicts the existing conditions of a property and the location of proposed impervious surfaces. Depicting the relationship between the Regulated Activities and distances to things like property lines, streams, and vegetated areas will help determine if the stormwater runoff created by the proposed project can be managed naturally within the property or if additional Stormwater BMPs are needed to accommodate the stormwater runoff.

If a project requires the submission of a Minor Stormwater Site Plan or a plan in support of an Exemption, the applicant shall prepare and submit to West Earl Township a Minor Stormwater Site Plan and the West Earl Township Stormwater Management Worksheet. Applicants may be able to obtain assistance from the Lancaster County GIS Office to develop property maps depicting existing features on their site. A Minor Stormwater Site Plan depicting the key features of the site must be drawn to scale and show the following:

- Property owner name, address, email and phone number
- Property address (if different from owner address)
Tax Parcel ID number
- Name, address, phone number & email address of plan preparer
- Property boundary.
- Site conditions (grassed areas, agricultural fields, direction of slope and stormwater flow on the property).
Location of all existing and proposed structures (house, driveway shed, addition, etc.) and any existing and proposed downspouts. Include the dimensions of proposed structures.
- Distance from proposed downspouts to property line.
- All existing and proposed driveways and other impervious areas (stone and gravel driveways are considered impervious).
- Natural features such as streams, wetlands, floodplains, tree lines and other vegetation on the property and within 50 feet of the property line.
- Distance from proposed structures or downspouts along the stormwater flow path to any stream or wooded area.
- Any other pertinent information that may be significant to the project site (existing drainage ways, steep slopes, exposed bedrock, upslope drainage areas, etc.).
- Wells and on-site sanitary sewer systems (septic tank, drainfield, etc.).

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- Surface and subsurface utilities.
- Existing and proposed easements (gas, electric, stormwater, water, sewer, etc.).

If Stormwater BMPs are required, the following information must also be shown on the plan:

Location and size of proposed Stormwater BMPs.

- Details of BMPs as necessary for construction.

Other Considerations for Minor Stormwater Management Plans:

- For Minor Stormwater Management Plans, soil testing is highly recommended to select and apply the appropriate Stormwater BMPs. The use of soil maps, infiltration tests, and/or perc tests may provide the applicant basic information about soil characteristics.
- Proposed stormwater management facilities must be designed to handle flows from the contributing area.
- The site shall not have any pre-existing stormwater drainage-related problems (as verified by West Earl Township), at the discretion of West Earl Township.
- Water quality shall be protected per Chapter 93 of PA Code.
- West Earl Township may inspect all Stormwater BMPs during and after construction/installation.
- Infiltration BMPs should not be constructed nor receive runoff until the entire contributory drainage area has achieved final stabilization.
Ensure that infiltration in geologically susceptible areas such as, but not limited to, carbonate geology/karst topography do not cause adverse effects. The Minor Stormwater Site Plan should incorporate steps to ensure that salt or chloride will not contaminate the groundwater.
- Selected Stormwater BMPs shall be designed, constructed, and maintained in accordance with the manufacturer's recommendation, the *PA Stormwater Management BMP Manual*, or other written guidance acceptable to West Earl Township.
- Proposed sump pumps shall discharge to infiltration or vegetative Stormwater BMPs to the maximum extent practicable and not adversely impact adjacent and downstream properties.

VII. Selecting Stormwater BMPs

If the submission of a Minor Stormwater Management Plan including the use of Stormwater BMPs is required, the applicant should review the compiled information in the *PA Stormwater Management BMP Manual*. This document identifies Stormwater BMPs that have been deemed to be of a nature and cost that will accomplish the goals of the Lancaster County Stormwater Management Plan, while not unduly burdening the residents. It will then be the Owner's responsibility to select a facility, determine the appropriate size and agree to construct and maintain that facility or facilities. The property owner is encouraged to utilize both multiple and hybrid versions of the facilities, as outlined in the documents mentioned above.

The applicant may choose to install a Stormwater BMP facility as shown in the Stormwater Management Worksheets. The Stormwater BMP facility shall be constructed in accordance with the associated construction details, requirements and notes.

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VIII. Stormwater Management Worksheets

Stormwater Management Worksheets can be obtained from the West Earl Township Municipal Office.

IX. Stormwater Management/BMP Facilities and Maintenance Agreement

It is the Landowner's responsibility to properly maintain BMPs. It is also the Landowner's responsibility to inform any future buyers of the function, operation, and maintenance needed for any BMPs on the property prior to the purchase of the property. The following maintenance agreement outlines the inspection and maintenance required for each type of BMP, the responsibilities of the Landowner, and the rights of the Township in regards to inspection and enforcement of the maintenance requirements.

The Operation, Maintenance and Inspection Plan and Agreement must be signed, notarized and submitted to the Township. Following approval and signature by the Township, the Landowner must have the Agreement recorded at the Lancaster County Office of the Recorder of Deeds, so that the Agreement will be applicable to future landowners.

An Operation, Maintenance and Inspection Plan and Agreement template can be obtained from the West Earl Township Municipal Office. A sample agreement is shown on the following pages.

