

**BOROUGH OF WEST GROVE
CHESTER COUNTY PENNSYLVANIA**

ORDINANCE No. 2014-03

**BOROUGH OF WEST GROVE STORMWATER
MANAGEMENT ORDINANCE**

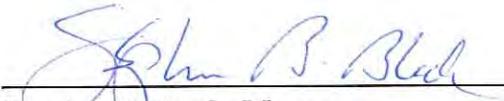
ADOPTED AT A PUBLIC MEETING HELD ON APRIL 2, 2014

Passed by Borough Council, this 2nd day of April 2014.



Mark Johnson, President
Borough Council

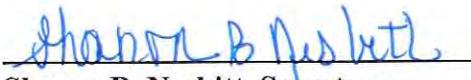
Approved by the Mayor, this 2nd day of April 2014.



Stephen B Black, Mayor

Enacted, this 2nd day of April 2014.

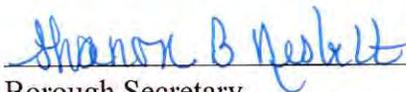
BOROUGH OF WEST GROVE



Sharon B. Nesbitt, Secretary

CERTIFICATION

I HERBY CERTIFY that the foregoing Ordinance was advertised in the Daily Local News on March 24, 2014, a newspaper of general circulation in the municipality, and was duly enacted and approved as set forth at the regular meeting of the West Grove Borough council held on April 2, 2014.



Borough Secretary

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ARTICLE I – GENERAL PROVISIONS

Section 101. Short Title

This Ordinance shall be known as “West Grove Borough’s Stormwater Management Ordinance.”

Section 102. Statement of Findings

The West Grove Borough Council finds that:

- A. Inadequate management of accelerated stormwater runoff resulting from land disturbance and development throughout a watershed increases flooding, flows and velocities, contributes to erosion and sedimentation, overtaxes the capacity of streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces infiltration and groundwater recharge, increases nonpoint source pollution to waterways, and threatens public health and safety.
- B. Inadequate planning and management of stormwater runoff resulting from land disturbance and development throughout a watershed can harm surface water resources by changing the natural hydrologic patterns, accelerating stream flows (which increase scour and erosion of stream beds and stream banks, thereby elevating sedimentation), destroying aquatic habitat, and elevating aquatic pollutant concentrations and loadings such as sediments, nutrients, heavy metals, and pathogens. Groundwater resources are also impacted through loss of recharge.
- C. A comprehensive program of stormwater management, including minimization of impacts of New Development, Redevelopment, and other Earth Disturbance Activities causing accelerated runoff and erosion and loss of natural infiltration, is fundamental to the public health, safety, and general welfare of the people of the Borough and all of the people of the Commonwealth, their resources, and the environment.
- D. Stormwater is an important water resource that provides infiltration and groundwater recharge for water supplies and baseflow of streams, which also protects and maintains surface water quality.
- E. Impacts from stormwater runoff can be minimized by reducing the volume of stormwater generated and by using project designs that maintain the natural hydrologic regime and sustain high water quality, infiltration, stream baseflow, and aquatic ecosystems. Cost-effective and environmentally sensitive stormwater management can be achieved through the use of nonstructural Site design techniques that minimize Impervious Surfaces, reduce disturbance of land and natural resources, avoid sensitive areas (i.e., riparian buffers, floodplains, steep slopes, wetlands, etc.), and consider topography and soils to maintain the natural hydrologic regime.
- F. Public education on the control of pollution from stormwater is an essential component in successfully addressing stormwater.

- G. Federal and State regulations require the Borough to implement a program of stormwater controls. The Borough is required to obtain a permit and comply with its provisions for stormwater discharges from its Separate Storm Sewer System under the National Pollutant Discharge Elimination System (NPDES).
- H. Non-stormwater discharges to municipal or other storm sewer systems can contribute to pollution of the Waters of the Commonwealth.

Section 103. Purpose

The purpose of this Ordinance is to protect public health, safety and general welfare, property and water quality by implementing drainage and stormwater management practices, criteria, and provisions included herein for land development, construction and Earth Disturbance Activities, to achieve the following throughout the Borough:

- A. Reduce the frequency and magnitude of flooding and stormwater impacts affecting people, property, infrastructure and public services.
- B. Sustain or improve the natural hydrologic characteristics and water quality of groundwater and surface waters.
- C. Protect natural resources, including riparian and aquatic living resources and habitats.
- D. Maintain the natural hydrologic regime of Land Development Sites and their receiving watersheds.
- E. Minimize land disturbance and protect and incorporate natural hydrologic features, drainage patterns, infiltration, and flow conditions within land development Site designs.
- F. Reduce and minimize the volume of stormwater generated, and manage and release stormwater as close to the source of runoff as possible.
- G. Provide infiltration and maintain natural groundwater recharge to protect groundwater supplies and stream baseflows, prevent degradation of surface water and groundwater quality, and to otherwise protect water resources.
- H. Reduce stormwater pollutant loads to protect and improve the chemical, physical, and biological quality of ground and surface waters.
- I. Reduce scour, erosion and sedimentation of stream channels.
- J. Reduce flooding impacts and preserve and restore the natural flood-carrying capacity of streams and their floodplains.
- K. Protect adjacent and downgradient lands from adverse impacts of direct stormwater discharges.

- L. Minimize Impervious Surfaces and connected Impervious Surfaces to promote infiltration and reduce the volume and impacts of stormwater runoff.
- M. Provide proper long-term operation and maintenance of all permanent stormwater management facilities, BMPs and Conveyances that are implemented within the Borough.
- N. Reduce the impacts of runoff from existing developed land undergoing Redevelopment while encouraging New Development and Redevelopment in urban areas and areas designated for growth.
- O. Implement an illicit discharge detection and elimination program that addresses non-stormwater discharges.
- P. Provide performance standards and design criteria based on watershed-based stormwater management planning.
- Q. Provide standards to meet certain NPDES stormwater permit requirements.
- R. 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 the Commonwealth.
- S. Implement the requirements of Total Maximum Daily Load (TMDLs) where applicable to waters within or impacted by the Borough.
- T. Provide review procedures and performance standards for stormwater planning and management.
- U. Fulfill the purpose and requirements of PA Act 167 (PA Act 167, Section 3):

“(1) Encourage planning and management of storm water runoff in each watershed which is consistent with sound water and land use practices.

(2) Authorize a comprehensive program of stormwater management designated to preserve and restore the flood carrying capacity of Commonwealth streams; to preserve to the maximum extent practicable natural storm water runoff regimes and natural course, current and cross-section of water of the Commonwealth; and to protect and conserve ground waters and ground-water recharge areas.

(3) Encourage local administration and management of storm water consistent with the Commonwealth's duty as trustee of natural resources and the people's constitutional right to the preservation of natural, economic, scenic, aesthetic, recreational and historic values of the environment.”

Section 104. Statutory Authority

The Borough is empowered or required to regulate land use activities that affect runoff and surface and groundwater quality and quantity by the authority of:

- A. Act of October 4, 1978, P.L. 864 (Act 167) 32 P.S., Section 680.1 et seq., as amended, the “Storm Water Management Act” (hereinafter referred to as “the Act”);
- B. Borough Code, 53 P.S. Section 46201 et seq.;
- C. Act of July 31, 1968, P.L. 805, No. 247, 53 P.S. Section 10101, et seq., as amended, the Pennsylvania Municipalities Planning Code, Act 247 hereinafter referred to as the “MPC”).

Section 105. Applicability

A. The following activities are regulated by this Ordinance:

- 1. All Regulated Activities as defined in this Ordinance including, but not limited to, New Development, Redevelopment, and Earth Disturbance Activities that are located within the Borough shall be subject to regulation by this Ordinance.
- 2. When a building and/or grading permit is required for any Regulated Activity on an existing parcel or approved lot created by a subdivision and/or improved as a land development project, issuance of the permit shall be conditioned upon adherence to the terms of this Ordinance.
- 3. This Ordinance contains the stormwater management performance standards and design criteria that are necessary from a watershed-based perspective. The Borough’s stormwater management conveyance and system design criteria is included in Section 311 of this Ordinance.

B. Duty of Persons Engaged in a Regulated Activity

Notwithstanding any provision(s) of this Ordinance, including exemptions, any Landowner or any person engaged in a Regulated Activity, including but not limited to 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 of Waters of the Commonwealth.

C. Phased and Incremental Project Requirements

- 1. Any Regulated Activity (including but not limited to New Development, Redevelopment, or Earth Disturbance) that is to take place incrementally or in phases, or occurs in sequential projects on the same parcel or property, shall be subject to regulation by this Ordinance if the cumulative Proposed Impervious Surface or Earth Disturbance exceeds the corresponding threshold for exemption (as presented in Table 106.1).

2. The date of adoption of this Ordinance shall be the starting point from which to consider tracts as parent tracts relative to future subdivisions, and from which Impervious Surface and Earth Disturbance computations shall be cumulatively considered.

Section 106. Exemptions and Modified Requirements

A. Requirements for Exempt Activities

1. An exemption from any requirement of this Ordinance shall not relieve the Applicant from implementing all other applicable requirements of this Ordinance or from implementing such measures as are necessary to protect public health, safety, and welfare, property and water quality.
2. An exemption shall not relieve the Applicant from complying with the requirements for State-designated special protection waters designated by PADEP as high quality (HQ) or exceptional value (EV) waters, or any other current or future State or municipal water quality protection requirements.
3. An exemption under this Ordinance shall not relieve the Applicant from complying with all other applicable Borough ordinances or regulations or subdivision and land development plan limits for existing development.

B. General Exemptions

Regulated Activities that:

1. Involve less than one thousand (1,000) square feet of Proposed Impervious Surfaces AND less than five thousand (5,000) square feet of Earth Disturbance; or
2. Are listed in Subsection 106.C,

are exempt from those (and only those) requirements of this Ordinance that are included in the sections and articles listed in Table 106.1. Exemptions are for the items noted in Table 106.1 only, and shall not relieve the Landowner from other applicable requirements of this Ordinance. Exemption shall not relieve the Applicant from implementing such measures as are necessary to protect health, safety, and welfare, property, and water quality.

TABLE 106.1
Thresholds for Regulated Activities that are Exempt from the Provisions of this Ordinance
as Listed Below

Ordinance Article/Section	Activities Listed in Subsection 106.C.	< 1,000 sq. ft. of Proposed Impervious Surfaces AND < 5,000 sq. ft. of Proposed Earth Disturbance	≥ 1,000 sq. ft. of Proposed Impervious Surfaces OR ≥ 5,000 sq. ft. of Proposed Earth Disturbance
Article I- General Provisions	Not Exempt	Not Exempt	Not Exempt
Article II – Definitions	Not Exempt	Not Exempt	Not Exempt
Sections 302 (Permit Req.), 303 (EnS), 311 (Design Standards)	Not Exempt	Not Exempt	Not Exempt
Stormwater Standards - Sections 301, 304, 305, 306, 307, 308, 309, and 310	Exempt	Exempt	Not Exempt
Article IV – Plan Requirements	Exempt	Exempt	Not Exempt
Article V – Inspections and Final Plans	Exempt	Exempt	Not Exempt
Article VI – Fees and Expenses	Exempt	Exempt	Not Exempt
Article VII – Operation and Maintenance	Exempt	Exempt	Not Exempt
Article VIII - Prohibitions	Not Exempt	Not Exempt	Not Exempt
Article IX – Enforcement and Penalties	Not Exempt	Not Exempt	Not Exempt
Other Erosion, Sediment and Pollution Control Requirements	Must comply with Title 25, Chapter 102 of the PA Code and other applicable State and municipal codes, including the Clean Streams Law.		

Table 106.1 Notes:

- Specific activities listed in Subsection 106.C are exempt from the indicated requirements, regardless of size.
- A proposed Regulated Activity must be less than BOTH the Proposed Impervious Surfaces and proposed Earth Disturbance thresholds to be eligible for exemption from the requirements listed in this table.

C. Exemptions for Specific Activities

The following specific Regulated Activities are exempt from the requirements listed in Table 106.1, unless otherwise noted below. All other conveyance and system design standards established by the Borough in other codes or ordinances shall be required, and all other provisions of this Ordinance shall apply.

1. Emergency Exemption – Emergency maintenance work performed for the protection of public health, safety and welfare. This exemption is limited to repair of the existing facility; upgrades, additions or other improvements are not exempt. A written description of the scope and extent of any emergency work performed shall be submitted to the Borough within two (2) calendar days prior to the commencement of the activity. A detailed plan shall be submitted no later than thirty (30) days following commencement of the activity. If the Borough finds that the work is not an emergency, then the work shall cease immediately and the requirements of this Ordinance shall be addressed as applicable.
2. Maintenance – Any maintenance to an existing stormwater management system, facility, BMP or Conveyance made in accordance with plans and specifications approved by the Borough or Borough Engineer. A sketch and narrative shall be provided to the Borough for review and approval.
3. Existing Landscaping – Use of land for maintenance, replacement or enhancement of existing landscaping.
4. Gardening – Use of land for gardening for home consumption.
5. Agricultural Related Activities –
 - a. Agricultural Activities, when performed in accordance with the requirements of 25 PA Code Chapter 102, which states Agricultural Activities with 5,000 square feet or more of tilling or animal heavy use area are required to have an Agricultural Erosion and Sedimentation Control Plan (or equivalent Conservation Plan).
 - b. Conservation Practices that do not involve construction of any new or expanded Impervious Surfaces.
6. Forest Management – Forest management operations, which are consistent with a sound forest management plan as filed with the Borough and which comply with the Pennsylvania Department of Environmental Protection’s management practices contained in its publication “Soil Erosion and Sedimentation Control Guidelines for Forestry” (as amended or replaced by subsequent guidance). Such operations are required to have an Erosion and Sedimentation Control Plan reviewed and approved by the Borough, which meets the requirements of 25 PA Code Chapter 102 and meets the erosion and sediment control standards of Section 303 of this Ordinance.
7. Maintenance of Existing Paved Surfaces – Replacement of existing paved surfaces shall meet the erosion and sediment control requirements of 25 PA Code Chapter 102 and Section 303 of this Ordinance, and is exempt from all other requirements of this Ordinance listed in

Subsection 106.C above. Resurfacing of existing paved surfaces is exempt from the requirements of this Ordinance listed above. Construction of new or additional Impervious Surfaces shall comply with all requirements of this Ordinance as indicated in Table 106.1.

8. Municipal Roadway Shoulder Improvements – Shoulder improvements conducted within the existing roadway cross-section of the Borough owned roadways, unless an NPDES permit is required, in which case the proposed work must comply with all requirements of this Ordinance.
9. In-Place Replacement of Residential Dwelling Unit – The replacement in the exact footprint of an existing one- or two-family dwelling unit.
10. In-Place Replacement, Repair, or Maintenance of Residential Impervious Surfaces – The replacement of existing residential patios, decks, driveways, pools, garages, and/or sidewalks that are accessory to an existing one- or two-family dwelling unit in the exact footprint of the existing Impervious Surface.

D. Modified Requirements for Small Projects

Regulated Activities that involve 1,000 to 2,000 square feet of Proposed Impervious Surfaces and 5,000 to 10,000 square feet of proposed Earth Disturbance may apply the modified requirements presented in the “Small Projects Application” (Appendix A- 2) to comply with the requirements of Sections 304, 305, 306, 307, 308, 309, and 310, and Article IV, Article V, Article VI and Article VII of this Ordinance (as shown in Table 106.2). The Applicant shall first contact the Borough Engineer: to confirm that the proposed project is eligible for use of the Small Project option and is not otherwise exempt from these Ordinance provisions; to determine what components of the proposed project are to be considered as Impervious Surfaces; and to determine if other known Site or local conditions exist that may preclude the use of any techniques included in the Small Project option. Appendix A-2 includes instructions and procedures for preparation, submittal, review and approval of documents required when using the Small Project option and shall be adhered to by the Applicant. All other provisions of this Ordinance shall apply.”

TABLE 106.2
Thresholds for Regulated Activities that are Eligible for “Modified” Requirements for the Provisions of this Ordinance that are Listed Below

Ordinance Article/Section	Activities Listed in Subsection 106. D
Article I – General Provisions	All Provisions Apply
Article II - Definitions	All Provisions Apply
Sections 302 (Permit Req.), 303 (EnS), 311 (Design Standards)	All Provisions Apply
Sections 301, 304, 305, 306, 307, 308, 309, and 310	Exempt if Modified Requirements of Subsection(s) 106.D are Applied
Article IV – Plan Requirements	Exempt if Modified Requirements of Subsection(s) 106.D are Applied
Article V – Inspections and Final Plans	Exempt if Modified Requirements of Subsection(s) 106.D are Applied
Article VI – Fees and Expenses	Exempt if Modified Requirements of Subsection(s) 106.D are Applied
Article VII – Operation and Maintenance	Exempt if Modified Requirements of Subsection(s) 106.D are Applied
Article VIII - Prohibitions	All Provisions Apply
Article IX – Enforcement and Penalties	All Provisions Apply
Other Erosion, Sediment and Pollution Control Requirements	Must comply with Title 25, Chapter 102 of the PA Code and other applicable State and municipal codes, including the Clean Streams Law.

Table 106.2 Notes:

- “Modified Requirements” – Regulated Activities listed within the Subsections of this Ordinance noted in Table 106.2 are eligible for exemption only from the indicated sections and subsections of this Ordinance and only if the modified requirements of Subsection 106.D are met to the satisfaction of the Borough ; all other provisions of this Ordinance apply.

Section 107. Repealer

Any ordinance or ordinance provision of the Borough inconsistent with any of the provisions of this Ordinance are hereby repealed to the extent of the inconsistency only.

Section 108. Severability

If any sentence, clause, section or part of this Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses, sections or parts of this Ordinance. It is hereby declared the intent of the West Grove Borough Council that this Ordinance would have been adopted had such unconstitutional, illegal or invalid provision, sentence, clause, section or part thereof not been included herein.

Section 109. Compatibility with Other Ordinances or Legal Requirements

- A. Approvals issued and actions taken pursuant to this Ordinance do not relieve the Applicant of the responsibility to secure and comply with other required permits or approvals for activities regulated by any other applicable code, rule, act, law, regulation, or ordinance.
- B. To the extent that this Ordinance imposes more rigorous or stringent requirements for stormwater management than any other code, rule, act, law, regulation or ordinance, the specific requirements contained in this Ordinance shall take precedence.
- C. Nothing in this Ordinance shall be construed to affect any of the Borough's requirements regarding stormwater matters that do not conflict with the provisions of this Ordinance, such as local stormwater management design criteria (e.g., inlet spacing, inlet type, collection system design and details, outlet structure design, etc.). The requirements of this Ordinance shall supersede any conflicting requirements in other Borough ordinances or regulations.

