

## **Chapter 225**

### **STORMWATER MANAGEMENT**

**[HISTORY: Adopted by the Board of Supervisors of the Township of Union 5-9-2011 by Ord. No. 2011-2. Amendments noted where applicable.]**

#### **GENERAL REFERENCES**

**Floodplain management — See Ch. 128.**

**Grading — See Ch. 135.**

**Sewers — See Ch. 211.**

**Street excavations — See Ch. 236.**

**Subdivision and land development — See Ch. 242.**

**Zoning — See Ch. 280.**



ARTICLE I  
**General Provisions/Definitions**

**§ 225-1. Short title.**

The chapter shall be known and may be cited as the "Union Township Stormwater Management Ordinance."

**§ 225-2. Statement of findings.**

The Board of Supervisors of Union Township finds that:

- A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines floodplain management and flood control efforts in downstream communities, reduces groundwater recharge and threatens public health and safety.
- B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated erosion, is fundamental to the public health, safety and welfare and the protection of the people of Union Township and all the people of the commonwealth, their resources and the environment.

**§ 225-3. Purpose.**

The purpose of this chapter is to promote the public health, safety and welfare by minimizing the damages described in § 225-2A by provisions designed to:

- A. Control accelerated runoff and erosion and sedimentation problems at their source by regulating activities which cause such problems.
- B. Utilize and preserve the desirable existing natural drainage systems.
- C. Encourage recharge of groundwater.
- D. Maintain the existing flows and quality of streams and watercourses in Union Township and the commonwealth.
- E. Preserve and restore the flood-carrying capacity of streams.
- F. Provide for proper maintenance of all permanent stormwater management structures which are constructed in Union Township.

**§ 225-4. Statutory authority.**

The Township of Union is empowered to regulate these activities by the authority of the Act of October 4, 1978, P.L. 864 (Act 167), the "Storm Water Management Act," and the Second Class Township Code.<sup>1</sup>

**§ 225-5. Applicability.**

- A. This chapter shall be applicable to all subdivision or site plan and land development applications, unless eligible for an exemption or granted a waiver by the Township of Union under the applicable specifications of this chapter. The chapter also applies to land development activities that are smaller than the minimum applicability criteria, even though multiple separate and distinct land development activities may take place at different times on different schedules. In addition, all plans must be reviewed by Washington County

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1. Editor's Note: See 32 P.S. § 680.1 et seq., and 53 P.S. § 65101 et seq., respectively.

Conservation District officials to ensure that established water quality standard will be maintained during and after development of the site and that post-construction runoff levels are consistent with any local and regional watershed plans.

- B. To prevent the adverse impacts of stormwater runoff, the Union Township has developed a set of performance standards that must be met at new development sites. These standards apply to any construction activity disturbing 5,000 or more square feet of land. The following activities may be exempt from these stormwater performance criteria:
  - (1) Any logging and agricultural activity which is consistent with an approved soil conservation plan or a timber management plan prepared or approved by Washington County Conservation District, as applicable.
  - (2) Additions or modifications to existing single-family structures less than 1,000 square feet.
  - (3) Developments that do not disturb more than 5,000 square feet of land and do not create more than 1,000 square feet of impervious surface, provided that the same is not part of a larger common development plan.
  - (4) Repairs to any stormwater treatment practice deemed necessary by the Township of Union.
- C. When a site development plan is submitted that qualifies as a redevelopment project, decisions on permitting and on-site stormwater requirements shall be governed by stormwater sizing criteria found in the current ordinance. This criteria is dependent on the amount of impervious area created by the redevelopment and its impact on water quality. Final authorization of all redevelopment projects will be determined after a review by the Township of Union.

**§ 225-6. Compatibility with other permit and ordinance requirements.**

Permits and 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. If more stringent requirements concerning regulation of stormwater or erosion and sedimentation control are contained in the other code, rule, act or ordinance, the more stringent regulation shall apply.

**§ 225-7. Definitions.**

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 activities and natural processes at a rate greater than would occur because of the natural processes alone.

**BMP (BEST MANAGEMENT PRACTICE)** — Activities, facilities, measures or procedures used to manage stormwater impacts from land development, to protect and maintain water quality and groundwater recharge and to otherwise meet the purposes of this chapter, including, but not limited to, infiltration, filter strips, low-impact design, bioretention, wet ponds, permeable paving, grassed swales, forested buffers, sand filters and detention basins.

**CISTERN** — An underground reservoir or tank for storing rainwater.

**CONSERVATION DISTRICT** — The conservation district serving Washington County, Pennsylvania.

**CULVERT** — A pipe, conduit or similar structure, including appurtenant works, which carries surface water.

**DESIGN FORM** — The magnitude of precipitation from a storm event measured in probability of occurrence (e.g., fifty-year storm) and duration (e.g., 24 hours), and used in computing stormwater management control systems.

**DETENTION BASIN** — A basin designed to retard stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate. A detention basin can be designed to drain completely after a storm event, or it

can be designed to contain a permanent pool of water.

DEVELOPER — Any landowner, agent or such landowner or tenant with the permission of such landowner who makes or causes to be made a subdivision of land or a land development.

DIVERSION TERRACE — A channel and a ridge constructed to a predetermined grade across a slope and designed to collect and divert runoff from slopes which are subject to erosion.