STORMWATER MANAGEMENT

149 Attachment 2

Township of West Earl

Prepared By: _____

Return To: Same
Parcel ID # _____

STORMWATER MANAGEMENT AGREEMENT AND DECLARATION OF EASEMENT

THIS AGREEMENT AND DECLARATION OF EASEMENT made this _____ day of _____, 20____, by and between _____ with a mailing address at _____ (hereinafter, whether singular or plural, referred to as the "Grantor"), and **WEST EARL TOWNSHIP**, Lancaster County, Pennsylvania, a municipal corporation duly organized under the laws of the Commonwealth of Pennsylvania, with its municipal office located at 157 West Metzler Road, P.O. Box 787, Brownstown, Pennsylvania 17508 (hereinafter referred to as the "Township").

BACKGROUND

Grantor is the owner of premises located at _____

_____ in the Township of West Earl, Lancaster County, Pennsylvania, as more specifically described in a deed recorded in Deed or Record Book_____, Volume_____, Page_____, or at Document No._____ in the Office of the Recorder of Deeds in and for Lancaster County, Pennsylvania (hereinafter referred to as the "Premises"). Grantor is proceeding to build on and develop the Premises in such manner as requires the submission of a Small Project Stormwater Site Plan pursuant to the West Earl Township Stormwater Management Ordinance (hereinafter "SWM Ordinance").

Grantor's Small Project Stormwater Site Plan, which is expressly made a part hereof as Exhibit A, as approved or to be approved by the Township, provides for detention of stormwater within the confines of the Premises through the use of Stormwater Best Management Practices (Stormwater BMPs).

In the interest of protecting the health, safety, and welfare of the residents of the Township, the Township requires that on-site Stormwater BMPs as shown on the Small Project Stormwater Site Plan be constructed and adequately maintained by Grantor, his heirs, personal representatives, successors and assigns. Any additional requirements imposed by the Township are considered part of the Small Project Stormwater Site Plan.

The purpose of this Agreement and Declaration of Easement is to describe the ownership and maintenance responsibilities for the on-site Stormwater BMPs, which will be located on the Premises and to impose the ownership and maintenance responsibilities upon Grantor, his heirs,

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personal representatives and assigns and upon successor owners of the Premises, and set forth the rights of the Township.

NOW, THEREFORE, intending to be legally bound hereby and in consideration of receiving approval of its Small Project Stormwater Site Plan from the Board of Supervisors, and in consideration of receiving permits from the Township to develop the Premises, Grantor, for Grantor and the heirs, personal representatives, successors and assigns of Grantor, covenant and declare as follows:

1. In accordance with the specifications identified within the Small Project Stormwater Site Plan attached as Exhibit A, Grantor shall construct the on-site Stormwater BMPs, which will be owned by Grantor, his heirs, personal representatives, successors and assigns.
2. Grantor, his heirs, personal representatives, successors and assigns, shall adequately maintain the Stormwater BMPs, including all pipes and channels built to convey stormwater, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions and meeting all requirements of Exhibit B attached hereto and incorporated herein.
3. Grantor, his heirs, personal representatives, successors and assigns, shall inspect the Stormwater BMPs after all rainfall events exceeding one inch of precipitation in a 24-hour period.
4. Grantor agrees that this Agreement creates upon the Premises, for the benefit of all present and future owners of the Premises or part of the Premises, the Township, and all other property owners affected by the storm water facilities, the perpetual right, privilege and easement for the draining of storm water in and through the Stormwater BMPs, and other stormwater facilities depicted on the Small Project Stormwater Site Plan submitted to the Township by Grantor.
5. Grantor, his heirs, personal representatives, successors and assigns, hereby grant permission to the Township, by its authorized agents and employees, to enter upon the Premises without prior notification at reasonable times and upon presentation of proper identification to inspect the Stormwater BMPs whenever the Township deems necessary.
6. In the event the Grantor, or his heirs, personal representatives, successors and assigns, fails to maintain the Stormwater BMPs as shown on the Small Project Stormwater Site Plan and in good working condition, the Township may enter upon the Premises and take whatever action it deems necessary to maintain said Stormwater BMPs and to charge the costs of such repairs to the Grantor, his heirs, personal representatives, successors and assigns. This provision shall not be construed to allow the Township to erect any structure of permanent nature on the Premises unless such structure(s) were part of the approved Small Project Stormwater Site Plan. It is expressly understood and agreed that the Township is under no obligation to routinely maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Township.