Section 110. Financial Security

For all activities requiring submittal of a Stormwater Management (SWM) Site Plan, the Applicant shall post financial security to the Borough for the timely installation and proper construction of all stormwater management and erosion control facilities as required by the approved SWM Site Plan and this Ordinance. The bond, certified check, or other financial security shall be reviewed and deemed satisfactory to the Council to cover the costs of improvements shown on the plan, and such financial security shall:

- A. Be made payable to West Grove Borough.
- B. Provide for and secure to the public, completion of the stormwater management facilities within one (1) year of the date fixed on the permit for such facilities. The amount of financial security shall be equal to one hundred ten (110) percent of the cost of the required facilities for which financial security is to be posted.
- C. The amount of financial security required shall be based upon an estimate of the cost of completion of the required improvements, submitted by an applicant or developer and prepared by a professional engineer licensed as such in this Commonwealth and certified by such engineer to be a fair and reasonable estimate of such cost. Borough Council, upon recommendation of the Borough Engineer, may refuse to accept such estimate for good cause shown. If the

applicant or developer and the Borough Engineer are unable to agree upon an estimate, then the estimate shall be recalculated and re-certified by another professional engineer licensed as such in this Commonwealth and chosen mutually by Borough Council and applicant or developer. The estimate certified by the third engineer shall be presumed fair and reasonable and shall be the final estimate. In the event that a third engineer is so chosen, fees for the services of said engineer shall be paid equally by the Borough and the applicant or developer.

- D. Be equal to or greater than the full construction cost of the required facilities except to the extent that financial security for the cost of any of such improvements is required to be and is posted with the Pennsylvania Department of Transportation in connection with a highway occupancy permit application;
- E. Be determined, collected, applied and enforced in accordance with Sections 509-511 of the MPC and the provisions of the Borough's Subdivision and Land Development Ordinance (SALDO).

Section 111. Release from Improvements/Construction Guarantees

- A. **Engineering Inspection.** When the applicant/developer has completed a portion of the necessary and appropriate improvements, the developer shall notify the Borough Manager in writing by certified or registered mail, of the completion of the improvements and shall send a copy to the Borough Engineer. The Manager shall within ten (10) days after the receipt of such notice, direct and authorize the Borough Engineer to inspect all of the improvements. The Borough Engineer shall file a report, in writing, with the Borough Manager and shall promptly mail a copy of the same to the developer by certified or registered mail. The report shall be made and mailed within thirty (30) days after the receipt by the Borough Engineer of the authorization by the Borough Manager. The report shall be detailed and shall recommend approval or rejection of the improvement either in whole or in part. If said improvements or any portion thereof shall not be recommended for approval or shall be recommended for rejection by the Borough Engineer, the report shall contain a statement of reasons for not approving the improvements.
- B. **Review by Council.** At the next regularly scheduled meeting of the Council following receipt by the Borough Manager of the Engineer's report, the Council shall act upon said report to either approve or reject the improvements. Such action may include any modifications to the report deemed appropriate by Council. Notification of the action of Council shall be made in writing and sent to the developer by certified or registered mail within fifteen (15) days of the Council's action.

Section 112. Waivers

- A. The requirements of this Ordinance are essential and shall be strictly adhered to. For any Regulated Activity where, after a close evaluation of alternative Site designs, it proves to be impracticable to meet any one or more of the mandatory minimum standards of this Ordinance on the Site, the Borough may approve measures other than those in this Ordinance, subject to Subsections 112.B and 112.C.

- B. The Borough Council shall have the authority to waive or modify the requirements of one or more provisions of this Ordinance if the literal enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question, provided that such modification will not be contrary to the public interest and that the purpose and intent of the Ordinance is observed. Cost or financial burden shall not be considered a hardship. Modification may also be considered if an alternative standard or approach can be demonstrated to provide equal or better achievement of the results intended by the Ordinance. A request for modification shall be in writing and accompany the SWM Site Plan submission. The request shall state in full the grounds and facts on which the request is based, the provision or provisions of the Ordinance involved, the justification of why the Ordinance requirement cannot be met and the minimum modification necessary.
- C. **PADEP Approval Required.** For any proposed Regulated Activity involving Earth Disturbance equal to or greater than one (1) acre, the Borough may approve measures for minimum volume and infiltration control other than those required in this Ordinance only after consultation with and evaluation by PADEP that the alternate Site design meets State water quality requirements and does not conflict with State law, including, but not limited to, the PA Clean Streams Law, 35 P.S. Section 691.1, et seq.

Section 113. Erroneous Permit

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.

ARTICLE II – DEFINITIONS

Section 201. Interpretation

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

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word “includes” or “including” shall not limit the term to the specific example, but is intended to extend its meaning to all other instances of like kind and character.
- C. The word “person” includes an individual, partnership, public or private association or corporation, firm, trust, estate, Borough, governmental unit, public utility or any other legal entity whatsoever which is recognized by law as the subject of rights and duties. Whenever used in any section prescribing or imposing a penalty, the term “person” shall include the members of a partnership, the officers, members, servants and agents of an association, officers, agents and servants of a corporation, and the officers of a Borough.
- D. The words “shall” and “must” are mandatory; the words “may” and “should” are permissive.
- E. The words “used” or “occupied” include the words “intended, designed, maintained, or arranged to be used, occupied, or maintained.”
- F. The definitions in this Ordinance are for the purposes of enforcing the provisions of this Ordinance and have no bearing on other municipal regulations or ordinances.

Section 202. Definitions

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.

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

Applicant – A Landowner, developer, or other person who has filed an application to the Borough for approval to engage in any Regulated Activity as defined in this Ordinance.

As-Built Plans (Drawings) – Engineering or Site plans or drawings that document the actual locations, dimensions and elevations of the improvements, and building components, and changes made to the original design plans. The final version of these documents, or a copy of same, are

signed and sealed by a qualified Licensed Professional and submitted to the Borough at the completion of the project, as per the requirements of Section 502 of this Ordinance as “final As-Built Plans”.

Bankfull – The channel at the top-of-bank or point from where water begins to overflow onto a floodplain.

Baseflow – Portion of stream discharge derived from groundwater; the sustained discharge that does not result from direct runoff or from water diversions, reservoir releases, piped discharges, or other human activities.

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.

Borough – The Borough of West Grove, Chester County, Pennsylvania.

Buffer – See Riparian Buffer.

Carbonate Geology (or carbonate rock formations) – See Karst.

CFS – Cubic Feet per Second.

Channel – A natural or artificial open drainage feature that conveys, continuously or periodically, flowing water and through which stormwater flows. Channels include, but shall not be limited to, natural and man-made drainageways, swales, streams, ditches, canals, and pipes flowing partly full.

Cistern – An underground reservoir or tank for storing rainwater.

CN – Curve number.

Commonwealth – Commonwealth of Pennsylvania.

Conservation District – The Chester County Conservation District.

Conservation Plan – A plan written by a planner certified by NRCS 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 natural or manmade, existing or proposed facility, feature or channel used for the transportation or transmission of stormwater from one place to another. For the purposes of this Ordinance, Conveyance shall include pipes, drainage ditches, channels and swales (vegetated and other), gutters, stream channels, and like facilities or features.

Culvert – A structure with appurtenant works which carries a watercourse under or through an embankment or fill.

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

Detention (or To Detain) – Capture and temporary storage of runoff in a stormwater management facility for release at a controlled rate.

Detention Basin – An impoundment designed to collect and retard stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate. Detention basins are designed to drain completely shortly after any given rainfall event.

Detention Volume – The volume of runoff that is captured and released into the Waters of the Commonwealth at a controlled rate.

Developer – A person who seeks to undertake any Regulated Activities at a Site in the Borough.

Diameter at Breast Height (DBH) – The outside bark diameter of a tree at breast height which is defined as four and one half (4.5) feet (one and thirty-seven one-hundredths of a meter (1.37 m)) above the forest floor on the uphill side of the tree.

Disturbed Area – Land area disturbed by or where an Earth Disturbance Activity is occurring or has occurred.

Drainage Area – That land area contributing runoff to a single point (including but not limited to the point/line of interest used for hydrologic and hydraulic calculations) and that is enclosed by a natural or man-made ridge line.

Dry Well – a subsurface storage facility that temporarily stores and infiltrates stormwater runoff from the roof of structures. A dry well is typically an excavated pit filled with uniformly graded aggregate wrapped in geotextile or a prefabricated storage chamber or pipe segment.

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; road maintenance; land development; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

Easement – A right of use granted by a Landowner to allow a grantee the use of the designated portion of land for a specified purpose, such as for stormwater management or other drainage purposes.

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

Erosion and Sediment Control Plan – A plan required by the Conservation District or the Borough to minimize accelerated erosion and sedimentation, and that must be prepared and approved per the applicable requirements.

Excavation – Any act by which earth, sand, gravel, rock or any other similar material is dug into, cut, quarried, uncovered, removed, displaced, relocated or bulldozed.

FEMA – Federal Emergency Management Agency.

Fill – Any act by which earth, sand, gravel, rock or any other material is placed, pushed, dumped, transported or moved to a new location above the natural surface of the ground or on top of the stripped surface and shall include the conditions resulting therefrom. The difference in elevation between a point on the original ground and a designated point of higher elevation of the final grade. The material used to make fill.

Flood – A temporary condition of partial or complete inundation of land areas from the overflow of streams, rivers, and other waters of this Commonwealth.

Floodplain – Any land area susceptible to inundation by water from any natural source or delineated by applicable FEMA maps and studies as being a Special Flood Hazard Area.

Floodway – The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the one hundred (100)-year flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the one hundred (100)-year floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the centerline of the stream and to fifty (50) feet beyond the top of the bank of the stream on both sides.

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

Freeboard – A vertical distance between the design high-water elevation and the elevation of the top of a dam, levee, tank, basin, swale, or diversion berm. The space is required as a safety margin in a pond or basin.

Geotextile – A fabric manufactured from synthetic fiber that is used to achieve specific objectives, including infiltration, separation between different types of media (i.e., between soil and stone), or filtration.

Governing Body – West Grove Borough Council, Chester County, Pennsylvania.

Grade/Grading – 1. (noun) A slope, usually of a road, channel, or natural ground, specified in percent and shown on plans as specified herein. 2. (verb) To finish the surface of a roadbed, the top of an embankment, or the bottom of an excavation.

Groundwater – Water that occurs in the subsurface and fills or saturates the porous openings, fractures and fissures of under-ground soils and rock units.

Groundwater Recharge – The replenishment of existing natural groundwater supplies from infiltration of rain or overland flow.

HEC-1 – The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) hydrologic runoff model.

HEC-HMS – The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) - Hydrologic Modeling System (HMS).

Hotspots – Areas where prior or existing land use or activities can potentially generate highly contaminated runoff with concentrations of pollutants in excess of those typically found in stormwater.

Hydrologic Regime – The hydrologic system, cycle or balance that sustains the quality and quantity of stormwater, stream baseflow, storage, and groundwater supplies under natural conditions.

Hydrologic Soil Group (HSG) – A classification of soils by the Natural Resources Conservation Service (NRCS), into four (4) runoff potential groups. The groups range from A soils, which are very permeable and produce little runoff, to D soils, which are not very permeable and produce much more runoff.

Impervious Surface – A surface that has been compacted or covered with a layer of material so that it prevents or is resistant to infiltration of water, including but not limited to: structures such as roofs, buildings, storage sheds; other solid, paved or concrete areas such as streets, driveways, sidewalks, parking lots, patios, tennis or other paved courts; or athletic playfields comprised of synthetic turf materials. For the purposes of determining compliance with this Ordinance, compacted soils or stone surfaces used for vehicle parking and movement shall be considered impervious. Surfaces that were designed to allow infiltration (i.e. areas of porous pavement) will be considered on a case-by-case basis by the Borough Engineer, based on appropriate documentation and condition of the material, etc. The allowable impervious coverage per lot is subject to the regulations of the Borough Zoning Ordinance, as amended.

Infiltration – Movement of surface water into the soil, where it is absorbed by plant roots, evaporated into the atmosphere, or percolated downward to recharge groundwater.

Infiltration Facility – A stormwater BMP designed to collect and discharge runoff into the subsurface in a manner that allows infiltration into underlying soils and groundwater (e.g., French drains, seepage pits, or seepage trenches, etc.).

Intermittent Stream – A defined channel in which surface water is absent during a portion of the year, in response to seasonal variations in precipitation or groundwater discharge.

Invert – The lowest surface, the floor or bottom of a culvert, pipe, drain, sewer, channel, basin, BMP, or orifice.

Karst – A type of topography that is formed over limestone or other carbonate rock formations by dissolving or solution of the rock by water, and that is characterized by closed depressions, sinkholes, caves, a subsurface network of solution conduits and fissures through which groundwater moves, and no perennial surface drainage features.

Land Development – Any of the following activities:

- A. The improvement of one (1) lot or two (2) or more contiguous lots, tracts, or parcels of land for any purpose involving:
 1. A group of two (2) or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure, or
 2. The division or allocation of land or space, whether initially or cumulatively, between or among two (2) 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;
- C. Development in accordance with Section 503(1.1) of the Pennsylvania Municipalities Planning Code (as amended).

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 they are authorized under the lease to exercise the rights of the Landowner, or other person having a proprietary interest in the land.

Licensed Professional – A Pennsylvania Registered Professional Engineer, Registered Landscape Architect, Registered Professional Land Surveyor, or Registered Professional Geologist, or any person licensed by the Pennsylvania Department of State or qualified by law to perform the work required by the Ordinance within the Commonwealth of Pennsylvania.

Limiting Zone – A soil horizon or condition in the soil profile or underlying strata that includes one of the following:

- A. A seasonal high water table, whether perched or regional, determined by direct observation of the water table or indicated by other subsurface or soil conditions.
- B. A rock with open joints, fracture or solution channels, or masses of loose rock fragments, including gravel, with insufficient fine soil to fill the voids between the fragments.
- C. A rock formation, other stratum, or soil condition that is so slowly permeable that it effectively limits downward passage of water.

MPC – Act of July 31, 1968, P.L. 805, No. 247, 53 P.S. Section 10101, et seq., as amended, the Pennsylvania Municipalities Planning Code, Act 247.

MFEMP – Mushroom Farm Environmental Management Plan.

MS4 – Municipal Separate Storm Sewer System.

Maintenance – The action taken to restore or preserve the as-built functional design of any facility or system.

Borough Engineer – A professional engineer licensed as such in the Commonwealth of Pennsylvania, duly appointed as the engineer for the Borough.

Borough – West Grove Borough, Chester County, Pennsylvania.

NOAA - National Oceanic and Atmospheric Administration.

New Development – Any Regulated Activity involving placement or construction of new Impervious Surface or grading over existing pervious land areas not classified as Redevelopment as defined in this Ordinance.

Nonpoint Source Pollution – Pollution that enters a water body from diffuse origins in the watershed and does not result from discernible, confined, or discrete Conveyances.

Nonstormwater Discharges – Water flowing in stormwater collection facilities, such as pipes or swales, which is not the result of a rainfall event or snowmelt.

Nonstructural Best Management Practice (BMPs) – See Best Management Practice (BMP).

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

NRCS – Natural Resource Conservation Service (previously Soil Conservation Service, SCS), an agency of the U.S. Department of Agriculture.

PADEP – Pennsylvania Department of Environmental Protection.

Parent Tract – The parcel of land from which a land development or subdivision originates, determined from the date of municipal adoption of this Ordinance.

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

PennDOT – Pennsylvania Department of Transportation.

Pennsylvania Stormwater Best Management Practices Manual (PADEP BMP Manual) – Document Number 363-0300-002 (December 2006, and as subsequently amended).

Pervious Surface (or Pervious Area) – Any area not defined as Impervious Surface.

Planning Commission – The Planning Commission of West Grove Borough.

Point Source – Any discernible, confined, and discrete Conveyance including, but not limited to, any pipe, ditch, channel, tunnel, or conduit from which stormwater is or may be discharged, as defined in State regulations at 25 Pennsylvania Code § 92.a.

Post-construction – Period after construction during which Disturbed Areas are stabilized, stormwater controls are in place and functioning, and all proposed improvements approved by the Borough are completed.

Predevelopment – Land cover conditions assumed to exist within the proposed Disturbed Area prior to commencement of the Regulated Activity for the purpose of calculating the Predevelopment water quality volume, infiltration volume, and peak flow rates as required in this Ordinance.

Pretreatment – Techniques employed in stormwater BMPs to provide storage or filtering, or other methods to trap or remove coarse materials and other pollutants before they enter the stormwater system, but may not necessarily be designed to meet the entire water quality volume requirements of this Ordinance.

Proposed Impervious Surface – All new, additional and replacement Impervious Surfaces.

Rainfall Intensity – The depth of accumulated rainfall per unit of time.

Recharge – The replenishment of groundwater through the infiltration of rainfall, other surface waters, or land application of water or treated wastewater.

Redevelopment – Any Regulated Activity that involves demolition, removal, reconstruction, or replacement of existing Impervious Surface(s).

Regulated Activity – Any Earth Disturbance Activity(ies) or any activity that involves the alteration or development of land in a manner that may affect stormwater runoff.

Regulated Earth Disturbance Activity – Any activity involving Earth Disturbance subject to regulation under 25 Pennsylvania Code Chapter 92.a, Chapter 102, or the Clean Streams Law.

Retention or To Retain – The prevention of direct discharge of stormwater runoff into surface waters or water bodies during or after a storm event by permanent containment in a pond or depression; examples include systems which discharge by percolation to groundwater, exfiltration, and/or evaporation processes and which generally have residence times of less than three (3) days.

Retention Basin – An impoundment that is designed to temporarily detain a certain amount of stormwater from a catchment area and which may be designed to permanently retain stormwater runoff from the catchment area; retention basins always contain water.

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

Return Period – The average interval, in years, within which a storm event of a given magnitude can be expected to occur one (1) time. For example, the twenty-five (25)-year return period rainfall would be expected to occur on average once every twenty-five (25) years; or stated in another way, the probability of a twenty-five (25)-year storm occurring in any one (1) year is four-one hundredths (0.04) (i.e., a four (4)% chance).

Riparian – Pertaining to anything connected with or immediately adjacent to the banks of a stream or other body of water.

Riparian Buffer – An area of land adjacent to a body of water and managed to maintain vegetation to protect the integrity of stream channels and shorelines, to reduce the impact of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals, and to supply food, cover and thermal protection to fish and other aquatic species and wildlife.

Riparian Buffer Easement – An easement created for the purpose of protecting and preserving a Riparian Buffer.

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.

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

SALDO – See Subdivision and Land Development Ordinance.

SCS – Soil Conservation Service, now known as the Natural Resources Conservation Service.

Sediment – Soil or other materials transported by, suspended in or deposited by surface water as a product of erosion.

Sediment Basin – A barrier, dam, retention or detention basin designed to retain sediment during construction.

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

Sheet Flow – A flow process associated with broad, shallow water movement on sloping ground surfaces that is not channelized or concentrated.

Site – Total area of land in the Borough where any proposed Regulated Activity, as defined in this Ordinance, is planned, conducted, or maintained or that is otherwise impacted by the Regulated Activity.