DRAINAGE EASEMENT — A right granted by a landowner to a grantee, allowing the use of private land for stormwater management purposes.

EROSION — The removal of said particles by the action of water, wind, ice or other geological agents.

FOREST MANAGEMENT OPERATIONS — All activities connected with growing and harvesting of forest products, including the site preparation, cultivation and logging of trees, and the construction and maintenance of roads.

GROUNDWATER RECHARGE — Replenishment of existing natural underground water supplies.

IMPERVIOUS SURFACE — A surface which prevents the percolation of water into the ground.

INFILTRATION STRUCTURES — Any structure or device designed to infiltrate retained water to the subsurface. These facilities may be above grade or below grade.

LAND DEVELOPMENT —

A. The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving:

- (1) A group of two or more buildings; or
- (2) The division or allocation of land or space between or among two or more existing or prospective occupants by means of or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features.

B. A subdivision of land.

LAND DISTURBANCE — Any activity involving grading, tilling, digging or filling of ground or stripping of vegetation or any other activity which causes land to be exposed to the danger of erosion.

MUNICIPALITY — Union Township, Washington County, Pennsylvania.

NATURAL RESOURCES CONSERVATION SERVICE (NRCS) — The applicable agency of the United States Department of Agriculture; formerly the Soil Conservation Service (SCS).<sup>2</sup>

NURSERY — A tract of land on which trees and plants are raised or stored for transplanting and sale.

PEAK DISCHARGE — The maximum rate of flow of water at a given point and time, resulting from a specified storm event.

RUNOFF — That part of precipitation which flows over the land.

SEDIMENT — Solid material, both mineral and organic, that is in suspension, is being transported or has been moved from its site of origin by water.

SEDIMENT BASIN — A barrier, dam, retention or detention basin designed to retain sediment.

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

SEMIPERVIOUS SURFACE — A surface such as stone, rock, concrete or other materials which permits some vertical transmission of water.

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2. Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. I).

**SOIL-COVER COMPLEX METHOD** — A method of runoff computation developed by the Soil Conservation Service and found in its publication "Urban Hydrology for Small Watersheds," Technical Release No. 55, January 1975.

**STORMWATER** — A system of pipes or other conduits which carry intercepted surface runoff, street water and other wash waters or drainage, but excludes domestic sewage and industrial wastes.

**STORMWATER MANAGEMENT PLAN** — The plan for managing stormwater runoff adopted by Washington County as required by the Storm Water Management Act, 32 P.S. § 680.1 et seq.

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

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

ARTICLE II  
**Stormwater Management Requirements**

**§ 225-8. General requirements.**

Method of computation. Peak discharge and runoff gauge by computer using the following:

- A. Applicants may select a combination of runoff control techniques which are most suitable to control stormwater runoff from the site. All controls shall be subject to approval of the Municipal Engineer. The Municipal Engineer may request specific information on design and/or operating features of the proposed stormwater controls in order to determine their suitability and adequacy in terms of the standards of this section.
- B. The applicant shall consider the effect of the proposed stormwater management techniques on any special soil condition or geological hazards which may exist on the development site. In the event such conditions are identified on the site, the Municipal Engineer may require in-depth studies by a competent geotechnical engineer.
- C. Any BMP which is a dam, culvert, stream, enclosure or outfall, as defined in 25 Pa. Code Chapter 105, shall be designed according to the requirement in those regulations.
- D. Any stormwater BMP which does not constitute a dam under 25 Pa. Code Chapter 105 and is designed to store runoff and requiring a berm or earthen embankment (i.e., detention basin) shall be designed to satisfy the following:
  - (1) Berms and earthen embankments shall be designed to provide an emergency spillway to handle flow up to and including the one-hundred-year post-development conditions.
  - (2) Berms and earthen embankments shall be designed to provide a minimum 1.0 foot of freeboard above the maximum pool elevation, computed when the facility functions for the one-hundred-year post-development inflow.
  - (3) Water obstructions shall convey runoff from the twenty-five-year design storm with a minimum of 1.0 foot of freeboard measured below the lowest point along the top of the roadway without damage to the drainage structure or the roadway.
  - (4) Roadway crossings located within designated floodplain areas must be able to convey runoff from a one-hundred-year design storm.
  - (5) Drainage conveyances must be able to convey, without damage to the drainage structure or roadway, runoff from the twenty-five-year design storm without surcharging.
  - (6) Adequate erosion and sediment control protection shall be provided along all open channels and at all points of discharge.
  - (7) All BMP facilities will be sized for the two-, ten- and twenty-five-year storm and release ratings.
- E. Stormwater runoff from all development and post-development sites shall be calculated using either the Rational Method or a Soil Cover Complex methodology.
- F. Any stormwater runoff calculations involving areas greater than 200 acres, including on- and off-site areas, shall use a generally accepted calculation technique that is based on the NRCS Soil Cover Complex Method. Table I summarizes acceptable computation methods. All methods will be selected by the design professional based on the individual limitations and suitability of each method for a particular site. These assumptions shall be used in runoff calculations:
  - (1) Average antecedent moisture conditions.