STORMWATER MANAGEMENT

7. In the event that the Township, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Grantor shall reimburse the Township within thirty (30) days of receipt of invoice for all expenses incurred. The Township has the right to file a municipal lien for unpaid costs and expenses that have not been reimbursed thirty (30) days after receipt of invoice. Any municipal lien filed pursuant to this Agreement shall be in the amount of all costs incurred by the Township, plus a penalty of ten percent (10%) of such costs, plus the Township's reasonable attorneys' fees.
8. The intent and purpose of this Agreement is to ensure the proper maintenance of the Stormwater BMPs by the Grantor. This Agreement shall not be deemed to create any additional liability upon any party for damage(s) alleged to result from or be caused by nonpoint source pollution runoff. Furthermore, this Agreement imposes no liability of any kind whatsoever on the Township, or its elected and appointed officials, agents and employees.
9. Grantor agrees to indemnify the Township and all of its elected and appointed officials, agents and employees (hereafter collectively referred to as the "Indemnitees") against and hold Indemnitees harmless from any and all liability, loss or damage, including attorneys' fees and costs of investigation and defense, as a result of claims, demands, costs or judgments against Indemnitees which arise as a result of the design, installation, construction or maintenance of the Stormwater BMPs or any omissions relating thereto. In the event that a claim arising from Grantor's actions or omissions relating to the installation, construction or maintenance of Stormwater BMPs on the Premises is asserted against Indemnitees, the Township shall promptly notify Grantor, and Grantor shall defend, at his own expense, any suit based on the claim. If any judgment against Indemnitees shall be entered as a result of such claim, the Grantor agrees to indemnify Indemnitees and pay all costs and expenses stemming from said judgment.
10. This Agreement is not intended to, nor shall operate to limit the Township's rights and remedies under the SWM Ordinance. The Township may, in addition to the remedies prescribed herein, proceed with any action at law or in equity to bring about compliance with the Township SWM Ordinance and this Agreement.
11. This Agreement shall be binding on Grantor, his heirs, personal representatives, administrators, executors, assigns, and any other successors in interests, in perpetuity.

[SIGNATURES APPEAR ON FOLLOWING PAGE]

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IN WITNESS WHEREOF, the undersigned have caused this Agreement and Declaration to be executed on the day and year first above written.

WEST EARL TOWNSHIP
Lancaster County, Pennsylvania

Attest: _____
(Assistant) Secretary

By: _____
(Vice) Chairman
Board of Supervisors

[TOWNSHIP SEAL]

Witness:

GRANTOR:

_____ (SEAL)

Print Name: _____

_____ (SEAL)

Print Name:.. _____

All property owners must sign the Storm Water Management Agreement in the presence of a notary public who must complete the acknowledgment on the following page. If the property is jointly owned by husband and wife, both must sign.

STORMWATER MANAGEMENT

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20____, before me, the undersigned officer, a notary public in and for the aforesaid Commonwealth and County, personally appeared _____, acknowledged himself/herself to be (Vice) Chairman of the Board of Supervisors of West Earl Township, Lancaster County, Pennsylvania, and that he/she, as such officer, being authorized to do so, executed the foregoing Storm Water Management Agreement and Declaration of Easement for the purposes therein contained by signing the name of such Township by himself/herself as such officer.

IN WITNESS WHEREOF, I set my hand and official seal.

Notary Public

My commission expires:

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20____, before me, the subscriber, a notary public, in and for the aforesaid Commonwealth and County, came the above-named _____, known to me (or satisfactorily proven) to be the person(s) whose name(s) is/are subscribed on the within instrument, and acknowledged the foregoing Storm Water Management Agreement and Declaration of Easement to be his/her/their act and deed and desired the same to be recorded as such.

Witness my hand and notarial seal.

Notary Public

My commission expires:

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STORMWATER MANAGEMENT

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Township of West Earl

APPENDIX B-1 Runoff Coefficients "C" for Rational Formula

Runoff Coefficients C for Rational Formula												
Soil Group	A			B			C			D		
Slope	0 to 2%	2 to 6%	6% plus	0 to 2%	2 to 6%	6% plus	0 to 2%	2 to 6%	6% plus	0 to 2%	2 to 6%	6% plus
Land Use												
Cultivated land												
Winter conditions	.14	.23	.34	.21	.32	.41	.27	.37	.48	.34	.45	.56
Summer conditions	.10	.16	.22	.14	.20	.28	.19	.26	.33	.23	.29	.38
Fallowed fields												
Poor conditions	.12	.19	.28	.17	.25	.34	.23	.33	.40	.27	.35	.45
Good conditions	.08	.13	.16	.11	.15	.21	.14	.19	.26	.18	.23	.31
Forest/woodland	.08	.11	.14	.10	.14	.18	.12	.16	.20	.15	.20	.25
Grass areas												
Good conditions	.10	.16	.20	.14	.19	.26	.18	.22	.30	.21	.25	.35
Average conditions	.12	.18	.22	.16	.21	.28	.20	.25	.34	.24	.29	.41
Poor conditions	.14	.21	.30	.18	.28	.37	.25	.35	.44	.30	.40	.50
Impervious areas	.90	.91	.92	.91	.92	.93	.92	.93	.94	.93	.94	.95
Weighted residential												
Lot size 1/8 acre	.29	.33	.36	.31	.35	.40	.34	.38	.44	.36	.41	.48
Lot size 1/4 acre	.26	.30	.34	.29	.33	.38	.32	.36	.42	.34	.38	.46
Lot size 1/3 acre	.24	.28	.31	.26	.32	.35	.29	.35	.40	.32	.36	.45
Lot size 1/2 acre	.21	.25	.28	.24	.27	.32	.27	.31	.37	.30	.34	.43
Lot size 1 acre	.18	.23	.26	.21	.24	.30	.24	.29	.36	.28	.32	.41

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STORMWATER MANAGEMENT

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Township of West Earl

APPENDIX B-2

Runoff Curve Numbers "CN" for SCS Method

The following pages include Runoff Curve Numbers "CN" from U. S. Department of Agriculture, Natural Resources Conservation Service, June 1986, Urban Hydrology for Small Watersheds, Technical Release No. 55 (TR-55), Second Edition (or a more current version as applicable).