Slope – The degree of vertical deviation of a land surface from the horizontal, which is expressed as a percentage.

Small Project – Regulated Activities that involve 1,000 to 2,000 square feet of Proposed Impervious Surfaces and 5,000 to 10,000 square feet of proposed Earth Disturbance may apply the modified requirements presented in the “Small Projects Application” (Appendix A- 2) to comply with the requirements of Sections 304, 305, 306, 307, 308, 309, and 310, and Article IV, Article V, Article VI and Article VII of this Ordinance (as shown in Table 106.2).

Soil Cover Complex Method – A method of runoff computation developed by NRCS that is based on relating soil type and land use/cover to a runoff parameter called curve number (CN).

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

Storm Frequency – (see Return Period).

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

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

Stormwater Management (SWM) Site Plan – The plan prepared by the Applicant or its representative, in accordance with the requirements of Article IV of this Ordinance, indicating how stormwater runoff will be managed at a particular Site in accordance with this Ordinance, and including all necessary design drawings, calculations, supporting text, and documentation to demonstrate that Ordinance requirements have been met, herein referred to as “SWM Site Plan.” All references in this Ordinance to “final” or “approved” SWM Site Plans shall incorporate the approved SWM Site Plan and all subsequent approved revisions thereto.

Stream – A natural watercourse.

Structural Stormwater Management Practices - See BMP (Best Management Practices).

Subdivision – The division or re-division of a lot, tract, or parcel of land as defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247 (as amended).

Subdivision and Land Development Ordinance – Subdivision and Land Development ordinance of West Grove Borough, Chester County, PA, as amended.

Swale – An artificial or natural waterway or low-lying stretch of land that gathers and conveys stormwater or runoff, and is generally vegetated for soil stabilization, stormwater pollutant removal, and infiltration.

SWM Site Plan – See Stormwater Management Site Plan.

Timber Operations – See Forest Management.

Top-of-bank – Highest point of elevation of the bank of a stream or channel cross-section at which a rising water level just begins to flow out of the channel and into the floodplain.

Topsoil – Surface soils and subsurface soils which presumably are fertile. Soils and soil material are ordinarily rich in organic matter or humus debris. Topsoil is usually found in the uppermost soil layer called the A Horizon.

USDA – United States Department of Agriculture.

Watercourse – A channel or Conveyance of surface water having a defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

Water Table – The upper most level of saturation of pore space or fractures by groundwater. Seasonal High Water Table refers to a water table that rises and falls with the seasons due either to natural or man-made causes.

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

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

Wetland – Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, fens, and similar areas.

Woods - Any land area of at least one-quarter (0.25) acre with a natural or naturalized ground cover (excluding manicured turf grass) and that has an average density of two (2) or more viable trees per one thousand five hundred (1,500) square feet with a DBH of six (6) inches or greater and where such trees existed at any time within three (3) years of the time of land development application submission of the proposed project. The land area to be considered Woods shall be measured from the outer drip lines of the outer trees

ARTICLE III – STORMWATER MANAGEMENT STANDARDS

Section 301. General Requirements

- A. Applicants proposing Regulated Activities in the Borough which are not exempt under Section 106 shall submit a Stormwater Management Site Plan (SWM Site Plan) to the Borough for review and approval in accordance with Articles III and IV. SWM Site Plans approved by the Borough shall be kept on Site throughout the duration of the Regulated Activity.
- B. The stormwater management and runoff control criteria and standards in this Ordinance as well as the measurement of the Impervious Surfaces shall apply to the total proposed Regulated Activity, even if it is to take place in stages.
- C. No Regulated Activity within the Borough shall commence until:
 - 1. The Borough issues approval of a SWM Site Plan in the form of a SWM permit, which demonstrates compliance with the requirements of this Ordinance; and
 - 2. The Applicant has received a letter of adequacy or approval for the Erosion and Sediment Control Plan review by the Borough and the Conservation District (if required), and has received all other local, State and Federal permit approvals required for the project involving the Regulated Activity.
- D. Neither submission of an SWM Site Plan under the provisions herein nor compliance with the provisions of this Ordinance shall relieve any person from responsibility for damage to any person or property otherwise imposed by law.
- E. The Applicant shall design the Site to minimize disturbances to land, Site hydrology, and natural resources, and to maintain the natural hydrologic regime, drainage patterns and flow conditions. The Applicant shall apply the procedures set forth in Section 304 for the overall Site design and for selection, location and design of features and BMPs to be used to comply with the requirements of this Ordinance.
- F. To the maximum extent practicable, Post-construction stormwater shall be discharged within the drainage area of the same stream or water body receiving the runoff prior to construction of the proposed Regulated Activity.
- G. For Regulated Activities with one (1) acre or more of proposed Earth Disturbance, existing drainage peak rate discharges up to and including the one hundred (100)-year storm onto or through adjacent property(ies) or downgradient property(ies), including diffuse drainage discharge, shall not be altered in any manner without written permission from, and, where applicable as determined by the Borough an easement and agreement with, the affected Landowner(s) for conveyance of discharges onto or through their property(ies). Such discharge shall be subject to any applicable discharge criteria specified in this Ordinance.
 - 1. For Regulated Activities with one (1) acre or less proposed Earth Disturbance the Applicant shall provide written notification to the affected Landowner(s) describing the proposed Regulated Activity and proposed discharge(s), unless otherwise required by the Borough.

- H. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) that drain through a proposed Site are not subject to water quality and volume control, infiltration, stream channel protection, or peak flow rate control requirements (as presented in Sections 305, 306, 307, and 308). Drainage facilities located on the Site shall be designed to safely convey flows from outside of the Site through the Site.
- I. If Site conditions preclude capture of runoff from limited portions of the Disturbed Area for achieving water quality volume control standards, stream channel protection standards, and the 2-year storm event peak runoff rate reduction standards for New Development required by this Ordinance, the Applicant shall propose alternate methods to mitigate the bypass of the BMPs, subject to the approval of the Municipal Engineer. In no case shall resulting peak rate be greater than the Pre-development peak rate for the equivalent design storm.
- J. For all Regulated Activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the Regulated Activities (i.e., during construction) as required to meet the purposes and requirements of this Ordinance, to meet the erosion and sediment control requirements of the Borough, if applicable, and to meet all requirements under Title 25 of the PA Code and the Clean Streams Law.
- K. For all Regulated Activities, permanent BMPs and Conveyances shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.
- L. The design of all BMPs and Conveyances shall incorporate sound engineering principles and practices in a manner that does not aggravate existing stormwater problems as identified by the Borough. The Borough reserves the right to disapprove any design that would result in construction in an area affected by existing stormwater problem(s) or continuation of an existing stormwater problem(s).
- M. Existing wetlands, either on the Site or on an adjacent property, shall not be used to meet the minimum design requirements for stormwater management or stormwater runoff quality treatment. Stormwater discharges to existing wetlands shall not degrade the quality or hydrologic integrity of the wetland.
- N. Hotspots Runoff Controls. Specific structural or pollution prevention practices may be required, as determined to be necessary by the Borough Engineer, to pretreat runoff from Hotspots prior to infiltration. Following is a list of examples of Hotspots:
1. Vehicle salvage yards and recycling facilities;
 2. Vehicle fueling stations;
 3. Vehicle service and maintenance facilities;
 4. Vehicle and equipment cleaning facilities;
 5. Fleet storage areas (bus, truck, etc.);

6. Industrial sites based on Standard Industrial Classification Codes;
 7. Marinas (service and maintenance areas);
 8. Outdoor liquid container storage;
 9. Outdoor loading/unloading facilities;
 10. Public works storage areas;
 11. Facilities that generate or store hazardous materials;
 12. Commercial container nursery;
 13. Contaminated sites/brownfields;
 14. Other land uses and activities as designated by the Borough.
- O. Contaminated and Brownfield Sites. Where BMPs may contribute to the migration of contaminants in groundwater, the water quality and runoff volume, stream channel protection, and peak rate control standards shall be met; however, at the Borough Engineer's discretion, the minimum infiltration requirement may be reduced or eliminated commensurate with the contaminated area and the required water quality and runoff control measures may be increased to mitigate the reduced infiltration requirement for the contaminated area.
- P. Additional Water Quality Requirements. The Borough may require additional stormwater control measures for stormwater discharges to special management areas including, but not limited to:
1. Water bodies listed as "impaired" by PADEP.
 2. Any water body or watershed with an approved Total Maximum Daily Load (TMDL).
 3. Areas of known existing flooding problems.
 4. Critical areas with sensitive resources (e.g., State designated special protection waters, cold water fisheries, carbonate geology or other groundwater recharge areas that may be highly vulnerable to contamination, drainage areas to water supply reservoirs, etc.).
- Q. Applicants shall utilize the *Pennsylvania Stormwater Best Management Practices Manual* (PA BMP Manual), as amended, or other sources acceptable to the Borough Engineer, for testing and design standards for BMPs, and where there is a conflict with the provisions of this Ordinance, the most restrictive applies.
- R. For areas underlain by karst or carbonate geology that may be susceptible to the formation of sinkholes and other karst features, the location, type, and design of infiltration BMPs shall be based on a Site evaluation conducted by a qualified Licensed Professional and based on the PA

BMP Manual or other design guidance acceptable to the Borough Engineer. The following certificate shall be included on all stormwater site plans and shall be signed and sealed by the Developer's Professional Geologist, "I, _____, certify that the proposed stormwater/BMP facility (circle one) is / is not underlain by carbonate geology."

- S. All Regulated Activities located within a Special Flood Hazard Area designated by the Federal Emergency Management Agency (FEMA) shall comply with the West Grove Borough Zoning Ordinance section(s) regarding Floodplain management and shall be designed to maintain the flood carrying capacity of the floodway such that the base flood elevations are not increased, either upstream or downstream. The natural conveyance characteristics of the Site and the receiving floodplain shall be incorporated into the stormwater management practices proposed for the Site.
- T. Any disturbance of existing ground cover during construction of the proposed Regulated Activity is prohibited within fifty (50) feet of top-of-bank of all perennial waterways and intermittent waterways, water bodies (lakes, ponds, etc.) and wetlands, except for activities otherwise approved by State or local agencies (e.g. stream restoration projects, road crossings, subsurface utility projects, etc.). At the Borough Engineer's discretion, and with Conservation District and PADEP approval where necessary, the non-disturbance buffer may be reduced because of setback or other Site constraints, but never be less than ten (10) feet.
- U. Riparian buffers shall be designed to meet the requirements of Section 312.

Section 302. Permit Requirements by Other Governmental Entities

The following permit or other regulatory requirements may apply to certain Regulated Activities and shall be met prior to (or as a condition of) final approval by the Borough of the SWM Site Plan and prior to commencement of any Regulated Activities, as applicable:

- A. All Regulated Activities subject to permit or regulatory requirements by PADEP under regulations at Title 25 Pennsylvania Code Chapter 102, or erosion and sediment control requirements of the Borough.
- B. Work within natural drainage ways subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.
- C. Any BMP or Conveyance that would be located in or adjacent to surface Waters of the Commonwealth, including wetlands, subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.
- D. Any BMP or Conveyance that would be located on or discharge to a State highway right-of-way, or require access to or from a State highway and be subject to approval by PennDOT.
- E. Culverts, bridges, storm sewers, or any other facilities which must pass or convey flows from the tributary area and any facility which may constitute a dam subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.

Section 303. Erosion and Sediment Control

- A. No Regulated Activity within the Borough shall commence until:
1. The Borough receives documentation that the Applicant has received:
 - a. A “letter of adequacy” from the Conservation District or other approval from PADEP in compliance with Title 25 Chapter 102 of the Pennsylvania Code of an Erosion and Sediment Control Plan for construction activities, if applicable;
 - b. A PADEP NPDES Construction Activities Permit as required under Title 25 Pennsylvania Code Chapter 92.a, if applicable;
 - c. Evidence of any other permit(s) or approvals required for the Regulated Activities; and
 2. An Erosion and Sediment Control Plan has been approved by the Borough, if required.
- B. A copy of the Erosion and Sediment Control Plan and any required permit(s), as required by PADEP regulations, shall be available on the Site at all times.
- C. Additional erosion and sediment control measures shall be applied where infiltration BMPs are proposed, at a minimum including those required in Subsection 306.M.

Section 304. Site Design Process

The Applicant shall design the Site to minimize the disturbances to land, Site hydrology, and natural resources, and to maintain the natural hydrologic regime, drainage patterns and flow conditions. For Regulated Activities with ten thousand (10,000) or more square feet of proposed Earth Disturbance OR two thousand (2,000) or more square feet of Proposed Impervious Surfaces, the Applicant shall demonstrate in its SWM Site Plan (as required in Subsection 402.C) that the design sequence, objectives and techniques described below were applied to the maximum extent practicable in the Site design of the Regulated Activity while complying with all other requirements of this Ordinance. The Site design shall:

- A. First, identify and delineate all existing natural resources and natural and man-made hydrologic features listed in Subsection 402.B.8 that are located within the Site, or receive discharge from, or may be impacted by the proposed Regulated Activity.
- B. Second, provide a prioritized listing of these resources and features to identify:
 1. Those to be incorporated into the Site design in a manner that provides protection from any disturbance or impact from the proposed Regulated Activity;
 2. Those to be protected from further disturbance or impact but for which the proposed Regulated Activity will provide improvement to existing conditions;

3. Those that can be incorporated into and utilized as components of the overall Site design in a manner that protects or improves their existing conditions while utilizing their hydrologic function within the limits of their available capacity (e.g., for infiltration, evapotranspiration, or reducing pollutant loads, runoff volume or peak discharge rates, etc.) to reduce the need for or size of constructed BMPs; and
 4. Those that may be considered for alteration, disturbance or removal.
- C. Third, develop the Site design to achieve the following:
1. Recognize and incorporate the priorities identified in Section 304.B as the basis for the proposed Site layout, grading, construction, and permanent ground cover design;
 2. Minimize Earth Disturbance (both surface and subsurface);
 3. Maximize protection of or improvement to natural resources and special management areas;
 4. Minimize the disturbance of natural Site hydrology, in particular natural drainage features and patterns, discharge points and flow characteristics, natural infiltration patterns and characteristics, and natural channel and floodplain conveyance capacity;
 5. Incorporate natural hydrologic features and functions identified in Subsection 304.B into the Site design to protect and utilize those features and their hydrologic functions to reduce the need for or size of constructed BMPs;
 6. Maximize infiltration and the use of natural Site infiltration features, patterns and conditions, and evapotranspiration features;
 7. Apply selective grading design methods to provide final grading patterns or preserve existing topography in order to evenly distribute runoff and minimize concentrated flows;
 8. Minimize the cumulative area to be covered by Impervious Surfaces and:
 - a. Minimize the size of individual Impervious Surfaces,
 - b. Separate large Impervious Surfaces into smaller components,
 - c. Disconnect runoff from one Impervious Surface to another, and
 - d. Utilize porous materials in place of impervious wherever practicable;
 9. Minimize the volume and peak discharge rates of stormwater generated;
 10. Avoid or minimize stormwater runoff pollutant loads and receiving stream channel erosion;
 11. Locate infiltration and other BMPs:
 - a. At or as near to the source of generation as possible, and

- b. At depths that are as shallow as possible;
12. Prioritize the selection and design of BMPs as follows:
- a. Nonstructural and vegetation BMPs, then
 - b. Structural (surface and subsurface) BMPs;
13. For flow volumes requiring conveyance from the source of generation to a BMP for management, give preference to open channel conveyance techniques that provide infiltration and water quality benefits, and landscaped-based management in common open space areas, where practicable; and
14. Consider additional guidance for incorporating natural hydrology into the Site and BMP designs, methods and techniques that support the objectives of Subsections 304.B and 304.C. Appendix D presents additional discussion of natural hydrology site design and sources of information for “Conservation Design”, “Low Impact Design”, and “Sustainable Design”.
- D. The procedures set forth above shall be utilized to the maximum extent practicable for the overall Site design and selection, location and design of features and BMPs to be used to comply with the requirements of Sections 305, 306, 307 and 308.

Section 305. Water Quality and Runoff Volume Requirements

To control Post-construction stormwater impacts from Regulated Activities and meet State water quality requirements, BMPs shall be provided in the Site design that replicate Predevelopment stormwater infiltration and runoff conditions, such that Post-construction stormwater discharges do not degrade the physical, chemical, or biological characteristics of the receiving waters. The Applicant shall comply with the following water quality and runoff volume requirements for all Regulated Activities, including all New Development and Redevelopment activities:

- A. The Post-construction total runoff volume shall not exceed the Predevelopment total runoff volume for all storms equal to or less than the two (2)-year, twenty-four (24)-hour duration precipitation (design storm). The water quality and runoff volume to be managed shall consist of any runoff volume generated by the proposed Regulated Activity over and above the Predevelopment total runoff volume and shall be captured and permanently retained or infiltrated on the Site. Permanent retention options may include, but are not limited to, reuse, evaporation, transpiration, and infiltration.
- B. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Subsection 309.D of this Ordinance.
- C. The design of the facility outlet shall provide for protection from clogging and unwanted sedimentation.

- D. BMPs that moderate the temperature of stormwater shall be used to protect the temperature of receiving waters.
- E. Water quality improvement shall be achieved in conjunction with achieving the infiltration requirements of Section 306. The infiltration volume required under Section 306 may be included as a component of the water quality volume. If the calculated water quality and runoff volume is greater than the volume infiltrated, then the difference between the two (2) volumes shall be managed for water quality and runoff volume control through other techniques or practices but shall not be discharged from the Site.
- F. Runoff from the Disturbed Area shall be treated for water quality prior to entering existing waterways or water bodies. If a stormwater management practice does not provide water quality treatment, then water quality BMPs shall be utilized to provide pre-treatment prior to the runoff entering the stormwater management practice.
- G. The Borough may require additional water quality and runoff control measures for stormwater discharging to special management areas such as those listed in Subsection 301.P.
- H. When the Regulated Activity contains or is divided by multiple drainage areas, the water quality and runoff volume shall be separately addressed for each drainage area.
- I. Weighted averaging of runoff coefficients shall not be used for manual computations or input data for water quality and runoff volume calculations.
- J. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) may be excluded from the calculation of the water quality and runoff volume requirements.
- K. Water quality and volume control practices shall be selected and designed to meet the criteria of Subsection 304.C that apply to water quality and volume control.