- (2) Type II distribution storm.
  - (3) Meadow in good condition shall be used in predevelopment runoff calculations for all areas of existing cultivation.
  - (4) All areas other than cultivation shall use the land cover conditions which existed during the past 10 consecutive years.
  - (5) All areas to be disturbed during construction and subsequently returned to open space will be assumed to be reduced one hydrologic group category level for post-development runoff.
  - (6) If the initial condition of the site is undeveloped land, the land use shall be considered as "meadow" unless the natural land cover is proven to generate lower curve numbers or Rational "C" value, such as forested lands.
- G. All calculations consistent with this chapter using the Soil Cover Complex Method shall use the appropriate design rainfall depths for the various return period storms. If a hydrologic computer model such as TR-20, PSRM or HEC-HMS is used for stormwater runoff calculations, then the duration of rainfall shall be 24 hours.
  - H. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration for overland flow and return periods from the design storm curves from Pennsylvania Department of Transportation Design Rainfall Curves (1986). Times of concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watersheds, NRCS, and TR-55 (as amended or replaced from time to time by NRCS). Times of concentration for channel and pipe flow shall be computed using Manning's Equation.
  - I. Runoff curve numbers (CN) for both existing and proposed conditions are to be used in the Soil Cover Complex Method.
  - J. Runoff coefficient (c) for both existing and proposed conditions is to be used in the Rational Method.
  - K. Where uniform flow is anticipated, the Manning Equation shall be used for hydraulic computations and to determine the capacity of open channels, pipes and storm sewers.
  - L. Outlet structures for stormwater management facilities shall be designed to meet the performance standards of this chapter using any generally accepted hydraulic analysis technique or method.
  - M. The design of any stormwater detention facilities intended to meet the performance standards of this chapter shall be verified by routing the design storm hydrograph through these facilities using the Storage-Indication Method. For drainage areas greater than 20 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. The municipality may approve the use of any generally accepted full hydrograph approximation technique which shall use a total runoff volume that is consistent with the volume from a method that produces a full hydrograph.
  - N. The municipality may require that computed existing runoff rates be reconciled with field observations and conditions. If the design professional can substantiate through actual physical calibration that more appropriate runoff and time-of-concentration values should be utilized at a particular site, then appropriate variations may be made upon review and recommendations of the Municipal Engineer. Calibration shall require detailed gauge and rainfall data for the particular site in question.

**Table I**  
**Acceptable Computation Methodologies for Stormwater Management Plans**

<b>Method</b>	<b>Method Developed by</b>	<b>Applicability</b>
TR-20 or commercial package based on TR-20	USDA-NRCS	When use of full model is desirable or necessary
TR-55 or commercial package based on TR-55	USDA-NRCS	Applicable for plans within the model's limitations
HEC-1	U.S. Army Corps of Engineers	When full model is desirable or necessary
PSRM	Penn State University	When full model is desirable or necessary
Rational Method or commercial package based on Rational Method	Emil Kuiching (1889)	For sites less than 200 acres
Other methods	Various	As approved by the Municipal Engineer

- O. Rainfall frequency data. (Available from United States Department of Commerce, National Weather Service and Pennsylvania Department of Environmental Protection, Research Publication Number 70.)
- P. Maintenance of natural drainageways. All natural streams, channels, swales, drainage systems and/or areas of surface water concentration shall be maintained in their existing condition unless an alteration is approved by Union Township. All encroachment activities shall comply with the requirements of Chapter 105 (Water Obstructions and Encroachments) of Title 25 (Pennsylvania Code), Rules and Regulations of the Pennsylvania Department of Environmental Protection.
- Q. Methods of stormwater runoff detention and control.
  - (1) The following is a listing of detention and control methods which may be utilized in stormwater management systems, if appropriate. The choice of control techniques is not limited to the ones appearing on this list.
    - (a) Detention basins.
    - (b) Rooftop storage.
    - (c) Parking lot and street ponding.
    - (d) Seepage pits, seepage trenches or other infiltration structures.
    - (e) Porous pavement and concrete lattice block surfaces.
    - (f) Grassed channels and vegetated strips.
    - (g) Cisterns and underground reservoirs.
    - (h) Routed flow over grass.
    - (i) Decreased impervious area coverage.
  - (2) The use of other control methods which meet the criteria in this section will be permitted when approved by the Union Township Engineer. Various combinations of methods should be tailored to suit the particular requirements of the type of development and the topographic features of the project area.
- R. Design. The applicant is urged to consult the publications listed in the appendix to this chapter for aid in

design of control methods. The appendix is not a part of this chapter.<sup>3</sup>

**§ 225-9. Stormwater management districts.**

- A. In order to implement the provisions of the Washington County Stormwater Management Plan, Union Township is hereby divided into stormwater management districts, which shall be designated:
- (1) Peters Creek No. 1 Gastonville Watershed.
  - (2) Peters Creek No. 2 Trax Watershed.
  - (3) Piney Fork Watershed.
  - (4) Unnamed watershed.
  - (5) Peters Creek No. 3 Hackett Watershed.
  - (6) Peters Creek No. 4 Finleyville Watershed.
  - (7) Mingo Creek No. 2 Watershed.
  - (8) Mingo Creek No. 1 Watershed.
  - (9) Foreman Run Watershed.
  - (10) Crookham Watershed.
  - (11) Huston Run Watershed.
  - (12) Coal Bluff Watershed.
  - (13) Shire Oaks Watershed.
  - (14) Elrama Watershed.
  - (15) Lobbs Run Watershed.
- B. The location and boundaries of the stormwater management districts are shown on an Official Map, which is available for inspection from the Union Township Secretary.
- C. When a project or land disturbance activity is located in more than one stormwater management district, stormwater may not be transferred from a district with stricter stormwater management criteria to a district with less strict criteria, unless the need for such a transfer is identified in the Washington County Stormwater Management Plan, the regional water quality management plan or the state water plan.