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Table 2-2a Runoff curve numbers for urban areas^{1/}

Cover Description		Curve Numbers for Hydrologic Soil Group			
Cover Type and Hydrologic Condition	Average Percent Impervious Area ^{2/}	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} :					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1-to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) ^{5/}		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

¹ Average runoff condition, and $I_a = 0.2S$.

² The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

³ CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

⁴ Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

⁵ Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

STORMWATER MANAGEMENT

Table 2-2b Runoff curve numbers for cultivated agricultural lands^{1/}

Cover Description			Curve Numbers for Hydrologic Soil Group			
Cover Type	Treatment ^{2/}	Hydrologic Condition ^{3/}	A	B	C	D
Fallow	Bare soil	—	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C & T)	Poor	66	74	80	82
		Good	62	71	78	81
	C&T+CR	Poor	65	73	79	81
		Good	61	70	77	80
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
		Good	51	67	76	80

¹ Average runoff condition, and $I_a=0.2S$

Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.

³ Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good $\geq 20\%$), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

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Table 2-2c Runoff curve numbers for other agricultural lands^{1/}

Cover Description		Curve Numbers for Hydrologic Soil Group			
Cover Type	Hydrologic Condition	A	B	C	D
Pasture, grassland, or range--continuous forage for grazing. ²	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow--continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush-brush-weed-grass mixture with brush the major element. ^{3/}	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 ^{4/}	48	65	73
Woods-grass combination (orchard or tree farm) ^{5/}	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods ^{6/}	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 ^{4/}	55	70	77
Farmsteads-buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

¹ Average runoff condition, and $I_a=0.2S$.

Poor: <50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: >75% ground cover and lightly or only occasionally grazed.

³ *Poor:* <50% ground cover.

Fair: 50 to 75% ground cover.

Good: >75% ground cover.

⁴ Actual curve number is less than 30; use CN = 30 for runoff computations.

⁵ CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

⁶ *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

Fair: Woods are grazed but not burned, and some forest litter covers the soil.

Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

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Table 2-2d Runoff curve numbers for arid and semiarid rangelands ^{1/}

Cover Description		Curve Numbers for Hydrologic Soil Group			
Cover Type	Hydrologic Condition ^{2/}	A ^{3/}	B	C	D
Herbaceous-mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen-mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper-pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub -major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

¹ Average runoff condition, and I_a , =0.2S. For range in humid regions, use table 2-2c.

² Poor: <30% ground cover (litter, grass, and brush overstory).

Fair: 30 to 70% ground cover.

Good: > 70% ground cover.

³ Curve numbers for group A have been developed only for desert shrub.