Section 306. Infiltration Requirements

Providing for infiltration consistent with the natural hydrologic regime is required to compensate for the reduction in the recharge that occurs when the ground surface is disturbed or Impervious Surface is created or expanded. The Applicant shall achieve the following infiltration requirements:

- A. Wherever possible, infiltration should be designed to accommodate the entire water quality and runoff volume required in Section 305.
- B. For Regulated Activities involving New Development, the volume of a minimum of one (1)-inch of runoff from all Proposed Impervious Surfaces shall be infiltrated.
- C. For Regulated Activities involving Redevelopment, whichever is less of the following volume options shall be infiltrated:
 1. The volume of a minimum of one (1)-inch of runoff from all Proposed Impervious Surfaces;

OR

2. The total water quality and runoff volume required in Section 305 of this Ordinance.
- D. If the requirements of Subsections 306.B or 306.C cannot be physically accomplished, then the Applicant shall be responsible for demonstrating with data or calculations to the satisfaction of the Borough Engineer why this infiltration volume cannot be physically accomplished on the Site (e.g., shallow depth to bedrock or limiting zone, open voids, steep slopes, etc.) and what alternative volume can be infiltrated; however in all cases at least the first one-half (0.5) inch of runoff volume shall be infiltrated.
 - E. Only if a minimum of at least one-half (0.5) inch infiltration requirement cannot be physically accomplished on the Site, shall a waiver from Section 306 be considered by the Borough unless the proposed activity involving earth disturbance of one (1) acre or greater as described in Section 111.C.
 - F. If Site conditions preclude capture of runoff from portions of the Impervious Surfaces, the infiltration volume for the remaining area shall be increased an equivalent amount to offset the loss.
 - G. When a project contains or is divided by multiple watersheds, the infiltration volume shall be separately addressed for each watershed.
 - H. Existing Impervious Surfaces located in areas outside of the Site (i.e., outside of the Regulated Activity) may be excluded from the calculation of the required infiltration volume.
 - I. A detailed soil evaluation of the Site shall be conducted by a qualified professional and at a minimum shall address soil permeability, depth to bedrock or other limiting zone, and subgrade stability. The general process for designing the infiltration BMP shall be conducted by a qualified Licensed Professional and shall be consistent with the PA BMP Manual (as amended) (or other guidance acceptable to the Borough Engineer) and in general shall:
 1. Analyze hydrologic soil groups as well as natural and man-made features within the Site to determine general areas of suitability for infiltration practices. In areas where development on fill material is under consideration, conduct geotechnical investigations of sub-grade stability; infiltration may not be ruled out without conducting these tests.
 2. Provide field tests such as double ring infiltrometer or other hydraulic conductivity tests (at the elevation of the proposed infiltration surface) to determine the appropriate hydraulic conductivity rate. **Standard septic/sewage percolation tests are not acceptable for design purposes.**
 3. Design the Infiltration Facility for the required retention (infiltration) volume based on field-determined infiltration capacity (and apply safety factor as per applicable design guidelines) at the elevation of the proposed infiltration surface.
 4. On-lot infiltration features are encouraged; however, it shall be demonstrated to the Borough Engineer that the soils are conducive to infiltration on the identified lots.

J. Infiltration BMPs shall be selected based on suitability of soils and Site conditions and shall be constructed on soils that have the following characteristics:

1. A minimum depth of twenty-four (24) inches between the bottom of the BMP and the top of the Limiting Zone. Additional depth may be required in areas underlain by karst or carbonate geology (see Subsection 306.N).
2. An infiltration rate sufficient to accept the additional stormwater volume and drain completely as determined by field tests conducted by the Applicant.
3. The Infiltration Facility shall completely drain the retention (infiltration) volume within three (3) days (seventy-two (72) hours) from the end of the design storm.

K. All infiltration practices shall:

1. Be selected and designed to meet the criteria of Subsection 304.C that are applicable to infiltration;
2. Be set back at least ten (10) feet from all buildings and features with sub-grade elements (e.g., basements, foundation walls, etc.), unless otherwise approved by the Borough Engineer;
3. For any infiltration practice that collects runoff from shared or multiple features and that is located within fifty (50) feet of a building or feature with sub-grade elements (e.g., basements, foundation walls, etc.), the bottom elevation shall be set below the elevation of the sub-grade element unless a smaller setback is justified by a flow net calculation for the facility.

L. Infiltration Facilities shall, to the maximum extent practicable, be located to avoid introducing contaminants to groundwater:

1. When a Hotspot is located in the area draining to a proposed infiltration facility, an evaluation of the potential of groundwater contamination from the proposed infiltration facility shall be performed, including a hydrogeologic investigation (if necessary) by a qualified Licensed Professional to determine what, if any, pre-treatment or additional design considerations are needed to protect groundwater quality.
2. When located within a "well head protection area" of a public water supply well, infiltration practices shall be in conformance with the applicable approved source water protection assessment or source water protection plan.
3. The Applicant shall provide appropriate safeguards against groundwater contamination for land uses that may cause groundwater contamination should there be a mishap or spill.

M. During Site construction, all infiltration practice components shall be protected from compaction due to heavy equipment operation or storage of fill or construction material. Infiltration areas shall also be protected from sedimentation. Areas that are accidentally compacted or graded shall be remediated to restore soil composition and porosity. Adequate documentation to this effect shall be submitted to the Borough Engineer for review. All areas

designated for infiltration shall not receive runoff until the contributory drainage area has achieved final stabilization.

- N. Consideration of infiltration BMPs for areas underlain by karst or carbonate geology is encouraged, but only where the design, supporting calculations, results of soils or other Site investigations or other documentation are provided to the Borough demonstrating that the potential or likelihood of subsidence or sinkholes is minimal. Evaluation of Site conditions and infiltration design shall rely on guidance in the PA BMP Manual (as amended) or other guidance acceptable to the Borough Engineer.
- O. Groundwater quality of the carbonate aquifer shall be protected from infiltration of pollutants. At a minimum, stormwater runoff from Hotspots (i.e., sources of significant pollutant runoff) shall first be discharged through a water quality BMP(s) to remove pollutants prior to infiltration. Where soil characteristics are insufficient to provide removal of pollutants from sources other than Hotspots, stormwater runoff shall first be discharged through a water quality BMP(s) to remove pollutants prior to infiltration.
- P. Where sediment transport in the stormwater runoff is anticipated to reach the infiltration system, appropriate permanent measures to prevent or collect sediment shall be installed prior to discharge to the infiltration system.
- Q. Where roof drains are designed to discharge to infiltration practices, they shall have appropriate measures to prevent clogging by unwanted debris (for example, silt, leaves and vegetation). Such measures shall include but are not limited to leaf traps, gutter guards and cleanouts.
- R. All infiltration practices shall have appropriate positive overflow controls.
- S. No sand, salt or other particulate matter may be applied to a porous surface material for winter ice conditions. This shall be noted on the Stormwater Site Plan.
- T. The following procedures and materials shall be required during the construction of all subsurface facilities:
 - 1. Excavation for the Infiltration Facility shall be performed with equipment that will not compact the bottom of the seepage bed/trench or like facility.
 - 2. The bottom of the bed and/or trench shall be scarified prior to the placement of aggregate.
 - 3. Only clean aggregate with documented porosity, free of fines, shall be allowed.
 - 4. The tops and sides of all seepage beds, trenches, or like facilities shall be covered with drainage fabric. Fabric shall be non-woven fabric acceptable to the Borough Engineer.
 - 5. Stormwater shall be distributed throughout the entire seepage bed/trench or like facility and provisions for the collection of debris shall be provided in all facilities (i.e. cleanout with sump).

Section 307. Stream Channel Protection Requirements

For Regulated Activities involving New Development with one (1) or more acres of Earth Disturbance, the Applicant shall comply with the following stream channel protection requirements to minimize stream channel erosion and associated water quality impacts to the receiving waters:

- A. The peak flow rate of the Post-construction two (2)-year, twenty-four (24)-hour design storm shall be reduced to the Predevelopment peak flow rate of the one (1)-year, twenty-four (24)-hour duration precipitation, using the SCS Type II distribution.
- B. To the maximum extent practicable, and unless otherwise approved by the Borough Engineer, the Post-construction one (1)-year, twenty-four (24)-hour storm flow shall be detained for a minimum of twenty-four (24) hours and a maximum not to exceed seventy-two (72) hours from a point in time when the maximum volume of water from the one (1)-year, twenty-four (24)-hour storm is stored in a proposed BMP (i.e., when the maximum water surface elevation is achieved in the facility). Release of water can begin at the start of the storm (i.e., the invert of the orifice is at the invert of the proposed BMP).
- C. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Subsection 309.D of this Ordinance.
- D. The minimum orifice size in the outlet structure to the BMP shall be three (3) inches in diameter unless otherwise approved by the Borough Engineer, and a trash rack shall be installed to prevent clogging. For Sites with small drainage areas contributing to the BMP that do not provide enough runoff volume to allow a twenty-four (24) hour attenuation with the three (3)-inch orifice, the calculations shall be submitted showing this condition.
- E. When the calculated orifice size is below three (3) inches, gravel filters (or other methods) are recommended to discharge low-flow rates subject to the Borough Engineer's satisfaction. When filters are utilized, maintenance provisions shall be provided to ensure filters meet the design function.
- F. All proposed stormwater facilities shall make use of measures to extend the flow path and increase the travel time of flows in the facility.
- G. When a Regulated Activity contains or is divided by multiple drainage areas, the peak flow rate control shall be separately addressed for each drainage area.

Section 308. Stormwater Peak Rate Control Requirements

The Applicant shall comply with the following peak flow rate control requirements for all Regulated Activities including those that involve New Development and Redevelopment.

- A. Post-construction peak flow rates from any Regulated Activity shall not exceed the Predevelopment peak flow rates as shown for each of the design storms specified in Table 308.1.

TABLE 308.1
Peak Rate Control Standards

POST-CONSTRUCTION DESIGN STORM FREQUENCY (24-Hour Duration)	PREDEVELOPMENT DESIGN STORM	
	New Development Regulated Activities	Redevelopment Regulated Activities
2-Year	1-Year	2-Year
5-Year	5-Year	5-Year
10-Year	10-Year	10-Year
25-Year	25-Year	25-Year
50-Year	50-Year	50-Year
100-Year	100-Year	100-Year

- B. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Subsection 309.D of this Ordinance.
- C. For Regulated Activities involving only Redevelopment, no peak flow rate controls are required when and only if the total Proposed Impervious Surface area is at least twenty percent (20%) less than the total existing Impervious Surface area to be disturbed by the Regulated Activity. In all cases where this requirement is not met, the Redevelopment Regulated Activity shall achieve the peak flow rate controls presented in Table 308.1, using the Redevelopment Ground Cover Assumptions presented in Subsection 309.D.
- D. Only the area of the proposed Regulated Activity shall be subject to the peak flow rate control standards of this Ordinance. Undisturbed areas for which the discharge point has not changed are not subject to the peak flow rate control standards.
- E. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) that drain through a proposed Site are not subject to peak flow rate control requirements. Drainage facilities located on the Site shall be designed to safely convey flows from outside of the Site through the Site.
- F. When a Regulated Activity contains or is divided by multiple drainage areas, the peak flow rate controls shall be separately addressed for each drainage area.
- G. The effect of structural and non-structural stormwater management practices implemented as part of the overall Site design may be taken into consideration when calculating total storage volume and peak flow rates.

Section 309. Calculation Methodology

- A. Stormwater runoff from all Regulated Activity Sites with a drainage area of greater than five (5) acres shall be calculated using a generally accepted calculation technique(s) that is based on the NRCS Soil Cover Complex Method. Table 309.1 summarizes acceptable computation methods. The method selected for use shall be based on the individual limitations and suitability of each method for a particular Site. The use of the Rational Method to estimate peak discharges for

drainage areas greater than five (5) acres shall be permitted only upon approval by the Borough Engineer.

**TABLE 309.1
ACCEPTABLE COMPUTATION METHODOLOGIES FOR
SWM SITE PLAN**

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.
TR-55 (or commercial computer package based on TR-55)	USDA NRCS	Applicable for land development plans where limitations described in TR-55 are met.
HEC-1/ HEC-HMS	US Army Corps of Engineers	Applicable where use of a full hydrologic computer model is desirable or necessary.
Rational Method (or commercial computer package based on Rational Method)	Emil Kuichling (1889)	For Sites up to five (5) acres, or as approved by the Borough.
Other Methods	Varies	Other computation methodologies approved by the Borough.

- B. All calculations using the Soil Cover Complex Method shall use the appropriate design rainfall depths for the various return period storms consistent with this Ordinance. Rainfall depths used shall be obtained from NOAA Atlas 14 values consistent with a partial duration series. When stormwater calculations are performed for routing procedures or infiltration, water quality and runoff volume functions, the duration of rainfall shall be twenty-four (24) hours.
- C. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times-of-concentration (duration) and storm events with rainfall intensities obtained from NOAA Atlas 14 partial duration series estimates, or the latest version of the PennDOT Drainage Manual (PDM Publication 584). 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. (Refer to Appendix B-3)
- D. The Applicant shall utilize the following ground cover assumptions for all Predevelopment water quality and runoff volume, infiltration volume and peak flow rate calculations:
 - 1. For Regulated Activities involving New Development, the following ground cover assumptions shall be used:
 - a. For areas that are Woods, Predevelopment calculations shall assume ground cover of

“Woods in good condition”.

- b. For all other areas (including all Impervious Surfaces), Predevelopment calculations shall assume ground cover of “meadow”.
2. For Regulated Activities involving Redevelopment, the following ground cover assumptions shall be used:
 - a. For areas that are Woods, Predevelopment calculations shall assume ground cover of “Woods in good condition”.
 - b. For areas that are not Woods or not Impervious Surfaces, Predevelopment calculations shall assume ground cover of “meadow”.
 - c. For areas that are Impervious Surfaces, Predevelopment calculations shall assume at least twenty percent (20%) of the existing Impervious Surface area to be disturbed as “meadow” ground cover.
 3. The Applicant shall determine which stormwater standards apply to the proposed Regulated Activity as follows:
 - a. Stormwater standards for New Development shall apply to all proposed Regulated Activities that involve only New Development activities as defined in this Ordinance.
 - b. Stormwater standards for Redevelopment shall apply to all proposed Regulated Activities that involve only Redevelopment activities as defined in this Ordinance.
 - c. At the discretion of the Borough Engineer, Regulated Activities that involve a combination of both New Development and Redevelopment activities, as defined in this Ordinance, may either:
 - i. Apply the stormwater standards (Redevelopment or New Development) that are associated with the activity that involves the greatest amount of land area;

OR

 - ii. Apply the Redevelopment and New Development stormwater standards to the corresponding Redevelopment and New Development portions of the proposed Regulated Activity.
- E. Runoff curve numbers (CN) for both Predevelopment and proposed (Post-construction) conditions to be used in the Soil Cover Complex Method shall be obtained from Table B-2 in Appendix B of this Ordinance.
 - F. Runoff coefficients (C) for both Predevelopment and proposed (Post-construction) conditions for use in the Rational Method shall be obtained from Table B-1 in Appendix B of this Ordinance.

- G. Weighted averaging of runoff coefficients shall not be used for manual computations or input data for water quality and runoff volume calculations.
- H. Hydraulic computations to determine the capacity of pipes, culverts, and storm sewers shall utilize the roughness coefficient (Manning "n" values) in accordance with the manufacturer's specifications or with PennDOT Publication 584, PennDOT Drainage Manual (Appendix B-7).
- I. Runoff calculations shall include the following assumptions:
 - 1. Average antecedent moisture conditions (for the Soil Cover Complex Method only for example, TR-55, TR-20).
 - 2. A type II distribution storm (for the Soil Cover Complex Method only for example, TR-55, TR-20).

Section 310. Other Requirements

- A. Any BMP intended to hold standing water for four (4) days or longer shall be designed to incorporate biologic controls consistent with the West Nile Guidance found in Appendix E, PADEP document 363-0300-001 "Design Criteria – Wetlands Replacement/Monitoring" (as amended), (or contact the Pennsylvania State Cooperative Wetland Center or the Penn State Cooperative Extension Office for design information.)
- B. Any stormwater basin required or regulated by this Ordinance designed to store runoff and requiring a berm or earthen embankment shall be designed to provide an emergency spillway to safely convey flow up to and including the one hundred (100)-year proposed conditions. The height of embankment shall provide a minimum one (1.0) foot of Freeboard above the maximum pool elevation computed when the facility functions for the one hundred (100)-year proposed conditions inflow. Should any BMP require a dam safety permit under PA Chapter 105 regulations, the facility shall be designed in accordance with and meet the regulations of PA Chapter 105 concerning dam safety. PA Chapter 105 may require the safe conveyance of storms larger than one hundred (100)-year event.
- C. Any drainage Conveyance facility and/or channel not governed by PA Chapter 105 regulations shall be designed to convey, without damage to the drainage facility or roadway, runoff from the twenty-five (25)-year storm event. Larger storm events (fifty (50)-year and one hundred (100)-year storms) shall also be safely conveyed in the direction of natural flow without creating additional damage to any drainage facilities, nearby structures, or roadways.
- D. Conveyance facilities to or exiting from stormwater management facilities (i.e., detention basins) shall be designed to convey the design flow to or from the facility.
- E. Roadway crossings or structures located within designated floodplain areas shall be able to convey runoff from a 100-year design storm consistent with Federal Emergency Management Agency National Flood Insurance Program – Floodplain Management Requirements.

- F. Any facility located within a PennDOT right-of-way shall comply with PennDOT minimum design standards and permit submission and approval requirements.
- G. Adequate erosion protection and energy dissipation shall be provided along all open channels and at all points of discharge. Design methods shall be consistent with the Federal Highway Administration Hydraulic Engineering Circular Number 11 (Publication No. FHWA-IP-89-016, as amended) and the PADEP Erosion and Sediment Pollution Control Program Manual (Publication No. 363-2134-008, as amended), or other design guidance acceptable to the Municipal Engineer.

Section 311. Other Conveyance and System Design Standards

A. General.

1. For all above ground storage facilities the bottom of the excavated basin shall be a minimum of two (2) feet or 24 inches above the seasonal high water table or bedrock. Soil sampling, test pits or auger testing must be completed in the proposed location of the facilities in support of the design.
2. Above ground storage facilities without restricted access shall have impoundment areas with side slopes no greater than five horizontal to one vertical. Basins with side slopes steeper than five horizontal to one vertical shall be protected by fencing that will discourage access.
3. Above ground storage facilities with a facility depth greater than eight (8) feet shall not be permitted in residential areas.
4. Above ground storage facilities with a facility depth greater than 15 feet require a dam permit from DEP.
5. All pipe collars, when required, shall be designed in accordance with Chapter 7 of the DEP E&S Manual. The material shall consist of concrete or otherwise non-degradable material approved by the Borough Engineer around the outfall barrel and shall be watertight.
6. The embankment fill material shall be taken from an appropriate borrow area which shall be free of roots, stumps, wood, rubbish, stones greater than 6 inches, frozen or other objectionable materials.
7. When required, embankments shall be compacted by sheepsfoot or pad roller. The loose lift thickness shall be nine (9) inches or less, depending on roller size, and the maximum particle size is six (6) inches or less (two-thirds of the lift thickness). Five (5) passes of the compaction equipment over the entire surface of each lift is required. Embankment compaction to visible non-movement is also required.
8. The minimum bottom slope of facilities not designed for infiltration shall be one percent (1%). A flatter slope may be used if an equivalent dewatering mechanism is provided.