**§ 225-10. Criteria.**

- A. Stormwater rate and quality.
- (1) Peters Creek No. 1 Gastonville Watershed. There shall be no increase in the rate of stormwater discharge from any activity covered by this chapter than would have occurred from the land prior to the activity, using predevelopment as the prior condition. The peak release rate of stormwater from detention facilities shall be 95% of the predevelopment rate. The water quality discharge standards shall be the removal of 80% of the total suspended solids load (TSS) for all storage structures that have a volume greater than 1,000 cubic feet (for twenty-five-year storm).<sup>4</sup>

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3. Editor's Note: The appendix listing of publications is on file in the Township offices.

4. Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. I).  
225:10

- (2) Peters Creek No. 2 Trax Watershed. There shall be no increase in the rate of stormwater discharge from any activity covered by this chapter than would have occurred from the land prior to the activity, using predevelopment as the prior condition. The peak post-development release rate of the stormwater from detention facilities shall be 90% of the predevelopment rate. The water quality discharge standards shall be the removal of 80% of the total suspended solids load (TSS) for all storage structures that have a volume greater than 1,000 cubic feet (for twenty-five-year storm).
  - (3) Piney Fork Watershed. There shall be no increase in the rate of stormwater discharge from any activity covered by this chapter than would have occurred from the land prior to the activity, using predevelopment as the prior condition. The peak post-development release rate of the stormwater from detention facilities shall be 100% of the predevelopment rate. The quality discharge standards shall be the removal of 80% of the total suspended solids load (TSS) for all storage structures that have a volume greater than 1,000 cubic feet (for twenty-five-year storm).
  - (4) Unnamed watershed. There shall be no increase in the rate of stormwater discharge from any activity covered by this chapter than would have occurred from the land prior to the activity, using the predevelopment as the prior condition. The peak post-development release rate of the stormwater from detention facilities shall be 100% of the predevelopment rate. The water quality discharge standards shall be the removal of 80% of the total suspended solids load (TSS) for all storage structures that have a volume greater than 1,000 cubic feet (for twenty-five-year storm).
  - (5) Peters Creek No. 3 Hackett Watershed. There shall be no increase in the rate of stormwater discharge from any activity covered by this chapter than would have occurred from the land prior to the activity, using predevelopment as the prior condition. The peak post-development release rate of the stormwater from detention facilities shall be 95% of the predevelopment rate. The water quality discharge standards shall be the removal of 80% of the total suspended solids load (TSS) for all storage structures that have a volume greater than 1,000 cubic feet (for twenty-five-year storm).
  - (6) Peters Creek No. 4 Finleyville Watershed. There shall be no increase in the rate of stormwater discharge from any activity covered by this chapter than would have occurred from the land prior to the activity, using the predevelopment as the prior condition. The peak post-development release rate of the stormwater from detention facilities shall be 95% of the predevelopment rate. The water quality discharge standards shall be the removal of 80% of the total suspended solids load (TSS) for all storage structures that have a volume greater than 1,000 cubic feet (for twenty-five-year storm).
  - (7) Mingo Creek No. 2 Watershed. There shall be no increase in the rate of stormwater discharge from any activity covered by this chapter than would have occurred from the land prior to the activity, using the predevelopment as the prior condition. The peak post-development release rate of the stormwater from detention facilities shall be 100% of the predevelopment rate. The water quality discharge standards shall be the removal of 80% of the total suspended solids load (TSS) for all storage structures that have a volume greater than 1,000 cubic feet (for twenty-five-year storm).
  - (8) Mingo Creek No. 1 Watershed. There shall be no increase in the rate of stormwater discharge from any activity covered by this chapter than would have occurred from the land prior to the activity, using the predevelopment as the prior condition. The peak post-development release rate of the stormwater from detention facilities shall be 100% of the predevelopment rate. The water quality discharge standards shall be the removal of 80% of the total suspended solids load (TSS) for all storage structures that have a volume greater than 1,000 cubic feet (for twenty-five-year storm).
- B. Erosion and sedimentation. All land disturbance activities shall be conducted in such a way as to minimize accelerated erosion and resulting sedimentation. Measures to control erosion and sedimentation shall, at a minimum, meet the standards of the Conservation District and Chapter 102 (Erosion Control) of Title 25, Rules and Regulations of the Pennsylvania Department of Environmental Protection.