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STORMWATER MANAGEMENT

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Township of West Earl

APPENDIX B-4

Average Velocities for Estimating Travel Time for Shallow Concentrated Flow

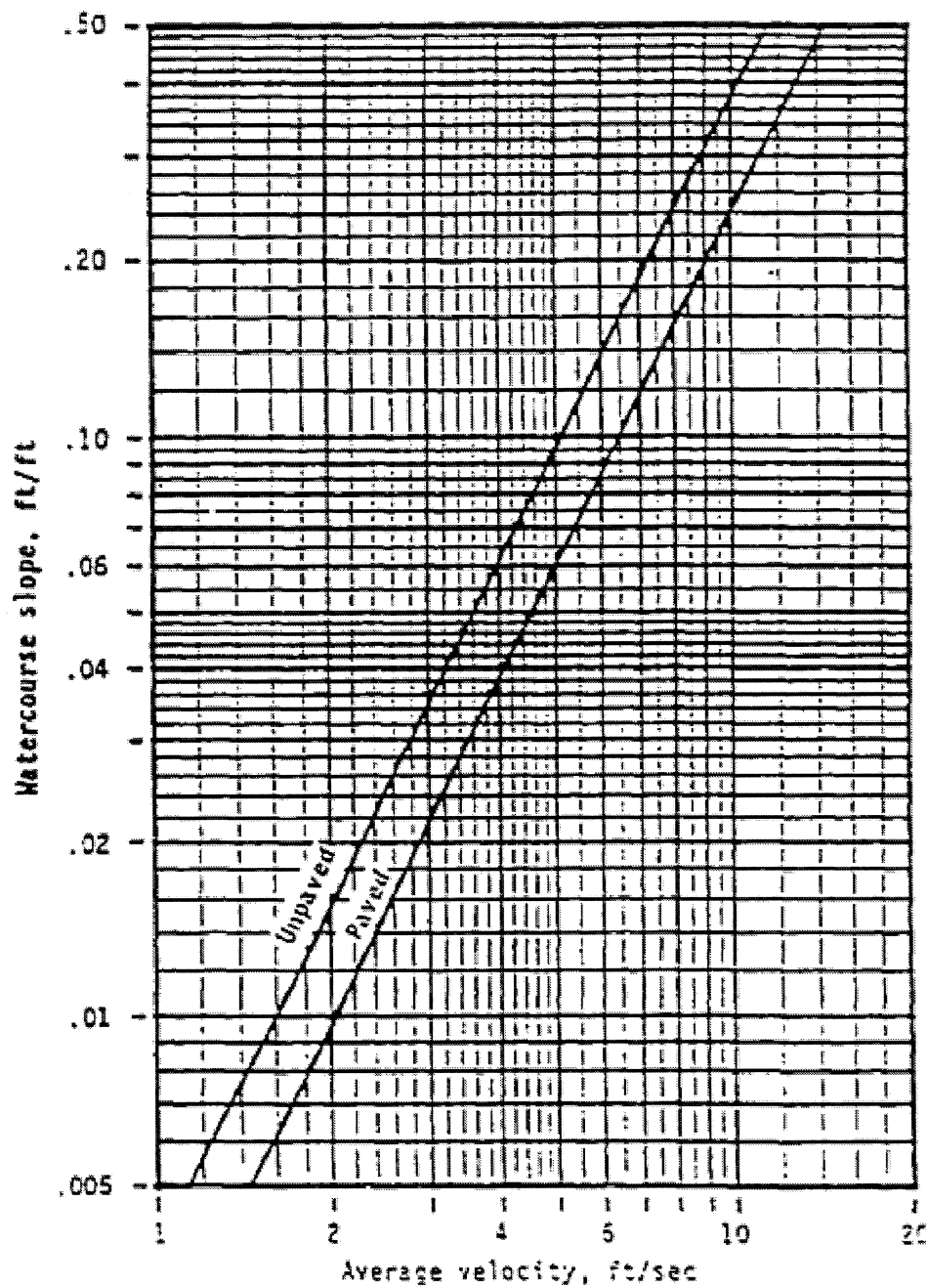


Figure 3-I. – Average velocities for estimating travel time for shallow concentrated flow.
(210 VI TR-55, Second Ed., June 1986)

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STORMWATER MANAGEMENT

149 Attachment 7

Township of West Earl

APPENDIX C
Operation and Maintenance (O&M) Agreement
Stormwater Management Facilities

Prepared By: Morgan, Hallgren, Crosswell & Kane, P.C.
700 N. Duke St. P.O. Box 4686
Lancaster, PA 17604-4686
(717)-299-5251

Return To: Morgan, Hallgren, Crosswell & Kane, P.C.
700 N. Duke St. P.O. Box 4686
Lancaster, PA 17604-4686

Parcel ID # _____

STORMWATER MANAGEMENT AGREEMENT
AND DECLARATION OF EASEMENT

THIS AGREEMENT AND DECLARATION OF EASEMENT made this _____ day of _____, 20__ by and between, _____, a _____ with a mailing address at _____, (hereinafter whether singular or plural referred to as the "Grantor"), and **WEST EARL TOWNSHIP**, Lancaster County, Pennsylvania, a municipal corporation duly organized under the laws of the Commonwealth of Pennsylvania, with its municipal office located at 157 West Metzler Road, P.O. Box 787, Brownstown, Pennsylvania (hereinafter referred to as the "Township").

BACKGROUND

Grantor is the owner of premises located _____,

_____ in the Township of West Earl, Lancaster County, Pennsylvania, as more specifically described in a deed recorded in Deed or Record Book _____, Volume _____, Page _____, or at Document No. _____ in the Office of the Recorder of Deeds in and for Lancaster County, Pennsylvania, and as shown on the NAME OF PLAN, prepared by _____, Drawing No. _____, dated _____, last revised _____ (hereinafter referred to as the "Premises").

Prior to beginning construction on any subdivision or land development, Grantor is required, under the West Earl Township Subdivision and Land Development Ordinance and the West Earl Township Storm Water Management Ordinance (collectively referred to as the "Ordinance"), to file a final plan with the West Earl Township Board of Supervisors. Pursuant to the Ordinance, Grantor must include storm water management data in its subdivision and/or land development application. The Ordinance requires that Grantor's final plan reflect and/or be accompanied with supporting documentation which identifies the ownership of, and the method of administering and maintaining, all permanent storm water management facilities. Drainage courses, swales, grassed waterways, storm water inlets, pipes, conduits, detention basins,

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retention basins, infiltration structures, and other storm water management facilities, including Best Management Practices facilities ("BMPs"), shall be included under the term "storm water management facilities" in this Agreement and Declaration of Easement.

The purpose of this Agreement and Declaration of Easement is to describe the ownership and maintenance responsibilities for the storm water facilities which will be installed on the Premises and to impose the ownership and maintenance responsibilities upon Grantor, his heirs, personal representatives and assigns and upon successor owners of the Premises, and set forth the rights of the Township.

NOW, THEREFORE, intending to be legally bound hereby and in consideration of receiving approval of its Subdivision and/or Land Development Plan or its Storm Water Management Plan (hereinafter referred to as the "Final Plan") from the Board of Supervisors, and in consideration of receiving permits from the Township to develop the Premises, Grantor, for Grantor and the heirs, personal representatives and assigns of Grantor, covenant and declare as follows:

1. The storm water facilities will be owned by Grantor, his heirs, personal representatives, successors and assigns.
2. All drainage courses, swales, storm water inlets, pipes, conduits, detention basins BMPs, and other storm water facilities shall be installed, constructed and maintained by Grantor, his heirs, personal representatives, successors and assigns, in a first-class condition in conformance with the approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County, and in a manner sufficient to meet or exceed the performance standards and specifications set forth on the approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County. These responsibilities shall include, but not be limited to, the following:
 - (a) Liming, fertilizing, seeding and mulching of vegetated channels and all other unstabilized soils or areas according to the specifications in the "Erosion and Sediment Pollution Control Manual" published by the Pennsylvania Department of Environmental Protection, the Penn State Agronomy Guide, or such similar accepted standard.
 - (b) Reestablishment of vegetation by seeding and mulching or sodding of scoured areas or areas where vegetation has not been successfully established.
 - (c) Mowing as necessary to maintain adequate stands of grass and to control weeds. Chemical weed control may be used if federal, state and local laws and regulations are met. Selection of seed mixtures shall be subject to approval by the Township.
 - (d) Removal of silt from all permanent structures which trap silt or sediment in order to keep the material from building up in grass waterways, pipes, detention or retention basins, infiltration structures, BMPs, and/or other facilities and thus reducing their capacity.

STORMWATER MANAGEMENT

- (e) Removal of silt from all permanent drainage structures, in particular BMPs, in order to maintain the design storage volumes. Regular programs shall be established and maintained.
- (f) Regular inspection of the areas in question to assure proper maintenance and care, including but not limited to proper implementation of BMPs. **ADD ANY SPECIFIC INSPECTION REQUIREMENTS IN THE PCSM PLAN.**
- (g) Regular maintenance to ensure that all pipes, swales and detention facilities shall be kept free of any debris or other obstruction. **ADD ANY SPECIFIC MAINTENANCE REQUIREMENTS IN THE PCSM PLAN.**
- (h) Regular maintenance of all facilities designed to improve water quality to ensure that such facilities function in accordance with their design. **ADD ANY SPECIFIC MAINTENANCE REQUIREMENTS IN THE PCSM PLAN SUCH AS IF APPLICABLE:** Maintenance of the infiltration bed and infiltration system by mowing grass regularly over the infiltration bed; keeping the yard drains and roof drains free of debris in good repair at all times; flushing the infiltration system using a water hose at the cleanouts once every 90 days to insure the infiltration system is clear of debris; keeping the sumps in the yard inlets and downspout sumps free of debris; and inspecting the infiltration bed four times per year or after each rain event exceeding one inch.
- (i) Repair of any subsidence, including subsidence caused by sinkholes.
- (j) **IF APPLICABLE:** Replacement of displaced riprap within the outlet energy dissipater immediately after it is displaced, particularly after major storm discharge events.
- (k) **IF APPLICABLE:** Vacuum sweeping of areas of porous paving to keep surface free of sediment as needed, typically three to four times per year and maintaining all areas of porous paving free from sealing, surfacing or re-paving with non-porous materials.
- (l) **IF APPLICABLE:** Aerate areas of amended soils annually. No impervious surfaces may be placed or installed on any area of amended soils.
- (m) Removal of trash and debris on a regular basis.

Include a statement that the approved Operations and Maintenance (O&M) Plan is attached as an exhibit if there are any requirements in addition to those in Paragraph 2. Paragraph 2 may be revised to simply incorporate an exhibit if all post construction inspection, operations, and maintenance requirements are included on the exhibit.

Grantor, his heirs, personal representatives, successors and assigns, shall be responsible for performing the foregoing maintenance.

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3. ***Grantor, his personal representatives, heirs, successors and assigns, shall be responsible for maintaining records of all inspections of and maintenance to BMPs and other storm water management facilities. Grantor, his personal representatives, heirs, successors and assigns, shall be responsible to prepare all annual BMP and post construction storm water management facility reports detailing the actual inspection and maintenance activities which are required by the terms of any NPDES permit or other state or federal regulation or requirement and submit such reports to the Township on or before DATE of each calendar year, together with any fee which the Township may impose for the review and processing of such report. It is the responsibility of Grantor to inform successors owners of the Premises or any lot created from the Premises of this reporting requirement. The failure to submit an annual report is a violation of this Agreement. The Township may prepare any required report and recover all costs required to prepare such report from the then owner of the Premises or any lot created from the Premises, plus a penalty of ten (10%) percent of such costs and may file a municipal claim to secure payment of such costs.***
4. Grantor, for himself, his heirs, personal representatives, successors and assigns, agrees that the failure to maintain all drainage courses, swales, storm water inlets, pipes, conduits, detention basins, BMPs, and other storm water management facilities in a first-class condition in conformance with this Agreement and approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County, shall constitute a nuisance and shall be abatable by the Township as such.
5. Grantor, for himself, his heirs, personal representatives, successors and assigns, authorizes the Township, at any time and from time to time, by its authorized representatives, to enter upon the Premises to inspect the storm water facilities.
6. The Township may require that Grantor, and assigns or any future owner or occupier of the Premises or any part thereof, take such corrective measures as the Township may deem reasonably necessary to bring the Premises into compliance with this Agreement and with the approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County.
7. Upon the failure of the owner or occupier of the Premises or any part thereof to comply with the terms of this Storm Water Management Agreement or to take corrective measures following reasonable notice from the Township, the Township, through its authorized representatives, may take such corrective measures as it deems reasonably necessary to bring the Premises into compliance with this Agreement and with the approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County, including, but not limited to, the removal of any blockage or obstruction from drainage pipes, swales, detention basins, and BMPs, and may charge the cost thereof to Grantor, his heirs, personal representatives, successors and assigns, or any owner of the Premises or any part thereof and, in default of such payment, may cause a municipal lien to be imposed upon the Premises or any part thereof. Any municipal lien filed pursuant to this Agreement shall

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be in the amount of all costs incurred by the Township, plus a penalty of ten (10%) of such costs, plus the Township's reasonable attorneys' fees.