9. When required, dewatering shall be provided through the use of underdrain, surface device, or alternate approved by the Borough 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.
10. When required, pretreatment elements shall consist of forebays, filter strips or alternate approved by the Borough Engineer, to keep silt to a smaller portion of the facility for ease of maintenance.
11. 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 § 301.N and the BMP Manual which is designed to promote infiltration.
12. For facilities with a depth of two (2) feet or greater, a type D-W endwall or riser box outlet structure shall be provided.
13. For facilities with a depth less than two (2) feet, no outlet structure is required.
14. All discharge control devices with appurtenances shall be made of reinforced concrete and stainless steel. Bolts/fasteners shall be stainless steel.
15. The spillway shall be designed to provide a non-erosive, stable condition when the project is completed.
16. The spillway shall be designed to convey the 100-year peak inflow when required.
17. Freeboard shall be measured from the top of the water surface elevation for emergency use.
18. West Grove Borough 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 Borough.
19. Embankment construction.
 - a. 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.
 - b. 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.
 - c. The dimensions of the core shall provide a minimum trench depth of two (2) feet below existing grade, minimum width of four (4) feet and side slope of 1H:1V or flatter.

- d. The core should extend up both abutments to the 10 year water surface elevation or six (6) inches below the emergency spillway elevation, whichever is lower.
 - e. The core shall extend four (4) feet below any pipe penetrations through the impervious core. The core shall be installed along or parallel to the centerline of the embankment.
 - f. Compaction requirements shall be the same as those for the embankment to assure maximum density and minimum permeability.
 - g. The core shall be constructed concurrently with the outer shell of the embankment.
 - h. The trench shall be dewatered during backfilling and compaction operations.
- B. Above ground storage facilities.

Above ground storage facilities consist of all stormwater facilities which store, infiltrate/evaporate/transpire, clean or otherwise affect stormwater runoff and the top of which is exposed to the natural environment. Above ground storage facilities are located above the finished ground elevation. Above ground storage facilities do not include stormwater management facilities designed for conveyance or cisterns.

- 1. Design Criteria. Refer to Table 311.1.
 - a. Above ground storage facility with facility depth of less than two (2) feet
 - 1) The minimum top of embankment width shall be two (2) feet.
 - 2) Maximum interior side slope 2:1
 - 3) Maximum exterior side slope 2:1
 - 4) Minimum outlet pipe diameter shall be six (6) inches.
 - 5) Outlet pipe material: PVC, HDPE or RCP
 - 6) Anti-clogging device is required
 - 7) Watertight joints shall be provided in karst areas
 - 8) The spillway freeboard shall be a minimum three (3) inches
 - 9) The spillway may be used to route the 100-year storm
 - b. Above ground storage facility with depth of two (2) to eight (8) feet
 - 1) Embankment minimum top width of five (5) feet
 - 2) Maximum interior side slope 5:1.
 - 3) Maximum exterior side slope 3:1.
 - 4) A key trench and anti-seep collar shall be provided.
 - 5) Compaction density of the embankment is required.
 - 6) A dewatering feature is required.
 - 7) Pretreatment filtering of runoff is required.
 - 8) Minimum outlet pipe diameter of 12 inches
 - 9) Outlet pipe material: HDPE or RCP
 - 10) An anti-clogging device is required.
 - 11) An antivortex design is required.
 - 12) Watertight joints shall be provided.
 - 13) The spillway freeboard shall be a minimum six (6) inches
 - 14) The minimum spillway width is 10 feet.

- 15) The maximum spillway width is 50 feet
 - 16) The downstream channel into which the spillway discharges shall be checked for adequate capacity and stability.
 - 17) The spillway shall not be considered to function as part of the primary outlet structure and shall be only for emergency situations.
- c. Above ground storage facility with depth greater than eight (8) feet
- 1) Embankment minimum top width of eight (8) feet
 - 2) Maximum interior side slope 5:1.
 - 3) Maximum exterior side slope 3:1.
 - 4) A key trench and anti-seep collar shall be provided.
 - 5) Compaction density of the embankment is required.
 - 6) A dewatering feature is required.
 - 7) Pretreatment filtering of runoff is required.
 - 8) Minimum outlet pipe diameter of 15 inches
 - 9) Outlet pipe material: RCP
 - 10) An anti-clogging device is required.
 - 11) An antivortex design is required.
 - 12) Watertight joints shall be provided.
 - 13) The spillway freeboard shall be a minimum 12 inches.
 - 14) The minimum spillway width is 20 feet.
 - 15) The maximum spillway width is 50 feet.
 - 16) The downstream channel into which the spillway discharges shall be checked for adequate capacity and stability.
 - 17) The spillway shall not be considered to function as part of the primary outlet structure and shall be only for emergency situations.
- d. General Requirements for above ground storage facilities:
- 1) Where practical, the spillway shall be constructed in undisturbed ground.
 - 2) The effect on the downstream areas if the facility embankment fails shall be considered in the design of all facilities. Where possible the facility shall be designed to minimize the potential damage caused by such failure of the embankment.
 - 3) For all above ground facilities that do not rely on infiltration to dewater the runoff, a flow path length to width ratio of 2:1 shall be provided to maximize the treatment time between the inflow point and the outlet structure.

Table 311.1. Above ground storage facility design criteria.

Above-ground storage facility design criteria			
	Facility Depth		
	Less than 2 feet	2 feet to 8 feet	Greater than 8 feet
Embankment Geometry			
Top width (minimum)	2 feet	5 feet	8 feet
Interior side slope (maximum)	2 : 1	5 : 1	5 : 1
Exterior side slope (maximum)	2 : 1	3 : 1	3 : 1
Embankment construction			
Key trench	Not required	Required	Required
Pipe collar	Not required	Required	Required
Compaction density	Not required	Required	Required
Internal Construction			
Dewatering feature	N/A	Required	Required
Pretreatment elements	Not required	Required	Required
Outlet Structure			
Pipe size (minimum)	6 inches	12 inches	15 inches
Pipe material	HDPE, PVC, RCP	HDPE, RCP	RCP
Anticlogging devices	Required	Required	Required
Antivortex design	Not required	Required	Required
Watertight joints in piping	No**	Yes	Yes
Spillway Requirements			
Spillway freeboard (minimum)	3 inches	6 inches	12 inches
Width (minimum)	Not required	10 feet	20 feet
Width (maximum)	Not required	50 feet	50 feet
Spillway channel design	Not required	Required	Required
Routing of 100 year storm	Permitted	Not Permitted	Not Permitted

C. 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. General

- a. The stone used for infiltration beds shall be clean washed, uniformly graded coarse aggregate (AASHTO No. 3 or equivalent approved by the Borough of West Grove). The void ratio for design shall be assumed to be 0.4.

- b. 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 6 inches in any dimension) objectionable or detritus material. Select non-aggregate material should be indigenous to the surrounding soil material for non-vehicular areas. Backfill within vehicular areas shall comply with this section unless otherwise specified in governing municipal road/street or subdivision and land development ordinances. 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.
 - c. Non-woven 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.
 - d. When located under pavement, the top of the subsurface facility shall be a minimum of three (3) inches below the bottom of pavement subbase. 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.
 - e. Subsurface facilities shall be designed to safely convey and/or bypass flows from storms exceeding the design storm.
 - f. Infiltration systems shall be located a minimum of 10 feet away from the foundation wall of any building.
 - g. Infiltration rates shall not be used in computing the storage volume of the infiltration system.
2. Design Criteria. Refer to Table 311.2.
- a. Infiltration and Storage Facility
 - 1) Maximum Depth from Surface: 2 feet less than limiting zone
 - 2) Loading Ratio: Loading Ratio: Per December 2006 BMP Manual, as amended. The maximum impervious loading ratio of 5:1 relating impervious drainage area to infiltration area. The maximum total loading ratio of 8:1 relating to total drainage area to infiltration area. In areas of Karst Geology, the maximum impervious drainage area to infiltration area is 3:1.
 - 3) Minimum distribution pipe size shall be four (4) inches. Distribution system piping may be PVC or HDPE.
 - 4) Pretreatment of runoff to the facility is required to provide a method to eliminate solids, sediment, and other debris from entering the subsurface facility.
 - 5) Observation/access ports shall be provided in the facility. For facilities with the bottom less than five (5) feet below the average grade of the ground surface, a clean-out shall be an acceptable observation port. For facilities with the bottom five (5) feet or more below the average grade of the ground surface, a manhole or other means acceptable to the Borough of West Grove shall be provided for access to and

monitoring of the facility. The number of access points shall be sufficient to flush or otherwise clean out the system.

- 6) 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.

b. Storage without Infiltration Facility

- 1) Minimum distribution pipe size shall be four (4) inches. Distribution system piping may be PVC, HDPE, or RCP.
- 2) Pretreatment of runoff to the facility is required to provide a method to eliminate solids, sediment, and other debris from entering the subsurface facility.
- 3) Observation/access ports shall be provided in the facility. For facilities with the bottom less than five (5) feet below the average grade of the ground surface, a clean-out shall be an acceptable observation port. For facilities with the bottom five (5) feet or more below the average grade of the ground surface, a manhole or other means acceptable to the Borough of West Grove shall be provided for access to and monitoring of the facility. The number of access points shall be sufficient to flush or otherwise clean out the system.

Table 311.2. Subsurface storage facility design criteria:

Subsurface storage facility design criteria		
	Facility Type	
	Infiltration and Storage	Storage without Infiltration
Facility Geometry		
Depth from surface (maximum)	2 feet less than limiting zone	N/A
Loading ratio (maximum)	Per BMP Manual*	N/A
Distribution System Requirements		
Pipe size (minimum)	4 inches	4 inches
Pretreatment	Required	Required
Loading/balancing	Required	Not required
Observation/access ports	Required	Required

*Unless otherwise determined by professional geologic evaluation.

D. Conveyance Facilities.

Conveyance facilities consist of all stormwater facilities which carry flow, which may be located either above or below the finished grade. Conveyance facilities do not include stormwater management facilities which store, infiltrate/evaporate/transpire, or clean stormwater runoff.

1. General.

- a. 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.

- b. Conveyance pipes, culverts, manholes, inlets and endwalls which are otherwise subject to vehicular loading shall be designed for the HS-25 loading condition.
- 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 6 inches in any dimension) objectionable or detritus material. Select non-aggregate material should be indigenous to the surrounding soil material for non-vehicular areas. Backfill within vehicular areas shall comply with this section unless otherwise specified in governing municipal road/street or subdivision and land development ordinances.
- d. 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.
- e. Access/maintenance ports. An access/maintenance port is required may either be an inlet or manhole.
- f. Watertight joints shall be provided where pipe sections are joined, except for perforated pipe installed as pavement base drain. The watertight joints shall be of a type approved by the Borough or Borough Engineer. This requirement shall be noted and/or on the plans.
- g. The street crossing angle shall be measured between the pipe centerline and the street centerline.
- h. Elliptical pipe of an equivalent cross-sectional area may be substituted in lieu of circular pipe where cover or utility conflict conditions exist.
- i. All pipes must enter inlets completely through one of the sides. No corner entry of pipes is permitted.
- j. Within the public street right-of-way, the gutter spread based on the 25-year storm shall be no greater than one half of the travel lane and have a maximum depth of three inches (3 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 (7 feet) wide if parking is permitted on the street.
- k. Flow depth within intersections. Within intersections of streets, the maximum depth of flow shall be one and one-half inches (1 ½ inches) based on the 25-year storm.
- l. Inlets in streets shall be located along the curb line.
- m. Top units shall be PennDOT Type "C". The hood shall be aligned with the adjacent curb height.

- n. 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.
- o. Inlets, junction boxes, or manholes greater than five feet (5 feet) in depth shall be equipped with ladder rungs and shall be detailed on the SWM Site Plan.
- p. A swale shall be considered as any man-made ditch designed to convey stormwater directly to another stormwater management facility or surface waters.
- q. Inlets within swales shall have PennDOT Type "M" top units or equivalent approved by the Borough engineer.
- r. Swale capacities and velocities shall be computed using the Manning equation using the following design parameters:
 - 1. Vegetated swales.
 - (a) The first condition shall consider swale stability based upon a low degree of retardance ("n" = 0.03);
 - (b) The second condition shall consider swale capacity based upon a higher degree of retardance ("n" = 0.05); and
 - (c) All vegetated swales shall have a minimum slope of 1% unless otherwise approved by the Borough Engineer.
 - (d) 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 Borough Engineer.
- s. 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.
- t. Headwalls and endwalls shall be constructed of concrete.
- u. Flared end sections shall be of the same material as the connecting pipe and be designed for the size of the connecting pipe.
- v. Level spreaders:
 - 1. Shall discharge at existing grade onto undisturbed vegetation.
 - 2. Discharge at a depth not exceeding 3.0 inches for a 50-year, 24-hour design storm.
- w. Energy dissipaters shall be designed in accordance with the requirements in the DEP E&S Manual.

- x. 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 Borough to prove that the proposed facility has been designed to limit the potential risk to the life, safety or welfare of the general public.
- y. In addition to the material requirements in this section, culverts designed to convey Waters of the Commonwealth may be constructed with either a corrugated metal arch or a precast concrete culvert.
- z. Trash racks shall be provided on all endwalls and storm sewer discharge points for pipe diameters of 18 inches or greater. The proposed trash rack shall be subject to review and approval by the Borough.

2. Design criteria. Refer to Table 311.3.

- a. Within public street right-of-way.
 - 1) Conveyance system material shall consist of HDPE or RCP pipe.
 - 2) The minimum pipe slope shall be 0.5%.
 - 3) A minimum 1 foot of cover to the stone subgrade shall be provided over the conveyance pipes.
 - 4) The minimum pipe diameter shall be 15 inches.
 - 5) The minimum street crossing angle for the conveyance system shall be 75° to 90°.
 - 6) Maximum spacing between access or maintenance ports shall be 400 feet.
 - 7) Inlets and manholes shall be concrete.
 - 8) Inlets shall be depressed a minimum of two (2) inches below the surface grade to provide positive flow.
 - 9) Swales shall be provided with a minimum freeboard of six (6) inches.
 - 10) The maximum swale velocity shall be determined based on the stability of the channel.
 - 11) The minimum swale slope shall be one percent (1 %).
 - 12) Side slopes in residential areas shall be a maximum of 4:1. Side slopes in non-residential areas shall be a maximum of 4:1.
 - 13) The bottom width to flow depth ration shall be 12:1.
 - 14) Pipe entrances/discharges in public street right-of-ways shall be provided with a headwall/endwall treatment.
 - 15) The pipe discharge locations shall be provided with an energy dissipater designed to handle the anticipated flow conditions.
- b. Outside public street right-of-way: vehicular loading
 - 1) Conveyance system material shall consist of PVC, HDPE or RCP pipe.
 - 2) The minimum pipe slope shall be 0.5%.

- 3) A minimum 1 foot of cover to the stone subgrade shall be provided over the conveyance pipes.
 - 4) The minimum pipe diameter shall be 15 inches.
 - 5) Maximum spacing between access or maintenance ports shall be 400 feet.
 - 6) Inlets and manholes shall be concrete.
 - 7) Inlets shall be depressed a minimum of two (2) inches below the surface grade to provide positive flow.
- c. Outside public street right-of-way: non-vehicular loading
- 1) Conveyance system material shall consist of PVC, HDPE or RCP pipe.
 - 2) The minimum pipe slope shall be 0.5%.
 - 3) A minimum 1 foot of cover to the surface shall be provided over the conveyance pipes.
 - 4) The minimum pipe diameter shall be eight (8) inches.
 - 5) Maximum spacing between access or maintenance ports shall be 600 feet.
 - 6) Manholes shall be concrete.
 - 7) Inlets shall be depressed a minimum of one (1) inches below the surface grade to provide positive flow.
 - 8) Swales shall be provided with a minimum freeboard of six (6) inches.
 - 9) The maximum swale velocity shall be determined based on the stability of the channel.
 - 10) The minimum swale slope shall be one percent (1 %).
 - 11) Side slopes in residential areas shall be a maximum of 4:1. Side slopes in non-residential areas shall be a maximum of 3:1.
 - 12) The bottom width to flow depth ratio shall be 12:1.
 - 13) Pipe entrances/discharges in public street right-of-ways shall be provided with a headwall/endwall or flared end section treatment.
 - 14) The pipe discharge locations shall be provided with an energy dissipater designed to handle the anticipated flow conditions.

Table 311.3. Conveyance facility design criteria:

Conveyance facility design criteria			
Location	Within public street right-of-way	Outside public street right-of-way	
Loading	All	Vehicular loading	Non-vehicular Loading
Pipe design			
Material	HDPE, RCP	PVC, HDPE, RCP	PVC, HDPE, RCP
Slope (minimum)	0.5%	0.5%	0.5%
Cover	1 foot to stone subgrade	1 foot to stone subgrade	1 foot to surface
Diameter (minimum)	15 inches	15 inches	8 inches
Street crossing angle	75° to 90°	N/A	N/A
Access/maintenance port frequency (maximum)	400 feet	400 feet	400 feet
Inlet design			
Material	Concrete	Concrete	N/A
Grate depression	2 inches	2 inches	1 inch minimum
Manhole design			
Material	Concrete	Concrete	Concrete
Swale design			
Freeboard (minimum)	6 inches	N/A	6 inches
Velocity (maximum)	Stability check	N/A	Stability check
Slope (minimum)	1%	N/A	1%
Side slopes (residential area)	4 : 1 max	N/A	4 : 1 max
Side slopes (non-residential area)	4 : 1 max	N/A	3 : 1 max
Bottom width to flow depth ratio	12 : 1	N/A	12 : 1
Outlet design			
End treatment	Headwall/endwall	N/A	Headwall/ endwall or flared end section
Energy dissipater	Required	N/A	Required

E. Capture and Reuse Facilities.

1. Design Requirements:

- a. Calculation of water usage to insure adequate capacity is available for storage of follow-up rainfall events. The property will draw from the cistern on a daily basis; the cistern shall be dewatered in seventy-two (72) hours to maintain the capacity of the storage facility.
- b. Verification of conveyance pipe capacity in the roof leader design.

- c. The water storage container(s) shall be protected from direct sunlight to minimize algae growth
- d. An alternative supply of water shall be available for the property use during dry periods.
- e. Water storage containers should be watertight with smooth interior surfaces.
- f. The cover (or lid) should have a tight fit to keep out surface water, children, animals, dust and light. The cover or lid opening should be a minimum 24 inches in order to access the facility for maintenance and repair.
- g. Cisterns shall be designed to store the runoff volume of a 100-year storm event for the area served by the water storage facility.
- h. Every water storage facility (cistern, rain barrel, etc.) shall be provided with an overflow or an emergency spillway. The overflow shall be designed to discharge away from buildings and other structures and towards existing natural or manmade channels, stormwater facilities or vegetated slopes.
 - i. The plans proposing a water storage facility shall include the following:
 - ii. All calculations and assumptions used in the design.
 - iii. Sufficient detail showing the proposed method of dewatering (i.e. pump).
 - iv. Structural details.
- i. Maintenance responsibilities for water storage and reuse facilities shall include flushing the storage units to remove any accumulated sediment, the inside surfaces shall be brushed and thoroughly disinfected.
- j. The water shall not be allowed to freeze in the devices.