ARTICLE III  
**Stormwater Management Standards**

**§ 225-11. General requirements.**

- A. No regulated activities shall commence until the municipality approves a plan which demonstrates compliance with the requirements of this chapter.
- B. Plans approved by the municipality shall be on site throughout the duration of the regulated activity.
- C. The municipality may, after consultation with DEP, approve methods 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.<sup>5</sup>
- D. For all regulated activities, implementations of water quality controls are required.
- E. For all regulated activities equal to or greater than 1,000 square feet in area, implementation of peak rate controls and preparation of a SWM site plan are required.
- F. Impervious areas.
  - (1) The measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages.
  - (2) For development taking place in stages, the entire development plan must be used in determining conformance with this chapter.
  - (3) For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this chapter.
- G. Discharges onto adjacent property shall not be created, increased, decreased or relocated, or otherwise altered, without permission of the adjacent property owner(s). Such discharges shall be subject to the requirements of this chapter.
- H. All regulated activities shall include such measures as necessary to:
  - (1) Protect health, safety and property;
  - (2) Meet state water quality requirements as defined in Article III;
  - (3) Meet the water quality goals of this chapter by implementing measures to:
    - (a) Minimize disturbance to floodplains, wetlands, natural slopes over 15%, and existing native vegetation.
    - (b) Preserve and maintain trees and woodlands. Maintain or extend riparian buffers and protect existing forested buffer. Provide trees and woodlands adjacent to impervious areas whenever feasible.
    - (c) Establish and maintain nonerosive flow conditions in natural flow pathways.
    - (d) Minimize soil disturbance and soil compaction. Cover disturbed areas with topsoil having a minimum depth of four inches. Use tracked equipment for grading when feasible.
    - (e) Disconnect impervious surfaces by directing runoff to pervious areas.

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5. Editor's Note: See 35 P.S. § 691.1 et seq.

(4) Incorporate the techniques described in Appendix A of this chapter (Low-Impact Development Practices) whenever practical.<sup>6</sup>

- I. The design of all facilities over Karst shall include an evaluation of measures to minimize adverse effects.
- J. The design storm volumes to be used in the analysis of peak rates of discharges should be obtained from the Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, United States Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland, 20910. NOAA's Atlas 14 can be accessed at Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.

**§ 225-12. Water quality.**

- A. Low-impact development practices (Appendix A) are encouraged for all regulated activities.<sup>7</sup>
- B. Water quality control shall be implemented using the methodologies in Subsection B(1) and (2) below:
  - (1) The Simplified Method is independent of site conditions.
    - (a) Retention and detention facilities shall be sized to capture the first two inches of runoff from all impervious surfaces.
    - (b) The first one inch of runoff shall be permanently removed and shall not be released into the surface waters of this commonwealth. This is the permanently removed volume (PRV). Removal options include reuse, evaporation, transpiration and infiltration.
    - (c) For projects that meet the exemption criteria in Table 1A of this section, the subsequent one inch of runoff shall be detained. This is the extended detention volume (EDV).
    - (d) For projects that do not meet the exemption criteria in Table 1A of this section, the one-year twenty-four-hour runoff volume shall be detained.
    - (e) Infiltration of the first 1/2 inch of the PRV is encouraged. This portion of the PRV is the groundwater recharge volume (GRV).
    - (f) The permanently removed volume (PRV) requirement for land areas with existing cover consisting of meadow, brush, wood-grass combination, or woods proposed for conversion to any other nonequivalent type of pervious cover shall be 1/4 inch of runoff.
    - (g) Retention and detention facilities should be designed to drain both the PRV and EDV completely within 48 to 96 hours from the start of the storm.
    - (h) Retention facilities should be designed to accommodate infiltration of the PRV. Infiltration areas should be spread out and located in the sections of the site that are most suitable for infiltration.

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6. Editor's Note: Appendix A is attached to this chapter.

7. Editor's Note: Appendix A is attached to this chapter.

**Table 1A**

**Exemption Criteria**

<b>Stormwater Credit</b>	<b>Description</b>
Natural Area Conservation	Conservation of natural areas such as forest, wetlands or other sensitive areas in a protected easement, thereby retaining their predevelopment hydrologic and water quality characteristics. Using this credit, a designer may subtract conservation areas from total site area when computing the required water quality volume.
Disconnection of Rooftop Runoff	Credit is given when rooftop runoff is disconnected and then directed over a pervious area where it may either infiltrate into the soil or filter over it. Credit is typically obtained by grading the site to promote overland flow or by providing bioretention on single-family residential lots. If a rooftop area is adequately disconnected, the impervious area may be deducted from the total impervious cover.
Disconnection of Nonrooftop Runoff	Credit is given for practices that disconnect surface impervious cover by directing it to pervious areas where it is either infiltrated or filtered through the soil. As with rooftop runoff, the impervious area may be deducted from the total impervious cover, thereby reducing the required water quality volume.
Stream Buffer Credit	Credit is given when a stream buffer effectively treats stormwater runoff. Effective treatment constitutes capturing runoff from pervious and impervious areas adjacent to the buffer and treating the runoff through overland flow across a grass or forested area. Areas treated in this manner may be deducted from total site area.
Grass Channel (Open Section Roads)	Credit may be given when open grass channels are used to reduce the volume of runoff and pollutants during smaller storms. If designed according to appropriate criteria, these channels may meet water quality criteria for certain types of residential development.
Environmentally Sensitive Rural Development	Credit is given when a group of environmental site design techniques are applied to low-density or rural residential development. This credit eliminates the need for structural practices to address water quality volume. See Appendix A. <sup>8</sup>

- (2) The Design Storm Method requires detailed modeling based on site conditions.
- (a) Do not increase the post-development total runoff volume for all storms equal to or less than the two-year twenty-four-hour duration rainfall.
  - (b) Do not increase peak rate of runoff for one-, two-, ten-, twenty-five-, one-hundred-year storms (at minimum), predevelopment to post-development; as necessary, provide additional peak rate control as required by Act 167 planning.
  - (c) Existing (predevelopment) nonforested pervious areas must be considered meadow or its equivalent.
  - (d) Twenty percent of existing impervious area, when present, shall be considered meadow in the

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8. Editor's Note: Appendix A, Low-Impact Development Practices, is attached to this chapter.

model for existing conditions.