8. *The storm water management facilities have been designed to allow a maximum impervious surface coverage*

-[if a single lot] of _____ square feet. Any proposal to add additional impervious surface coverage to the Premises will require the submission of a storm water management plan meeting all requirements of applicable regulations in effect at the time such application is filed.

-[if multiple lots with the same coverage] of _____ square feet for each lot to be created from the Premises. If the owner of any lot to be created from the Premises desires to install additional impervious surface coverage, such lot owner must submit an application under the Storm Water Management Ordinance in effect at such time as the application is filed and meet all applicable storm water management regulations.

-[if multiple lots with different coverage limits] as set forth in Exhibit A attached hereto and incorporated herein. If the owner of any lot to be created from the Premises desires to install additional impervious surface coverage beyond that allocated to such lot in Exhibit A, such lot owner must submit an application under the Storm Water Management Ordinance in effect at such time as the application is filed and meet all applicable storm water management regulations.

9. If ownership or maintenance responsibility of the storm water management facilities is assigned to a homeowners' association, condominium unit owners' association, or similar entity, the Township shall be notified. If such association fails to properly maintain the storm water management facilities, the Township shall have the same rights granted to municipalities under Section 705 of the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, with reference to maintenance of common open space, to maintain the storm water management facilities. Any association so formed shall enter into an agreement with the Township recognizing its duties and the Township's rights under this Agreement.
10. Grantor hereby imposes upon the Premises for the benefit of all present and future owners of the Premises or part of the Premises, the Township, and all other property owners affected by the storm water facilities, the perpetual right, privilege and easement for the draining of storm water in and through the drainage courses, swales, storm water inlets, pipes, conduits, detention basins, BMPs, and other storm water facilities depicted on the plan or plans submitted to the Township or hereafter made of record and now or hereafter installed on or constructed upon the Premises and, in addition, easements of access to the storm water facilities.
11. Grantor agrees to indemnify the Township and all of its elected and appointed officials, agents and employees (hereafter collectively referred to as the "Indemnitees") against and hold Indemnitees harmless from any and all liability, loss or damage, including attorneys' fees and costs of investigation and defense, as a result of claims, demands, costs or

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judgments against Indemnitees which arise as a result of the design, installation, construction or maintenance of the storm water facilities.

12. Grantor's personal liability under this Agreement shall cease at such time as (a) all storm water management facilities have been constructed in accordance with the specifications of the Township Subdivision and Land Development Ordinance, the Township Storm Water Management Ordinance and the approved plans; (b) the storm water management facilities have been inspected and approved by the Township Engineer; (c) all financial security, including any maintenance security, posted by Grantor has been released by the Township; and (d) Grantor has transferred all lots to be created from the Premises to third parties. Notwithstanding the foregoing, Grantor's personal liability shall continue for any violations of this Agreement and Declaration of Easement which occurred during the time that Grantor owned the Premises or any lot created from the Premises or in the event the storm water management facilities were not completed, inspected or approved as set forth in (a) through (c) herein.
13. It is the intent of the parties to this Agreement that personal liability and maintenance obligations shall pass to subsequent title owners upon change in ownership of the Premises or any lot created from the Premises, and such subsequent owners shall assume all personal liability and maintenance obligations for the time period during which they hold title. Personal liability shall remain for any violations of this Agreement and Declaration of Easement which occurred during the period in which an owner held title.
14. The Township may, in addition to the remedies prescribed herein, proceed with any action at law or in equity to bring about compliance with the Township Storm Water Management Ordinance, the Township Subdivision and Land Development Ordinance and this Agreement.
15. This Agreement and Declaration of Easement shall be binding upon the Grantor, the successors and assigns of Grantor, and all present and future owners of the Premises or any part thereof and is intended to be recorded in order to give notice to future owners of the Premises of their duties and responsibilities with respect to the storm water facilities. Grantor shall include a specific reference to this Agreement in any deed of conveyance for the Premises or any part thereof.
16. This Agreement and Declaration of Easement may be amended only by written instrument signed on behalf of all owners of the Premises and the Township.
17. When the sense so requires, words of any gender used in this Agreement and Declaration of Easement shall be held to include any other gender, and the words in the singular number shall be held to include the plural, and vice versa.

STORMWATER MANAGEMENT

IN WITNESS WHEREOF, the undersigned have caused this Agreement and Declaration to be executed on the day and year first above written.