Section 312. Riparian Buffers

- A. In order to protect the existing environmentally sensitive areas within the Borough, protect the natural resources and aid in the improvement of water quality riparian buffer easements shall be created as part of any subdivision or land development or SWM Plan (except exemptions and Small Project applications).

For any site located immediately adjacent to or encompassing a watercourse (i.e. stream, creek or other natural body of water), a "Riparian Buffer Easement" measuring 35 feet in width from the centerline (on each side) of the watercourse shall be provided and maintained. The Riparian Buffer Easement shall not be designated along industrial ponds, sewerage treatment lagoons, man-made irrigation ditches, stormwater management basins and other artificial features with similar water quality or storage facility. The purpose of the Riparian Buffer Easement shall be to protect and preserve the existing natural features and environmental resources subject to the following requirements:

1. Preservation of Existing Buffer Plantings: Within the Riparian Buffer Easement the existing natural trees and vegetation shall be preserved.
2. Required Buffer Plantings: To create a Riparian Forested Buffer, the required easement area shall be planted with additional native trees, shrubs and other plant material as determined necessary (depending on site conditions) in order to create a suitable "Riparian Buffer".
3. The Riparian Buffer Easement shall be incorporated into the deed for the property or lot(s) and shall limit the use of the property located therein. The easement shall allow for the continued private ownership and count toward the minimum lot area as required by the West Grove Borough Zoning Ordinance, but restrict land uses to the current use or to other non-damaging activities such as:
 - a. Regulated activities permitted by the Commonwealth of Pennsylvania (i.e. permitted stream or wetland crossing). Maximum area disturbance permitted for this use shall be five (5) percent of the designated riparian buffer.
 - b. Provision for unpaved, ungraded, or natural trails parallel to the watercourse not to exceed six (6) feet in width. Such trail shall not come within ten (10) feet of any stream bank.
 - c. Clearing of a foot-path to the watercourse or trail access not to exceed six (6) feet in width, provided that a cleared line of sight to the watercourse through the buffer is not created.
 - d. Selective removal of a safety hazard, diseased trees, or invasive plant species.
 - e. A soil conservation project, including reforestation and streambank stabilization, or stormwater management practices approved by the Chester County Conservation District.
 - f. Installation and maintenance of municipal government infrastructure, in accordance with all other applicable permits, regulations, and requirements as applicable (DEP, etc.).
4. The outlet of any storm sewer piping system or stormwater management facility shall not be permitted within the Riparian Buffer Easement. The Riparian Buffer Easement will create a setback or separation distance from the receiving watercourse. In this way, a natural filter strip will be created so that the quality of stormwater runoff will be improved before reaching the watercourse.
5. Any activities within the Riparian Buffer Easement shall be completed in a manner that will preserve and protect the existing limits of the 100-year Floodplain and Floodway.

B. Resource Protection Standards.

1. Buffer Composition. A riparian buffer shall be a dense ground cover of grasses, shrubbery, and trees preserved with no buildings, structures, or impervious surface. This buffer shall not be cleared, regarded, filled, built upon or otherwise altered; with the exception to restore such area to its natural state or for those uses or activities listed below. Riparian buffers shall be established and maintained in accordance with the following guidelines:
 - a. Established through natural succession. Vegetation may be established through natural succession. Selective planting may be incorporated on site devoid of vegetation to stimulate native species and discourage invasive plant species.
 - b. Planted in accordance with the following:
 - 1) Planting plans may be prepared jointly by a PA registered Landscape Architect in consultation with other professionals having a practical knowledge of riparian ecosystems (such as horticulturist, wetlands specialists, wildlife biologists, ecologists) such as the Chester County Conservation District, the Department of Environmental Protection, of the Department of Conservation and Natural Resources. All planting plans shall include a planting schedule that summarizes the quantity, size, type and root condition of all plantings. All riparian buffer enhancements shall be installed using practices accepted by the American Association of Nurserymen.
 - 2) The preparation and planting procedures may include, but shall not be limited to, invasive plan removal and control; stream bank stabilization; the provision of animal browse protection, such as plastic tubes for seedling trees; erosion control matting; the provision of any markers or signs identifying the riparian buffer; and mowing schedules for meadow grass establishment.

ARTICLE IV – STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

Section 401. General Requirements

For any Regulated Activity, unless exempt per the provisions of Section 106:

- A. Preparation and implementation of an approved SWM Site Plan is required.
- B. No Regulated Activity shall commence until the Borough or Borough designee issues a written permit for the project, which demonstrates compliance with the requirements of this Ordinance and, if required, a letter of adequacy has been issued by the Conservation District for an Erosion and Sediment Control Plan.
- C. The preliminary or final approval of subdivision and/or land development plans and the issuance of any building or occupancy permit shall not proceed until the Applicant has received written approval of a SWM Site Plan from the Borough.
- D. The SWM Site Plan approved by the Borough shall be on Site throughout the duration of the Regulated Activity.

Section 402. SWM Site Plan Contents

The SWM Site Plan shall consist of a general description of the project including items described in Section 304, calculations, maps, and plans. A note on the plans shall refer to the associated computations and Erosion and Sediment Control Plan by title and date. The cover sheet of the computations and Erosion and Sediment Control Plan shall refer to the associated plan by title and date. All SWM Site Plan materials shall be submitted to the Borough in a format that is clear, concise, legible, neat, and well organized; otherwise, the SWM Site Plan shall not be accepted for review and shall be returned to the Applicant.

The following items shall be included in the SWM Site Plan:

A. General

1. A general description of the proposed project;
2. A listing of all regulatory approvals required for the proposed project and the status of the review and approval process for each. Final approval or adequacy letters must be submitted to the Borough prior to (or as a condition of) the Borough's issuing final approval of the SWM Site Plan. Proof of application or documentation of required permit(s) or approvals for the programs listed below shall be part of the SWM Site Plan, if applicable:
 - a. NPDES Permit for Stormwater Discharges from Construction Activities;
 - b. PADEP permits as needed;

- i. PADEP Joint Permit Application,
 - ii. Chapter 105 (Dam Safety and Waterway Management),
 - iii. Chapter 106 (Floodplain Management);
 - c. PennDOT Highway Occupancy Permit;
 - d. Erosion and Sediment Control Plan letter of adequacy; and
 - e. Any other permit under applicable State or Federal regulations.
3. A statement, signed by the Applicant, acknowledging that any revision to the approved SWM Site Plan shall be submitted to and approved by the Borough, and that a revised Erosion and Sediment Control Plan shall be submitted to, and approved by, the Conservation District or Borough (as applicable) for a determination of adequacy prior to construction of the revised features.
 4. The Stormwater Management Certification to be signed and sealed by the qualified Licensed Professional responsible for the preparation of the SWM Site Plan (Refer to Appendix A-6).

B. Maps or Plan Sheets

Map(s) or plan sheets of the Site shall be submitted on minimum twenty-four (24)-inch by thirty-six (36)-inch sheets and shall be prepared in a form that meets the requirements for recording at the Chester County Office of the Recorder of Deeds and the requirements of the Operation and Maintenance (O&M) Plan and O&M Agreement (Article VII). If the SALDO has additional or more stringent criteria than this Ordinance, then the SALDO criteria shall also apply. Unless otherwise approved by the Municipal Engineer, the contents of the maps or plan sheets shall include, but not be limited to:

1. A location map, with a scale of one (1) inch equals two thousand (2,000) feet or greater, showing the Site location relative to highways, municipal boundaries, or other identifiable landmarks.
2. The name of the project, tax parcel number(s), and the names, addresses and phone numbers of the owner of the property, the Applicant, and firm preparing the plan.
3. Signature and seal of the qualified Licensed Professional(s) responsible for preparation of the maps and plan sheets.
4. The date of SWM Site Plan submission and revision dates, as applicable.
5. A graphic and written scale of one (1) inch equals no more than fifty (50) feet.
6. A north arrow.

7. Legal property boundaries, including:
 - a. The total project property boundary and size with distances marked to the nearest foot and bearings to the nearest degree.
 - b. Boundaries, size and description of purpose of all existing easements and deed-restricted areas of the project property, with distances marked to the nearest foot and bearings to the nearest degree.
8. Existing natural resources and natural or man-made hydrologic features that are located within the Site or receiving discharge from, or that may otherwise be impacted by, the proposed Regulated Activity, including but not limited to:
 - a. All existing natural resources, hydrologic features and drainage patterns including natural waterways, water bodies, wetlands, streams (intermittent and perennial), ponds, lakes, vernal pools, etc., natural infiltration areas and patterns, areas of significant natural evapotranspiration, and other water features and aquatic resources.
 - b. Any existing man-made drainage features, BMPs, Conveyances, facilities, open channels, swales, drainage patterns, or other flood, stormwater or drainage control features.
 - c. For the Site, discharge points and locations of concentrated flows and their drainage areas.
 - d. For named waters, show names and their watershed boundaries within the Site.
 - e. Special management areas (as per Subsection 301.P).
 - f. For the water bodies, streams and wetlands identified in Subsection 402.B.8.a, label or otherwise show the following attributes, if applicable:
 - i. The Designated Use as determined by PADEP (25 PA Code Chapter 93);
 - ii. Impairments listed on the PADEP "Integrated List" (as updated) and the listed source and cause of impairment;
 - iii. Name, date, and target pollutant(s) for any approved Total Maximum Daily Load (TMDL); and
 - iv. Drainages to water supply reservoirs.
 - g. Areas that are part of the Pennsylvania Natural Diversity Inventory (PNDI) and a list of potential impacts and clearances received (for Regulated Activities involving one (1) acre or more proposed Earth Disturbance).
 - h. Woods, vegetated, riparian buffers and other areas of natural vegetation.

- i. Topography using contours (with elevations based on established bench marks) at intervals of two (2) feet. In areas of slopes greater than fifteen (15) percent five (5)-foot contour intervals may be used. The datum used and the location, elevation and datum of any bench marks used shall be shown.
 - j. Areas classified by the Borough as steep slopes.
 - k. Soil names and boundaries, general type of soils with Hydrologic Soil Group noted, and in particular note areas most conducive to infiltration BMPs, such as groups A and B, etc., estimated permeabilities in inches per hour, and location and other results of all soil tests and borings.
 - l. If present, areas with underlying carbonate geologic units, existing sinkholes, subsidence or other karst features, and any associated groundwater recharge areas with increased vulnerability to contamination.
 - m. Any contaminated surface or subsurface areas of the Site.
 - n. Water supply wells –
 - i. Location of existing well(s) on the project property and delineation of the(ir) recharge area(s) (if known), or a fifty (50) foot diameter assumed recharge area;
 - ii. Location of existing well(s) within fifty (50) feet beyond the boundary of the project property boundary (if public water supply is proposed for the Regulated Activity); and
 - o. Current FEMA one hundred (100)-year floodplain boundaries, elevations, and Floodway boundaries for any Special Flood Hazard Areas on or within one hundred (100) feet of the property.
 - p. Boundaries of riparian buffer(s) as required by Section 312.
9. Location of the proposed Regulated Activity, limits of Earth Disturbance (Disturbed Area), and BMPs and Conveyances relative to the location of existing natural resources and hydrologic features and special management areas resulting from the Site design process of Section 304.
 10. Description of existing and proposed ground cover and land use including the type and total area.
 11. Existing and proposed man-made features including roads, paved areas, buildings, and other Impervious and Pervious Surfaces on the project property (or an appropriate portion of the property as determined in consultation with the Borough Engineer) and within the proposed Disturbed Area, and including the type and total area of the following:
 - a. Existing Impervious Surfaces;

- b. Existing Impervious Surfaces proposed to be replaced;
 - c. Existing Impervious Surfaces to be permanently removed and replaced with pervious ground cover;
 - d. New or additional Impervious Surfaces; and
 - e. Percent of the Site covered by Impervious Surfaces for both the existing and proposed Post-construction conditions.
12. The total extent of the upstream area draining through the Site.
13. A plan note shall be included on the plan and in the stormwater management agreement noting the amount of impervious surface that the stormwater facilities have been designed to handle.
14. All BMPs, Conveyances and other stormwater management facilities shall be located on the plan sheets, including design drawings, profile drawings, construction details, materials to be used, description of function, etc.
15. Complete delineation of the flow paths used for calculating the time of concentration for the Predevelopment and Post-construction conditions shall be included.
16. The locations of all existing and proposed utilities, sanitary sewers, on-lot wastewater facilities (including subsurface tanks and leach fields), and water supply lines within the Site and within fifty (50) feet beyond the proposed limits of Earth Disturbance.
17. A grading plan, including all areas of proposed Earth Disturbance and the proposed Regulated Activity and delineating the boundary or limits of Earth Disturbance of the Site. The total Disturbed Area of the Site shall be noted in square feet and acres.
18. Proposed final grade elevations and contours at intervals of two (2) feet. In areas of steep slopes (greater than fifteen (15) percent), five (5)-foot contour intervals may be used.
19. For each proposed BMP and Conveyance included in the SWM Site Plan (including any to be located on any property other than the property being developed by the Applicant), the following shall be included on the SWM Site Plan map or plan sheets:
- a. Identification of the person responsible for ongoing inspections, operation, repair, and maintenance of the BMP or Conveyance after completion of construction.
 - b. Delineation of the land area, structures, Impervious Surfaces, and Conveyances draining to and from the BMP or Conveyance.
 - c. Easements, as per the requirements of Article VII, that shall include:
 - i. Boundaries labeled with distances shown in feet and bearings to the nearest degree;

- ii. Notes or other documentation, as needed, to grant the Borough the right of access to all BMPs and Conveyances for the purposes of inspection and enforcement of the requirements of this Ordinance, and any applicable O&M Plans and O&M Agreements;
 - iii. Notes or other documentation, as needed, to grant the Borough the right of access to all roadways necessary to access all BMPs and Conveyances, where roadways are not to be dedicated to the Borough;
 - iv. Notes or other documentation as needed to grant the owner of any BMP or Conveyance the right of access for the purpose of inspection, operation, maintenance, and repair of the BMP or Conveyance that is to be owned, operated and maintained by a person other than the Borough, and other than the owner of the property on which the BMP or Conveyance is located;
 - v. A minimum twenty (20) foot wide perimeter (or other width as determined in consultation with the Municipal Engineer) around all BMPs and Conveyances;
 - vi. Sufficient vehicular ingress to and egress from a public right-of-way or roadway, as determined in consultation with the Borough Engineer; and
 - vii. Accompanying notes or other documentation as needed, and in accordance with Article VII describing the type, purpose and total area of easements, who the easement is granted to, and the rights, duties and obligations of the parties with respect to every BMP or Conveyance.
- d. Boundaries of land areas (if any) for which deed restrictions are required for the purpose of protecting and prohibiting disturbance to a BMP or Conveyance, indicating the area to which the restriction applies with distances shown in feet and bearings to the nearest degree, and a written description of the type, purpose and nature of the restriction.
 - e. Other items that may be needed to comply with all other requirements of Article VII.
- C. A written description of the following information shall be included in the SWM Site Plan:
- 1. Existing features, conditions, natural resources, hydrologic features, and special management areas (as listed in Subsection 402.B.8);
 - 2. How the Site design achieves the requirements of Section 304, and if applicable, where they could not be achieved and why;
 - 3. The overall stormwater management design concept for the project and how the Site design achieves the requirements of Article III;
 - 4. Proposed features and conditions, proposed erosion and sediment control features, proposed BMPs, Conveyances, and any other stormwater facilities;

5. A description of the effect of the project (in terms of flow alteration and runoff volumes, water quality and peak flows, etc.) on existing natural resources, hydrologic features and special management areas, adjacent and downgradient properties, and any existing municipal or other stormwater Conveyance system(s), that may be affected by or receive runoff from the Regulated Activity (whether located within or outside of the area of the Regulated Activity), and specifics of how erosion, water quality and flow impacts will be avoided or otherwise mitigated;
 6. Proposed nonpoint source pollution controls and justification and confirmation that the proposed project will not result in any increased pollutant loadings to any existing stream or stream impairment identified by PADEP, or to any receiving water body;
 7. Expected project time schedule; and
 8. Description of construction stages or project phases, if so proposed.
- D. A detailed Site evaluation conducted by a qualified Licensed Professional for projects proposed in areas of carbonate geology or karst topography, and other environmentally sensitive areas, such as contaminated sites and brownfields, as described in Subsections 301.O and 301.R of this Ordinance.
- E. Stormwater runoff design computations and documentation, such as hydrologic, hydraulic, and structural computations, assumptions, BMP loading ratios, etc., consistent with the guidelines and criteria presented in the PA BMP Manual (as amended) or Article III or other guidance acceptable to the Borough Engineer, and used in the design of the BMPs, Conveyances and other features proposed to be utilized for stormwater management, or as otherwise necessary to demonstrate that the requirements of this Ordinance have been met, specifically including the requirements in Sections 301 and 304 through 309.
- F. Inspections, Operation and Maintenance Requirements

The following documents shall be prepared and submitted to the Borough for review and approval as part of the SWM Site Plan, in accordance with the requirements of Article VII, for each BMP and Conveyance included in the SWM Site Plan (including any to be located on any property other than the property being developed by the Applicant):

1. An O&M Plan;
2. An O&M Agreement;
3. Any easement agreements that are needed to ensure access, inspection, maintenance, operation, repair and permanent protection of any permanent BMP(s) and Conveyances associated with the Regulated Activity;
4. Any written deed, deed amendment or equivalent document (if needed) to be recorded against a subject property, as shown on the SWM Site Plan maps or plan sheets, or recorded plan sheets for the purpose of protecting and prohibiting disturbance to a BMP or Conveyance; and

5. Written approval, easement agreements, or other documentation for discharges to adjacent or downgradient properties when required to comply with Subsection 301.G and Article VII of this Ordinance.
- G. An Erosion and Sediment Control Plan, where applicable, as prepared for and submitted to the Conservation District and/or Borough. A letter of adequacy from the Conservation District, if applicable, must be submitted to the Borough prior to (or as a condition of) the Borough's final approval of the SWM Site Plan.
- H. A Highway Occupancy Permit from the Pennsylvania Department of Transportation (PennDOT) District Office must be submitted to the Borough prior to (or as a condition of) the Borough's final approval of the SWM Site Plan when utilization of a PennDOT storm drainage system is proposed.

Section 403. SWM Site Plan Submission

A complete SWM Site Plan that complies with all applicable provisions of Section 402 shall be submitted to the Borough for review and approval, as follows:

- A. The SWM Site Plan shall be coordinated with the applicable State and Federal permit process and the Borough SALDO review process. All permit approvals or letters of adequacy not yet received by the Applicant at the time of submittal of the SWM Site Plan to the Borough must be submitted to the Borough prior to (or as a condition of) the Borough's final approval of the SWM Site Plan, in the form of issuance of a SWM permit.
- B. For projects that require SALDO approval, the SWM Site Plan shall be submitted by the Applicant as part of the preliminary plan submission where applicable for the Regulated Activity.
- C. For Regulated Activities that do not require SALDO approval, the SWM Site Plan shall be submitted by the Applicant for review by the Borough or its designee, as determined by Borough staff.
- D. The number of copies of the SWM Site Plan to be submitted by the Applicant for review shall be in accordance with instructions from the Borough. The applicant is responsible for providing the required plan copies to the Borough for distribution.
- E. The corresponding review fee shall be submitted to the Borough simultaneously with the SWM Site Plan, per the Borough's fee schedule.
- F. Any submissions to the Borough that are found to be incomplete shall not be accepted for review and shall be returned to the Applicant within 90 days with a notification in writing of the specific manner in which the submission is incomplete.
- G. Financial security, per the requirements of Section 110, shall be submitted to the Borough prior to approval of the SWM Site Plan.

Section 404. SWM Site Plan Review

- A. The SWM Site Plan shall be submitted to the Borough for review by the Borough Engineer for consistency with this Ordinance and the respective PA Act 167 Stormwater Management Plan(s). The Borough Engineer will review the SWM Site Plan for any subdivision or land development for compliance with this Ordinance and the Borough SALDO provisions not otherwise superseded by this Ordinance.
- B. If applicable, the Applicant shall have received a "letter of adequacy" from the Conservation District or other PADEP approval for the proposed Regulated Activity for all SWM Site Plans prior to (or as a condition of) final approval by the Borough.
- C. The Borough Engineer will notify the Applicant and the Borough in writing, within 30 calendar days, whether the SWM Site Plan is consistent with the requirements of this Ordinance. If the SWM Site Plan involves a subdivision and land development Plan, the notification shall occur within the time period allowed by the MPC (as amended). If a longer notification period is provided by other statute, regulation, or ordinance, the Applicant will be so notified by the Borough.
 - 1. If the Borough Engineer determines that the SWM Site Plan is consistent with this Ordinance, the Borough Engineer shall forward a letter of consistency to the Borough, who shall then forward a copy to the Applicant.
 - 2. The Borough may approve the SWM Site Plan with conditions reasonably defined to make the SWM Site Plan compliant with the terms of this Ordinance, and, if so, shall provide the conditions for approval in writing.
 - 3. If the Borough Engineer determines that the SWM Site Plan is inconsistent or noncompliant with this Ordinance, the Borough Engineer will forward a letter to the Borough, with a copy to the Applicant citing the reason(s) and specific Ordinance sections for the inconsistency or noncompliance. Inconsistency or noncompliance may be due to inadequate information to make a reasonable judgment as to compliance with this Ordinance. Any SWM Site Plans that are inconsistent or noncompliant may be revised by the Applicant and resubmitted in accordance with Section 406 when consistent with this Ordinance. Resubmission will commence a new municipal review and notification time period.
- D. The Borough will not grant final approval to any proposed subdivision, land development, or Regulated Activity specified in this Ordinance if the SWM Site Plan has been found to be inconsistent with this Ordinance.
- E. All required permits from PADEP shall be obtained and submitted to the Borough prior to (or as a condition of) final approval of any proposed subdivision, land development, or other Regulated Activity by the Borough.
- F. No building permits for any Regulated Activity will be approved by the Borough if the SWM Site Plan has been found to be inconsistent with this Ordinance, as determined by the Borough Engineer. All required permits from PADEP shall be obtained prior to issuance of a building permit.

- G. The Borough's approval of a SWM Site Plan shall be valid for a period one (1) year with annual renewals by the Borough not to exceed a total of five (5) years commencing on the date that the Borough approved the SWM Site Plan. If stormwater management facilities included in the approved SWM Site Plan have not been constructed, or if constructed, As-Built Plans of these facilities have not been approved within the year time period the Borough may approve another year extension annually until the fifth year, then the Applicant may seek reinstatement of approval of the expired SWM Site Plan. If the Borough determines that the expired SWM Site Plan is consistent and compliant with current regulations and requirements, then the expired SWM Site Plan will be reinstated; otherwise, it will be rejected. The Applicant will be prohibited from conducting any Regulated Activity until a reinstated or newly approved SWM Site Plan is obtained in accordance with Section 406 of this Ordinance.
- H. All or portions of the final approved SWM Site Plan shall be recorded (as "record plans") per the instructions of the Borough.
- I. Upon completion of construction, the Applicant shall be responsible for completing final As-Built Plans of all BMPs, Conveyances, or other stormwater management facilities included in the approved SWM Site Plan as per the requirements of Section 502 of this Ordinance.

Section 405. Revision of SWM Site Plans

- A. A submitted SWM Site Plan under review by the Borough shall be revised and resubmitted for any of the following reasons:
 - 1. A change in stormwater management BMPs, Conveyances, facilities or techniques;
 - 2. Relocation or redesign of stormwater management BMPs, Conveyances, or facilities;OR
 - 3. Soil or other Site conditions are not as stated on the SWM Site Plan as determined by the Borough Engineer, and the new conditions necessitate design changes.

The revised SWM Site Plan shall be resubmitted in accordance with Section 403 and subject to review as specified in Section 404 of this Ordinance.

- B. A revision to an approved SWM Site Plan shall be submitted to the Borough, accompanied by the applicable municipal review fee.

Section 406. Resubmission of Inconsistent or Noncompliant SWM Site Plans

Any SWM Site Plan deemed inconsistent or noncompliant may be revised and resubmitted with the revisions addressing the Borough Engineer's concerns documented in writing. The submission shall be addressed to the Borough in accordance with Section 403 of this Ordinance, distributed accordingly, and be subject to review as specified in Section 404 of this Ordinance. The applicable

Borough review fee shall accompany a resubmission of a SWM Site Plan previously determined to be inconsistent or noncompliant.

**ARTICLE V – PERFORMANCE AND INSPECTION OF REGULATED ACTIVITIES,
AND FINAL AS-BUILT PLANS**

Section 501. Performance and Inspection of Regulated Activities

- A. All Regulated Activities shall be conducted, operated and maintained in accordance with the requirements set forth in Articles III, VII, and VIII of this Ordinance. When a SWM Site Plan is required by this Ordinance, all Regulated Activities shall be performed in accordance with the requirements of the final approved SWM Site Plan.
- B. The Borough Engineer or other Borough designee shall be provided access to the Site to inspect all phases of the erosion and sediment control measures and installation of the permanent BMPs and Conveyances at such times as deemed appropriate by the Borough Engineer or other Borough designee.
- C. Periodic inspections may be made by the Borough Engineer or other designee during construction. A set of design plans approved by the Borough shall be on file and available for viewing at the Site throughout the duration of the construction activity.
- D. Inspections, including but not limited to a final inspection, of all constructed BMPs, Conveyances, or other stormwater facilities, and related improvements may be conducted by the Borough Engineer or other designee to confirm compliance with this Ordinance and with the final approved SWM Site Plan prior to the issuance of any occupancy permit, use permit, or other form of final approval of the project by the Borough.
- E. Upon completion of construction, every permanent stormwater BMP, Conveyance or other stormwater facility constructed or used as part of the Regulated Activity shall be operated, maintained and inspected by the Landowner, or other designated person, in accordance with the O&M Plan and O&M Agreement approved by the Borough.
- F. The Borough or its designee may periodically inspect any permanent stormwater BMP, Conveyance or facility for compliance with this Ordinance, an approved O&M Plan, or an approved O&M Agreement, per the provisions of Article IX. The Borough may inspect at any time it has reason to believe a violation exists. The Borough may pursue enforcement for violations consistent with the provisions of Article IX.

Section 502. Final As-Built Plans

- A. For Regulated Activities involving one (1) acre or more of Earth Disturbance, the Applicant shall provide to the Borough final As-Built Plans (signed and sealed by a qualified Licensed Professional) of all BMPs, Conveyances, other stormwater facilities, and related improvements shown in the final approved SWM Site Plan.
- B. The final As-Built Plans shall include the following for all BMPs, Conveyances, other stormwater facilities and related improvements:

1. The location, elevations, dimensions, and as-built conditions of all BMPs, Conveyances, other stormwater facilities, and related improvements including topographic contours and all typical details for storm drainage and conveyance systems, stormwater management facilities and Impervious Surfaces (existing, proposed, or constructed) included in the approved SWM Site Plan; and
 2. Explanation of any discrepancies or variations from the final approved SWM Site Plan, other related approved construction plans, calculations and specifications (and approved revisions thereto).
- C. The final As-Built Plans shall include a certification of completion signed and sealed by a qualified Licensed Professional verifying that all permanent BMPs and Conveyances have been constructed according to the final approved SWM Site Plan and related approved construction plans, calculations and specifications.
- D. All areas of the Regulated Activity draining to BMPs must be stabilized prior to submittal of the As-Built Plans.
- E. After receipt of the As-Built Plans by the Borough, the Borough or its designee may review the As-Built Plans for consistency with this Ordinance, the final approved SWM Site Plan, other related approved construction plans, and subsequent approved revisions thereto, as well as actual conditions at the Site, and the Borough may conduct a final inspection, as per Subsection 501.D.
- F. The As-Built Plans must be received, reviewed and determined to be acceptable by the Borough prior to:
1. Close out of the drainage permit or other close out of the project by the Borough ;
 2. Release of the financial security or other performance guarantee; and
 3. Dedication of the stormwater facilities to the Borough, or conveyance to a homeowners association, or other person responsible for operation, maintenance and repair.
- G. Final occupancy permit(s) or Use Permit or other final approval to use or operate the constructed improvement may not be issued by the Borough until the final As-Built Plans have been accepted.
- H. Upon final acceptance of the final As-Built Plans by the Borough, the Applicant shall review and, if required by the Borough, revise and re-record the O&M Plan and the O&M Agreement to reflect the final as-built conditions and information for each permanent BMP or Conveyance, in accordance with the requirements of Article VII.
- I. All or portions of the final As-Built Plans shall be recorded if required by the Borough.

ARTICLE VI – FEES AND EXPENSES

Section 601. Borough SWM Site Plan Review and Inspection Fees

Fees have been established by the Borough as adopted by Resolution No. *[Borough to insert number XXXX-XX]* or as otherwise allowed by law to defray plan review and construction inspection costs incurred by the Borough. All fees listed in Subsection 602.A shall be paid by the Applicant at the time of SWM Site Plan submission.

A review and inspection fee schedule has been established by resolution of the West Grove Borough Council based on the size of the Regulated Activity and based on the Borough's costs for reviewing SWM Site Plans, O&M Plans and Agreements and As-Built Plans, and conducting inspections pursuant to Section 501. The Borough shall periodically update the review and inspection fee schedule to ensure that review costs are adequately reimbursed.

Section 602. Expenses Covered by Fees

- A. The fees required of the Applicant by this Ordinance shall at a minimum cover:
1. Administrative costs;
 2. The review of the SWM Site Plan by the Borough, the Borough Engineer and other Borough consultants;
 3. Coordination and meetings with the Applicant;
 4. The inspection of erosion and sediment control measures, BMPs, Conveyances and other related improvements during construction;
 5. Review of project communications, reports, and additional supporting information;
 6. Other Site inspections;
 7. The final inspection upon completion of the BMPs, Conveyances, and other stormwater management facilities and related improvements presented in the SWM Site Plan; and
 8. Review of final As-Built Plan submission and revised calculations, and inspections as needed.
- B. The Applicant shall also reimburse all expenses incurred by the Borough for any additional work or Borough consultant fees required to enforce any permit provisions regulated by this Ordinance, correct violations, and ensure proper completion of remedial actions.

**ARTICLE VII – OPERATION AND MAINTENANCE (O&M)
RESPONSIBILITIES AND EASEMENTS**

Section 701. General Requirements for Protection, Operation and Maintenance of Stormwater BMPs and Conveyances

The following shall apply to all Regulated Activities in accordance with the requirements of the subsequent sections of this Article VII.

- A. Continuing operations and maintenance responsibilities of all permanent BMPs, Conveyances, or other stormwater management facilities shall be reviewed and approved by the Borough along with the SWM Site Plan. The Borough may require an offer of a dedication of such facilities as part of the requirements for approval of the SWM Site Plan. Such a requirement is not an indication that the Borough will accept the facilities. The Borough reserves the right to accept or reject the operations and maintenance responsibility for any portion of or all of the BMPs, Conveyances or other stormwater controls and facilities.
- B. An Operation and Maintenance (O&M) Plan shall be submitted to the Borough for review and approval for all existing and proposed permanent BMPs and man-made Conveyances or other stormwater facilities identified in the SWM Site Plan. Multiple BMPs or Conveyances may be addressed by a combined O&M Plan where all such facilities are similar in O&M requirements and ownership.
- C. The O&M Plan(s) and O&M Agreement(s) shall name the person identified in the SWM Site Plan who shall be the owner of and be responsible for ongoing inspections, operation, repair, and maintenance of each BMP or Conveyance following completion of construction.
- D. For any BMP or man-made Conveyance (including any to be located on any property other than the property being developed by the Applicant) to be owned by a person other than the Borough :
 - 1. An O&M Agreement shall be submitted to the Borough for review and approval; and
 - 2. The O&M Plan shall be attached to, incorporated within, and recorded as a public record along with a fully executed O&M Agreement, all of which shall be recorded as a restrictive covenant that runs with the land and shall be binding upon the Landowner and any heirs, administrators, successors in interest or assigns of the Landowner.
- E. The following shall be provided for all BMPs and Conveyances (including any to be located on any property other than the property being developed by the Applicant) by an O&M or other agreement or by otherwise establishing covenants, easements, deed restrictions, or by dedication to the Borough :
 - 1. Permanent protection of the BMP or Conveyance from disturbance or alteration;
 - 2. Right of entry and access for the Borough for inspection and enforcement of this Ordinance (including Subsection 903.G) and any applicable O&M Plan or O&M Agreement; and

3. Right of entry and access for the person owning the BMP or Conveyance and responsible for fulfilling the O&M requirements when that person is not the Borough and is different from the owner of the property on which the BMP or Conveyance is located (such as may be applicable for Subsection 301.G of this Ordinance).
- F. All O&M and other agreements, covenants, easements and deed restrictions shall:
1. Be submitted to the Borough for review and approval;
 2. Be recorded as a public record, upon approval, against each parcel(s) which is part of the SWM Site Plan or otherwise contains any BMP or Conveyance comprising part of the Regulated Activity which is the subject of an O&M Agreement; and
 3. Run with the land and be binding upon the Landowner, its heirs, administrators, successors in interest, and assigns.
- G. The materials, documents and content required by this Article VII may be prepared in conjunction with and incorporated with similar materials, documents and content required for other permit or approval applications, such as those required by PADEP for the Post Construction Stormwater Management Plan.

Section 702. Operation and Maintenance Plans

The following items shall be included in the O&M Plan, unless otherwise approved by the Municipal Engineer:

- A. A plan sheet(s) or map(s) showing each BMP and man-made Conveyance and which shall include, but not be limited to:
 1. Property(ies) identification (owner name and address; and property address and/or lot and/or tax parcel number, etc.), property boundaries and tax parcel number of the land parcel on which the BMP or Conveyance is located.
 2. Name, address, phone number, date prepared, signature and seal of the Licensed Professional responsible for preparation of the plan sheet or map.
 3. Clear identification of the location, dimensions, and function of each BMP or Conveyance covered by the O&M Plan.
 4. The location of each BMP and Conveyance relative to roadways, property boundaries, or other identifiable landmarks and existing natural drainage features such as streams, lakes, ponds, or other bodies of water within the immediate vicinity of, or receiving discharge from, the BMP or Conveyance.
 5. Delineation of the land area, structures, Impervious Surfaces and Conveyances draining to and from the BMP.

6. Representative elevations and/or topographic contours at intervals of two (2) feet, or other as acceptable to the Municipal Engineer.
 7. Other features including FEMA floodplain and floodway boundaries, sinkholes, etc. located within the immediate proximity of each BMP and Conveyance.
 8. Locations of areas of vegetation to be managed or preserved that function as a BMP or Conveyance.
 9. The locations of all surface and subsurface utilities, on-lot waste water facilities, sanitary sewers, and water lines within twenty (20) feet of each BMP or Conveyance.
 10. The following as it pertains to any easements, covenants and deed restrictions established for each applicable BMP or Conveyance:
 - a. Boundaries delineated with bearings and distances shown that encompass the BMP or Conveyance and that includes a twenty (20) foot perimeter area surrounding these features and sufficient vehicular ingress to and egress from a public right-of-way and roadway;
 - b. Labels specifying the type and purpose of the easement, covenant, or deed restriction and who it benefits; and
 - c. Labels with reference to any corresponding easement agreement, covenant, deed restriction or other document to be recorded.
 11. The plan sheet or map shall be prepared at sufficient scale for municipal review, and ultimately for the use by the person responsible for operation and maintenance, and shall also be prepared at a legible scale that meets the requirements for recordation along with (and as an attachment to) the O&M Agreement and O&M Plan at the Chester County Office of the Recorder of Deeds.
- B. The following information shall be included in the O&M Plan and written in a manner consistent with the knowledge and understanding of the person who will be responsible for the maintenance activities:
1. The name and address of the following:
 - a. Property(ies) on which each BMP or Conveyance is located;
 - b. Owner of the property;
 - c. Owner of each stormwater BMP or Conveyance who is responsible for implementation of the O&M Plan;
 - d. Person responsible for maintaining adequate liability insurance and payment of taxes; and

- e. Person preparing the O&M Plan.
2. A description of each BMP and Conveyance and how the BMPs and Conveyances are intended to function.
 3. A description of actions necessary to operate, inspect, and maintain each BMP or Conveyance, including but not limited to:
 - a. Lawn care, vegetation maintenance, landscaping and planting;
 - b. Clean out of accumulated debris and sediment (including from grates, trash racks, inlets, etc.); and
 - c. Other anticipated periodic maintenance and repair.
 4. The following statement shall be included:

“The Landowner acknowledges that, per the provisions of the Borough’s Stormwater Management Ordinance, it is unlawful to modify, remove, fill, landscape, alter or impair the effectiveness of, or place any structure, other vegetation, yard waste, brush cuttings, or other waste or debris into any permanent stormwater management BMP or Conveyance described in this O&M Plan or to allow the BMP or Conveyance to exist in a condition which does not conform to this O&M Plan, without written approval from the Borough.”
 5. Inspection and maintenance schedules.
 6. Explanation of the purpose and limitations of any easements, covenants, or deed restrictions associated with any BMP or Conveyance that are to be recorded against the property.
- C. A statement that no BMP or man-made Conveyance may be used by the owner or others for any purpose other than its intended stormwater control function, or, if approved by the Municipal Engineer, a statement of specific allowable uses of the BMP (i.e., recreational benefits that maybe associated with certain BMPs owned by a homeowners association, or allowable uses by an individual residential Landowner).
 - D. A statement that establishes a reasonable time frame for remedy of deficiencies found by the owner during their inspections.
 - E. Language needed to fulfill the requirements of Subsections 705.B, 705.C, and 705.D of this Ordinance.

Section 703. Operation and Maintenance Agreements

- A. An O&M Agreement shall be required for any BMP or man-made Conveyance to be owned by a person other than the Borough , and the Agreement shall:

1. Be between the owner of the BMP or Conveyance and the Borough , and shall be substantially the same as the O&M Agreement in Appendix F;
 2. Incorporate the approved O&M Plan(s) for all BMPs or Conveyances to be covered by the O&M Agreement;
 3. Set forth the rights, duties and obligations of the owner of the BMP or Conveyance and the Borough , and be consistent with the approved O&M Plan(s);
 4. Be recorded as a deed restriction or restrictive covenant that runs with the land and shall be binding upon the Landowner, its heirs, administrators, successors in interest, and assigns;
 5. Be submitted to the Borough for review prior to approval of the SWM Site Plan;
 6. Upon approval by the Borough , be signed by the designated owner of the BMP or Conveyance and submitted for signature by the Borough ; and
 7. When fully executed, be recorded by the Landowner at the Chester County Office of the Recorder of Deeds following municipal approval of the O&M Plan and prior to the start of construction.
- B. Other items or conditions may be required by the Borough to be included in the O&M Agreement where determined necessary by the Borough to guarantee the satisfactory operation and maintenance of all permanent BMPs and Conveyances.
- C. After approval of the final As-Built Plans per the requirements of Article V, the Applicant shall review and, if necessary and if required by the Borough , revise and re-record the O&M Plan and O&M Agreement to reflect the final as-built conditions of each BMP and Conveyance if different from the information included in the original recorded documents.

Section 704. Easements and Deed Restrictions

- A. Easements shall be established in connection with any Regulated Activity for all permanent BMPs and Conveyances that will not be dedicated to or otherwise owned by the Borough , (including any to be located on any property other than the property being developed by the Applicant), and shall:
1. Include all land area occupied by each BMP or Conveyance;
 2. Include a twenty (20) foot wide perimeter (or other width as determined in consultation with the Municipal Engineer) surrounding the feature(s);
 3. Provide sufficient vehicular ingress and egress from a public right-of-way and roadway;
 4. Permanently protect every BMP and Conveyance from disturbance or alteration where not otherwise protected by a recorded O&M Agreement, covenant, deed restriction or other means;

5. Grant the Borough the right, but not the duty, to access every BMP and Conveyance from a public right-of-way or public roadway to conduct periodic inspections and to undertake other actions that may be necessary to enforce the requirements of this Ordinance, or of any applicable O&M Plan or O&M Agreement; where roadways will not be dedicated to the Borough, the Borough shall be granted access to the private roadways as necessary to access every BMP and Conveyance;
 6. Grant the owner of each BMP and Conveyance the right to access, inspect, operate, maintain, and repair the BMP or Conveyance when the feature is to be owned, operated and maintained by a person other than the Borough and other than the owner of the parcel on which it is located;
 7. Be shown, with bearings and distances noted, on the SWM Site Plan map/plan sheets, O&M Plan map/plan sheets, final As-Built Plans, and be signed and sealed by a qualified Licensed Professional;
 8. Include language legally sufficient to ensure that the easement shall run with the land and bind the Landowner granting the easement, its heirs, administrators, successors in interest and assigns, into perpetuity; and
 9. Be recorded at the Chester County Office of the Recorder of Deeds following municipal approval and prior to the start of construction.
- B. For any BMP or Conveyance to be owned by a person other than the Borough or the Landowner owning the parcel upon which a BMP or Conveyance is located, an easement agreement shall be prepared and executed between the Landowner and the owner of the BMP or Conveyance which shall:
1. Describe the ownership interests of all parties to the easement agreement, including the ownership of the BMP or Conveyance;
 2. Include a written legal (metes and bounds) description of the easement area, with reference to a recorded plan sheet showing the legal boundaries of the easement area (or an accompanying plan sheet/map), signed and sealed by a qualified Licensed Professional;
 3. Grant an easement from the Landowner to the owner of each BMP and Conveyance, establishing the right and obligation to occupy, access, inspect, operate, maintain, and repair the BMP or Conveyance;
 4. Include a description of the purpose of the easement and the responsibilities of the parties involved;
 5. Incorporate by reference or be recorded with, the corresponding O&M Plan and O&M Agreement;

6. Restrict the Landowner's use of the easement area of the parcel on which the BMP or Conveyance is located, consistent with the rights granted to the owner of the BMP or Conveyance;
 7. Be submitted to the Borough for review and approval prior to approval of the SWM Site Plan;
 8. Upon approval by the Borough, be signed by the owner of the BMP(s) or Conveyance(s) and the Landowner and submitted for signature by the Borough;
 9. Include language legally sufficient to ensure that the easement will run with the land affected by the easement and that the easement agreement is binding upon the parties to the easement agreement, their heirs, administrators, successors in interest and assigns, into perpetuity;
 10. Contain additional provisions or information as required by the Borough; and
 11. When fully executed, be recorded by the Landowner at the Chester County Office of the Recorder of Deeds against all parcels affected by the terms of the easement agreement, within 90 days of the Borough's approval of the corresponding O&M Plan.
- C. For any BMP or Conveyance which is designed to receive runoff from another parcel or parcels and which is owned by the Landowner of the parcel upon which the BMP or Conveyance is located, in addition to any easement or easement agreement required pursuant to Subsection 704 A. or B., an easement agreement shall be prepared and executed between the Landowner of the parcel or parcels draining to the BMP or Conveyance and the owner of the BMP or Conveyance. This easement agreement shall:
1. Describe the ownership interests of all parties to the easement agreement, including the ownership of all affected parcels and of the BMP or Conveyance;
 2. Provide for the grant of a drainage easement from the owner of the BMP or Conveyance to the Landowner of the parcel(s) draining to the BMP, which shall extend from the shared parcel boundary(ies) to the receiving BMP and shall include the connecting flow path(s) or Conveyance;
 3. Include a written legal (metes and bounds) description of the easement area, with reference to a recorded plan sheet showing the legal boundaries of the easement area (or an accompanying plan sheet/map), signed and sealed by a Licensed Professional.
 4. Incorporate by reference or be recorded with the corresponding O&M Plan and O&M Agreement;
 5. State that the purpose of the easement agreement is to ensure the continuous right of the discharging parcel to discharge onto the parcel containing the BMP and into the BMP or Conveyance;

6. Restrict the BMP or Conveyance owner's use of the easement area of the parcel upon which the BMP or Conveyance is located, consistent with the purpose of the easement granted;
 7. Establish the duty and responsibility of the Landowner of the parcel or parcels draining to the BMP or Conveyance to maintain the existing drainages on the discharging parcel or parcels as designed and constructed to discharge to the receiving BMP;
 8. Include language legally sufficient to ensure that the easement will run with the land and will bind all parties to the easement agreement, their heirs, administrators, successors in interest and assigns, into perpetuity;
 9. Be submitted to the Borough for review and approval prior to approval of the SWM Site Plan;
 10. Contain all additional provisions or information as the Borough may require upon review; and
 11. Be executed by the parties to the easement agreement and recorded at the Chester County Recorder of Deeds Office against the draining parcel(s) and the parcel upon which the BMP or Conveyance is located within 90 days of the Borough's approval of the corresponding O&M Plan.
- D. For any area(s) shown on the SWM Site Plan maps/plan sheets or As-Built Plan sheets as requiring, or area(s) that is otherwise determined to require, deed restriction(s) for the purpose of protecting and prohibiting disturbance to a BMP or Conveyance, such deed restrictions will be incorporated into a written deed, restrictive covenant, or equivalent document. The deed or other document shall:
1. Include a clear and understandable description of the purpose, terms and conditions of the restricted use;
 2. Include the written legal description (metes and bounds description) of the area to which the restrictions apply that is consistent with the boundary shown on the O&M plan sheets and SWM Site Plan maps/plan sheets;
 3. Make reference to any corresponding O&M Plan(s) and O&M Agreement(s);
 4. Include language legally sufficient to ensure that the terms of the restriction run with the land and shall be binding upon the Landowner, its heirs, administrators, successors in interest, and assigns;
 5. Be submitted to the Borough for review and approval prior to approval of the SWM Site Plan;
 6. Upon approval by the Borough, be signed by the Landowner and owner of the BMP or Conveyance and submitted to the Borough; and

7. Be fully executed and recorded at the Chester County Office of the Recorder of Deeds within 90 days of the Borough's approval of the O&M Plan.

Section 705. Other Post-construction Responsibilities

- A. The provisions of Section 804 of this Ordinance shall apply to any permanent BMP or Conveyance that is constructed as part of an approved SWM Site Plan or covered by an approved O&M Plan.
- B. The person responsible for the operation and maintenance of a BMP or Conveyance shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least ten (10) years. These records shall be submitted to the Borough, if requested.
- C. Upon final inspection, the Borough shall inform the person responsible for the operation and maintenance whether the submission of periodic (annual or other frequency) inspection and maintenance reports will be required.
- D. The owner of each BMP and Conveyance shall keep on file with the Borough the name, address, and telephone number of the person responsible for maintenance activities and implementation of the O&M Plan. In the event of a change, new information shall be submitted by the BMP or Conveyance owner to the Borough within thirty (30) working days of the change.

ARTICLE VIII – PROHIBITIONS

Section 801. Prohibited Discharges

- A. Any drain or Conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter the Borough's separate storm sewer system or the Waters of the Commonwealth is prohibited.
- B. No person shall allow, or cause to allow, discharges into the Borough's separate storm sewer system or the Waters of the Commonwealth that are not composed entirely of stormwater, except:
1. As provided in Subsection 801.C below; and
 2. Discharges allowed under a State or Federal permit.
- C. The following discharges are authorized unless they are determined by the Borough to be significant contributors to pollution to the Borough's separate storm sewer system or to the Waters of the Commonwealth:
1. Discharges from fire fighting activities;
 2. Potable water sources including water line and fire hydrant flushings;
 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. Diverted stream flows;
 9. Flows from riparian habitats and wetlands;
 10. Uncontaminated water from foundations or from footing drains;
 11. Lawn watering;
 12. Dechlorinated swimming pool discharges;
 13. Uncontaminated groundwater;
 14. Water from individual residential car washing; and

15. Routine external building washdown (which does not use detergents or other compounds).
- D. In the event that the Borough determines that any of the discharges identified in Section 801.C significantly contribute pollutants to the Borough's separate storm sewer system or to the Waters of the Commonwealth, or is notified of such significant contribution of pollution by PADEP, the Borough will notify the responsible person to cease the discharge.
- E. Upon notice provided by the Borough under Section 801.D, the discharger shall, within a reasonable time period, as determined by the Borough consistent with the degree of pollution caused by the discharge, cease the discharge.
- F. Nothing in this section shall affect a discharger's responsibilities under State law.

Section 802. Prohibited Connections

The following connections are prohibited, except as provided in Section 801.C above:

- A. Any drain or Conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge, including sewage, process wastewater, and wash water to enter a separate storm sewer system, and any connections to the separate storm sewer system from indoor drains and sinks.
- B. Any drain or Conveyance connected from a commercial or industrial land use to a separate storm sewer system, which has not been documented in plans, maps, or equivalent records and approved by the Borough.

Section 803. Roof Drains and Sump Pumps

- A. Roof drains and sump pump discharges shall not be connected to sanitary sewers.
- B. Roof drain, sump pump, foundation and footing drain discharges:
1. To the maximum extent practicable, shall discharge to infiltration or vegetative BMPs, or to vegetated or other areas with adequate capacity;
 2. May be connected to streets, storm sewers, or roadside ditches only if determined necessary or acceptable by the Borough Engineer; and
 3. Shall be considered in stormwater management calculations to demonstrate that Conveyance and receiving facilities have adequate capacity.

Section 804. Alteration of BMPs

- A. No person shall modify, remove, fill, landscape, alter, or impair the effectiveness of any stormwater BMPs, Conveyances, facilities, areas or structures unless the activity is part of an approved maintenance program, without the written approval of the Borough.

- B. No person shall place any structure, fill, landscaping, additional vegetation, yard waste, brush cuttings, or other waste or debris into a BMP or Conveyance, or within a stormwater easement, that would limit or alter the functioning of the stormwater BMP or Conveyance, without the written approval of the Borough.

ARTICLE IX – ENFORCEMENT AND PENALTIES

Section 901. Public Nuisance

- A. Any Regulated Activity conducted in the violation of any provision of this Ordinance is hereby deemed a public nuisance.
- B. Each day that a violation continues shall constitute a separate violation.
- C. A separate violation will be found to exist for each section of this Ordinance found to have been violated.
- D. To the extent that the Borough does not enforce any provision of this Ordinance, such action or inaction shall not constitute a waiver by the Borough of its rights of future enforcement hereunder.

Section 902. Right of Entry

- A. Upon presentation of proper credentials, duly authorized officers or agents of the Borough may enter at reasonable times upon any property within the Borough to inspect the implementation, condition, or operation and maintenance of all erosion and sediment controls and permanent stormwater BMPs, Conveyances, or other stormwater facilities both during and after completion of a Regulated Activity, or for compliance with any requirement of this Ordinance.
- B. Persons working on behalf of the Borough shall have the right to temporarily locate on or in any BMP, Conveyance or other stormwater facility in the Borough such devices as are necessary to conduct monitoring and/or sampling of the discharges from such BMP or Conveyance, or other stormwater facilities.
- C. Failure of the Landowner or representative to grant access to the Borough within twenty-four (24) hours of notification, verbal or written, is a violation of this Ordinance.

Section 903. Enforcement

- A. The Borough Engineer or other designee is hereby authorized and directed to enforce all of the provisions of this Ordinance. The West Grove Borough Council may delegate enforcement duties, including the initial determination of Ordinance violation and service of notice, if notice is given, to such other officers or agents as the Borough shall deem qualified for that purpose.
- B. It shall be the responsibility of the Landowner of the real property on which any Regulated Activity is proposed to occur, is occurring, or has occurred to comply with the applicable terms and conditions of this Ordinance.
- C. All municipal inspections for compliance with the approved SWM Site Plan shall be the responsibility of the Borough or its designee.

- D. During any stage of the work of any Regulated Activity, if the Borough Engineer or other designee determines that the erosion and sediment control measures, permanent BMPs, Conveyances or other stormwater facilities are not being installed or maintained in accordance with the approved SWM Site Plan, the Borough may suspend or revoke any existing permits or other approvals until the deficiencies are corrected or until a revised SWM Site Plan is submitted and approved, if and as determined to be necessary by the Borough Engineer or other designee.
- E. In the event that the Borough Engineer or other designee finds that a person has violated a provision of this Ordinance, or fails to conform to the requirements of any permit or approval issued by the Borough, or any O&M Plan or O&M Agreement approved by the Borough, the Borough may order compliance by written notice of the violation to the Landowner.
- F. Such notice may, without limitation, require the following remedies:
 - 1. Performance of monitoring, analyses, and reporting;
 - 2. Elimination of prohibited connections or discharges;
 - 3. Cessation of any violating discharges, practices, or operations;
 - 4. Abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
 - 5. Payment of a fine to cover administrative and remediation costs and/or forfeiture of financial security;
 - 6. Implementation of stormwater controls, BMPs, and Conveyances; and
 - 7. Operation, maintenance or repair of BMPs, Conveyances or other stormwater facilities.
- G. Such notice shall set forth the nature of the violation(s), citing to specific sections of this Ordinance which have not been met, and establish a time limit for commencement of correction and completion of correction of the violations(s). The notice shall provide for a right of the Landowner's appeal to the West Grove Borough Council in accordance with Section 906 of this Ordinance. Said notice shall further advise that, if applicable, should the violator fail to take the required action within the established deadline, possible sanctions, clearly described, may be imposed, or the work may be done by the Borough or designee, and the expense thereof shall be charged to the violator.
- H. Failure to comply within the time specified in such notice shall also subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative and shall not prevent the Borough from pursuing any and all other remedies available in law or equity.

Section 904. Suspension and Revocation of Permits and Approvals

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

1. Noncompliance with or failure to implement any provision of the permit or approved SWM Site Plan or O&M Agreement;
 2. A violation of any provision of this Ordinance or any other law or regulation applicable to the Regulated Activity;
 3. The creation of any condition or the commission of any act during the Regulated Activity that constitutes or creates a hazard or nuisance, or endangers the life, health, safety, or property of others; or
 4. Failure to correct a violation within the allowed time period allowed per notice given by the Borough.
- B. Prior to revocation or suspension of a permit, unless there is immediate danger or threat of such danger to life, public health or property, at the request of the Applicant, the West Grove Borough Council shall schedule a hearing on the violation and proposed revocation or suspension, pursuant to public notice. The expense of a hearing shall be the Applicant's responsibility.
- C. A suspended permit or approval may be reinstated by the Borough when:
1. The Borough Engineer or other designee has inspected and approved the corrections to the BMPs, Conveyances or other stormwater facilities, or the elimination of the hazard or nuisance; and
 2. The Borough is satisfied that the violation has been corrected.
- D. A permit or approval that has been revoked by the Borough cannot be reinstated. The Applicant may apply for a new permit or approval in accordance with this Ordinance.

Section 905. Penalties

- A. Any person violating or permitting the violation of the provisions of this Ordinance shall be subject to a fine of not more than \$1,000 or less than \$500.00 for each violation, recoverable with costs. The establishment of a violation for purposes of setting fines or penalties for such violation shall be in accordance with a citation to a magisterial district judge with jurisdiction and venue over the location of the violation and such an action will be subject to the procedures provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure. A separate offense shall arise for each day or portion thereof a violation is found to exist and may be determined for each section of this Ordinance which is found to have been violated.
- B. In addition, the Borough may, through its solicitor, institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus, or other legal or equitable forms of remedy or relief. Such

relief may include costs, fees, and charges, including the Borough's attorney's fees (charged at the hourly rate approved by the West Grove Borough Council) and costs, as may be permitted by law.

- C. Notwithstanding any other provision of this Ordinance, the Borough shall have the right at any or all times deemed necessary by the Borough Engineer or designee to enter upon any property within the Borough to inspect and, upon determination of a violation of this Ordinance, to correct the violation, with all expenses associated with correcting the violation to be charged to the property owner responsible for the violation.

Section 906. Appeals

- A. Any person aggrieved by any action of the Borough Engineer or other designee relative to the provisions of this Ordinance may appeal to the West Grove Borough Council within thirty (30) days of that action.
- B. Any person aggrieved by any decision of the West Grove Borough Council relative to the provisions of this Ordinance may appeal to the County Court of Common Pleas in the County where the activity has taken place within thirty (30) days of the Borough's decision.

Section 907. Effective Date

This Ordinance shall take effect on _____.