- (3) In all cases, retention and detention facilities should be designed to completely drain water quality volumes (in the case of the Simplified Method this includes both the PRV and EDV) over a period of time not less than 48 hours and not more than 96 hours from the start of the design storm.

**§ 225-13. Rate controls.**

- A. Areas not covered by a release rate map from an approved Act 167 stormwater management plan. Post-development discharge rates shall not exceed the predevelopment discharge rates for the two-, five-, ten-, twenty-five-, fifty- and one-hundred-year storms. If it is shown that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the predevelopment analysis for two-, five-, 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.
- B. Areas covered by a release rate map from an approved Act 167 stormwater management plan. For the two-, five-, ten-, twenty-five-, fifty- and one-hundred-year storms, the post-development discharge rates will follow the release rate maps in this chapter. For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the predevelopment discharge rates.

ARTICLE IV  
**Plan Requirements**

**§ 225-14. General requirements.**

Prior to the final approval of subdivision and/or land development plans, or the issuance of any permit or the commencement of any land disturbance activity, the owner, subdivider, developer or his agent shall submit a stormwater management plan to Union Township for approval.

**§ 225-15. Exemptions.**

The following activities are specifically exempt from the plan preparation provisions of this chapter.

- A. Land disturbances affecting less than 1,000 square feet of ground surface.
- B. Land disturbance associated with existing one and two-family dwellings.
- C. Use of land for gardening for home consumption.
- D. Agriculture when operated in accordance with a conservation plan or erosion and sedimentation control plan prepared by the Conservation District.
- E. Forest management operations which are following the Department of Environmental Protection management practices contained in its publication "Soil Erosion and Sedimentation Control Guidelines for Forestry" and are operating under an erosion and sedimentation control plan.

**§ 225-16. Plan contents.**

The following items, where appropriate, shall be included in the plan:

- A. General.
  - (1) General description of project.
  - (2) General description of erosion and sedimentation controls.
  - (3) General description of stormwater controls both during and after development.
  - (4) Expected project time schedule, including anticipated start and completion dates.
  - (5) Training and experience of person(s) preparing the plan.
- B. Map(s) of the project area, showing:
  - (1) The location of the project relative to highways or other identifiable landmarks.
  - (2) Existing contours at intervals of two feet. In areas of steep slopes (greater than 15%), five-foot contour intervals may be used.
  - (3) Streams, lakes, ponds or other bodies of water within the project area or which will be affected by runoff from the project.
  - (4) Other physical features, including existing drainage swales and areas of natural vegetation to be preserved.
  - (5) Locations of proposed underground utilities, sewers and waterlines.
  - (6) An overlay showing soil types and boundaries.

- (7) Proposed changes to land surface and vegetative cover.
- (8) Areas to be cut or filled.
- (9) Proposed structures, roads, paved areas and buildings.
- (10) Final contours at intervals of two feet. In areas of steep slopes (greater than 15%), five-foot contours may be used.

C. Erosion and sedimentation controls.

- (1) The staging of all earthmoving activities must be described, including cuts and fills, streets, underground utilities, sewer and water lines, buildings, driveways, parking areas, recreational areas, other structures, etc.
- (2) Type, location and extent of all erosion and sedimentation control measures must be shown on a map and described, including all calculations, assumptions and criteria used in designing the controls, and a schedule for their implementation.

D. Stormwater management controls.

- (1) All stormwater management controls must be shown on a map and described, including:
  - (a) Groundwater recharge methods such as seepage pits, beds or trenches. When these structures are used, the locations of septic tank infiltration areas and wells must be shown.
  - (b) Other control devices or methods such as rooftop storage, semipervious paving materials, grass swales, parking lot ponding, vegetated strips, detention or retention ponds, storm sewers, etc.
  - (c) Schedule for installation of the control measures and devices.
- (2) All calculations, assumptions and criteria used in the design of the control device or method must be shown.

E. Maintenance program. A maintenance program for all stormwater management control facilities must be included. This program must include the proposed ownership of the control facilities and detail the financial responsibility for any required maintenance.

**§ 225-17. Plan submission.**

- A. The plan shall be accompanied by the requisite fee as set forth pursuant to a resolution of the Union Township Board of Supervisors.
- B. Four copies of the completed plan must be submitted.

**§ 225-18. Plan approval.**

- A. Union Township shall forward a copy of the plan to the Washington County Planning Commission and the Conservation District for review.
- B. The Union Township Engineer and Planning Commission shall review the plan and comments from the Conservation District and the Washington County Planning Commission and shall recommend whether the plan be approved or disapproved.
- C. Union Township shall notify the applicant within 30 days from receipt of a complete plan submission of its decision.
- D. A disapproval shall contain the reasons for disapproval and a listing of the plan deficiencies.

E. Failure of Union Township to render a decision within the thirty-day time limit shall be deemed an approval.

**§ 225-19. Modification of plans.**

A modification to an approved stormwater management plan which involves a change in control methods or techniques, or which involves the relocation or redesign of control measures, or which is necessary because soil or other conditions are not as stated on the approved application (as determined by the Union Township Engineer), shall be approved under the procedures contained in § 225-18 of this chapter. The Union Township Engineer shall notify the applicant when such plan modification is required.



ARTICLE V  
**Permit Requirements and Procedures**

**§ 225-20. Permit requirements.**

All land disturbance activities as specified in § 225-5, except those specifically exempt from permit requirements by § 225-15, shall be conducted only after the issuance of a land disturbance permit.

**§ 225-21. Exemptions.**

The following activities are specifically exempt from the permit provisions of this chapter:

- A. Land disturbances affecting less than 1,000 square feet of ground surface.
- B. Land disturbance associated with existing one- and two-family dwellings.
- C. Use of land for gardening for home consumption.
- D. Agriculture when operated in accordance with a conservation plan or erosion and sedimentation control plan approved by the Conservation District.
- E. Forest management operations which are following the Department of Environmental Protection management practices contained in its publication "Soil Erosion and Sedimentation Control Guidelines for Forestry" and are operating under an erosion and sedimentation control plan.

**§ 225-22. Land disturbance activities as part of subdivision or land development.**

The applicant shall obtain the required land disturbance permit after obtaining the required plan approval as specified in Article IV of this chapter. This land disturbance permit will be issued by Union Township concurrently with final subdivision and land development approval.

**§ 225-23. Other land disturbance activities.**

The applicant shall obtain the required land disturbance permit after obtaining the required plan approval as specified in Article IV of this chapter. This land disturbance permit will be issued by the municipality when the plan is approved.

**§ 225-24. Modification of plans.**

A modification to an approved stormwater management plan, when required under § 225-19 of this chapter, shall require a new land disturbance permit. The permit shall be issued following approval of the revised plan.

**§ 225-25. Application for permit.**

All applications for permits required by this chapter shall be made on forms supplied by Union Township. Such application shall provide a brief description of the stormwater management controls and the land disturbance activity. This application shall become part of the plan submission required by Article IV of this chapter.

**§ 225-26. Expiration and renewal.**

- A. All land disturbance permits shall expire six months from the date of issuance unless construction is commenced prior to this date.
- B. A renewal of an expired land disturbance permit may be issued by Union Township following a resubmittal of the permit application form and its approval by the Union Township Engineer.

- C. The refusal of Union Township to reissue an expired land disturbance permit shall contain the reasons for such refusal

**§ 225-27. Suspension and revocation.**

- A. Any permit issued under this chapter may be suspended or revoked by Union Township for:
  - (1) Noncompliance with or failure to implement any provision of the permit.
  - (2) A violation of any provision of this chapter or any other applicable law, ordinance, rule or regulation relating to the project.
  - (3) The creation of any condition or the commission of any act during construction or development which constitutes or creates a hazard or nuisance or which endangers the life or property of others.
- B. A suspended permit shall be reinstated by Union Township when:
  - (1) The Union Township Engineer has inspected and approved the corrections to the stormwater management control measure(s), or the elimination of the hazard or nuisance.
  - (2) When Union Township is satisfied that the violation of the ordinance, law or rule and regulation has been corrected.
- C. A permit which has been revoked by Union Township cannot be reinstated. The applicant may apply for a new permit under the procedures outlined in this chapter.

ARTICLE VI  
**Inspections, Fees and Expenses**

**§ 225-28. Schedule of inspections.**

- A. The Union Township Engineer or his designee shall inspect all phases of development of the site, including, but not limited to:
- (1) Completion of preliminary site preparation, including stripping of vegetation, stockpiling of topsoil and construction of temporary stormwater management and erosion control facilities.
  - (2) Completion of rough grading, but prior to placing topsoil, permanent drainage or other site development improvements and ground covers.
  - (3) During construction of the permanent stormwater facilities at such times as specified by the Union Township Engineer.
  - (4) Upon completion of permanent stormwater management facilities, including established ground covers and plantings.
  - (5) Upon completion of any final grading, vegetative control measures or other site restoration work done in accordance with the approved plan and permit.
- B. No work shall begin on a subsequent stage until the preceding stage has been inspected and approved by the Union Township Engineer.
- C. It is the responsibility of the permittee to notify the Union Township Engineer 48 hours in advance of the completion of each identified phase of development.
- D. Any portion of the work which does not comply with the approved plan must be corrected by the permittee within 48 hours. No work may proceed on any subsequent phase of the stormwater management plan, the subdivision or land development or building construction until the required corrections have been made.
- E. If at any stage of the work the Union Township Engineer determines that the soil or other conditions are not as stated or shown in the approved application, he may refuse to approve further work, and Union Township may revoke existing permits until a revised plan is submitted and approved as required by § 225-19 of this chapter.
- F. Subsequent/periodic inspections. SWM BMPs should be inspected by the landowner/developer (including the Township for dedicated facilities) according to the following list of 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.

**§ 225-29. General fees and expenses.**

Land disturbance permit fees covering costs to Union Township for plan reviews, permit issuance and inspections shall be established pursuant to resolution of the Union Township Board of Supervisors. No permit to begin any work on the project shall be issued until the requisite fees have been paid.

**§ 225-30. Modification of plans; additional fees.**

If it is determined that a modification to the existing stormwater management plan is required under § 225-19 of this chapter, a new land disturbance permit shall not be issued until the additional fees have been paid by the

applicant.

**§ 225-31. Expenses covered by fees.**

The fees payable by an applicant shall, at a minimum, cover:

- A. The review of the stormwater management plan.
- B. The site inspection.
- C. The inspection of required controls and improvements during construction.
- D. The final inspection upon completion of the controls and improvements required in the plan.
- E. Any additional work required to enforce the permit provisions, correct violations and assure the completion of stipulated remedial actions.

**§ 225-32. Unlawful actions.**

- A. It shall be unlawful for a person to undertake any regulated activity except as provided in an approved SWM site plan.
- B. It shall be unlawful to alter or remove any control structure required by the SWM site plan.
- C. Inspections regarding compliance with the SWM site plan are a responsibility of the municipality.

ARTICLE VII  
**Financial Guarantees and Maintenance**

**§ 225-33. Performance guarantees/bond.**

The Township of Union may require the submittal of a letter of credit or cash bond prior to issuance of a permit in order to insure that the stormwater practices are installed by the permit holder as required by the approved stormwater management plan. The amount of the installation performance security shall be the total estimated construction cost of the stormwater management practices approved under the permit, plus 10%. The performance security shall contain forfeiture provisions for failure to complete work specified in the stormwater management plan. The installation performance security shall be released in full only upon submission of "as-built plans" and written certification by a registered professional engineer that the stormwater practice has been installed in accordance with the approved plan and other applicable provisions of this chapter. The Township of Union will make a final inspection of the stormwater practice to ensure that it is in compliance with the approved plan and the provisions of this chapter. Provisions for a partial pro-rata release of the performance security based on the completion of various development stages can be done by the Township of Union.

**§ 225-34. Maintenance responsibilities.**

- A. The project plan required under this chapter shall contain an operation and maintenance plan prepared by the applicant and approved by the Township Engineer. The operation and maintenance plan shall describe required routine maintenance actions and schedules necessary to ensure proper operation of the BMPs.
- B. The project plan for the development site shall establish responsibilities for the continuing operation and maintenance of all proposed residential stormwater BMPs consistent with the following principles:
  - (1) If a development project consists of structures or lots which are to be separately owned and in which streets, sewers and other public improvements are to be dedicated to the Township of Union, stormwater BMPs may also be dedicated to and maintained by the Township of Union.
  - (2) If a development project is to be maintained in a single ownership or if sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of stormwater BMPs shall be the responsibility of the owner or private management entity.
- C. The Board of Supervisors, upon recommendation of the Township Engineer, shall make the final determination on the continuing maintenance responsibilities prior to final approval of the project plan. The Board of Supervisors reserves the right to accept or reject the ownership and operating responsibility for any or all of the stormwater BMPs.

**§ 225-35. Maintenance by private entity.**

In cases where permanent control facilities are owned by a private entity such as a homeowner's association, such entity shall be responsible for maintenance thereof. In this case, a legally binding agreement between the entity and Union Township shall be made, providing for maintenance of all permanent control facilities and allowing inspection by Union Township of all such facilities deemed critical to the public welfare at any reasonable time.

**§ 225-36. Maintenance by individual lot owners.**

- A. When stormwater management control measures are located on an individual lot, and when they are the responsibility of that landowner to maintain, a description of the facility or system and the terms of the required maintenance shall be incorporated as part of the deed to the property.
- B. If Union Township determines at any time that any permanent stormwater management control facility has been eliminated, altered or improperly maintained, the owner of the property shall be advised of corrective measures required and given a reasonable period of time to take necessary action. If such action is not taken

by the property owner, Union Township may cause the work to be done, file a municipal claim or lien against the property or institute an action in assumpsit against the property owner to collect all costs, i.e., contractor's work, administrative costs, filing fees and interest at 6% on the unpaid balance.

ARTICLE VIII  
**Enforcement and Penalties; Appeals**

**§ 225-37. Right of entry.**

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

**§ 225-38. Notification.**

In the event an owner, subdivider, developer or his agent fails to comply with the requirements of this chapter or fails to conform to the requirements of any permit issued thereunder, Union Township shall provide written notification of violation. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of those violation(s). Upon failure to comply within the time specified, the owner, subdivider, developer or his agent shall be subject to the penalty provisions of § 225-39 hereof or other penalty provisions contained in Chapter 242, Subdivision and Land Development, where applicable.

**§ 225-39. Violations and penalties.**

- A. Any person, firm or corporation who shall violate any provision of this chapter shall, upon conviction thereof in an action brought before a Magisterial District Judge in the manner provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure, be sentenced to pay a fine of not more than \$1,000 plus costs and, in default of payment of said fine and costs, to a term of imprisonment not to exceed 90 days. Each day that a violation of this chapter continues or each section of this chapter which shall be found to have been violated shall constitute a separate offense.
- B. In addition, Union Township may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this chapter. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

**§ 225-40. Appeals.**

- A. Appeal to the Union Township Board of Supervisors. Any person aggrieved by any action of Union Township or its agent may appeal to the Union Township Board of Supervisors within 10 days of that action.
- B. Appeal to court. Any person aggrieved by any decision of the Union Township Board of Supervisors may appeal to the Washington County Court of Common Pleas in accordance with the Rules of Civil Procedure.