WEST EARL TOWNSHIP
Lancaster County, Pennsylvania

Attest: _____
(Assistant) Secretary

By: _____
(Vice) Chairman
Board of Supervisors

[TOWNSHIP SEAL]

(Individual or Husband and Wife Developer)

Witness:

(Signature of Individual) _____ (SEAL)

(Signature of Spouse if Husband and Wife
are Co-Developers) _____ (SEAL)

IF APPLICABLE
Trading and doing business as:

(Partnership Developer*)

(Name of Partnership)

Witness:

Partner _____ (SEAL)

Partner _____ (SEAL)

Partner _____ (SEAL)

*All Partners must execute this Agreement

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(Corporation Developer)

(Name of Corporation)

ATTEST:

By: _____
(Assistant) Secretary

By: _____
(Vice) President

[CORPORATE SEAL]

(Limited Liability Company Landowner***)

(Name of Limited Liability Company)

WITNESSES:

_____ By: _____
Member

_____ By: _____
Member

_____ By: _____
Member

*** All members must sign.

(MUNICIPALITY ACKNOWLEDGMENT)

IN WITNESS WHEREOF, I set my hand and official seal.

My commission expires:

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(INDIVIDUAL OR HUSBAND AND WIFE DEVELOPER ACKNOWLEDGMENT)

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this the ____ day of _____, 20__, before me, the subscriber, a notary public in and for the aforesaid Commonwealth and County, came the above-named _____ known to me, (or satisfactorily proven) to be the person(s) whose name(s) is/are subscribed on the within instrument and acknowledged the foregoing Storm Water Management Agreement and Declaration of Easement to be act and deed and desired the same to be recorded as such.

Witness my hand and notarial seal.

Notary Public

My commission expires:

(PARTNERSHIP DEVELOPER ACKNOWLEDGMENT)

On this ____ day of _____, 20____, before me, a notary public, the undersigned officer, personally appeared _____, who acknowledged themselves to be all of the partners of _____, a _____ partnership, and that they, as such partners, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the partnership by themselves as such partners.

My commission expires:

(CORPORATE DEVELOPER ACKNOWLEDGMENT)

On this ____ day of _____, 20____, before me, a notary public, the undersigned officer, personally appeared _____, who acknowledged ____self to be the _____ of _____, a corporation, and that as such officer being authorized to do so, acknowledged the foregoing instrument for the purpose therein contained, by signing the name of the corporation by _____self as _____.

Notary Public

My commission expires:

STORMWATER MANAGEMENT

[LIMITED LIABILITY COMPANY LANDOWNER ACKNOWLEDGMENT]

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this ____ day of _____, 20____, before me, the undersigned officer, personally appeared _____, who acknowledged themselves to be all of the members of _____, a _____ limited liability company, and that they as such members, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of said limited liability company by themselves as such members.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public

My commission expires:

WEST EARL CODE

JOINDER BY MORTGAGEE

_____("Mortgagee"), as holder of a certain mortgage on the premises of [NAME OF GRANTOR] within West Earl Township, Lancaster County, Pennsylvania, described in the Deed recorded in/at _____, in the Office of the Recorder of Deeds in and for Lancaster County, Pennsylvania, which mortgage, in the amount of \$_____, dated _____, and recorded at _____ in the Recorder of Deeds Office in and for Lancaster County, Pennsylvania, as well as any other mortgages which Mortgagee may now or hereafter hold on the Premises (all such mortgages hereinafter collectively referred to as the "Mortgages"), joins in, consents to, and expressly approves the grant of easements and other rights and privileges described in the attached Storm Water Management Agreement and Declaration of Easement (the "Agreement").

The Mortgagee, for itself, its successors and assigns (which shall include any assignee of the Mortgages and any purchaser of the Premises at a sale in foreclosure of the Mortgages or otherwise), hereby covenants and agrees that the rights and privileges herein granted with respect to the Premises shall not be terminated or disturbed by reason of any foreclosure or other action which may be instituted by the Mortgagee, its successors and assigns, as a result of any default under the Mortgages or the debt instruments that such Mortgages secure. Mortgagee by consenting to the Agreement shall not by virtue of its interest as Mortgagee be deemed to have undertaken any of the obligations of the Grantor under the Agreement, including but not limited to construction, maintenance, inspection or indemnification.

IN WITNESS WHEREOF, Mortgagee hereby joins in the execution of the Agreement as of this _____ day of _____, 20____.

..

(Name of Mortgagee)

ATTEST:_____

By:_____

[SEAL]

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

IN WITNESS WHEREOF, I set my hand and official seal.

My commission expires:

WEST EARL CODE

CONSENT AND JOINDER OF HOMEOWNERS' ASSOCIATION

The undersigned hereby consents to and joins in the attached Storm Water Management Agreement and Declaration of Easement (the "Agreement"). The undersigned shall maintain all storm water management facilities in accordance with the terms and provisions of the Agreement and in accordance with any separate Declaration of Restrictions. The undersigned specifically agrees that the Township shall have the rights referred to in Paragraph 9 of the Agreement.

IN WITNESS WHEREOF, the undersigned, intending to be legally bound, hereby consents to and joins in the Agreement.

(Name of Homeowners' Association or similar entity)

ATTEST: _____
(Assistant) Secretary

By: _____
(Vice) Chairman

[SEAL]

COMMONWEALTH OF PENNSYLVANIA)

) SS:

COUNTY OF LANCASTER)

On this ____ day of _____, 20____, before me, a notary public, the undersigned officer, personally appeared _____, who acknowledged self to be the _____ of _____, a nonprofit corporation, and that as such officer being authorized to do so, acknowledged the foregoing instrument for the purpose therein contained, by signing the name of the corporation by _____ self as _____.

IN WITNESS WHEREOF, I set my hand and official seal.

Notary Public

My commission expires: