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PART 1A

BACKGROUND PROVISIONS

§101. SHORT TITLE.

This Ordinance shall be known and may be cited as the “Salisbury Township Storm Water Management Ordinance of 2000.”

§102. PURPOSE.

The purpose of this Ordinance is to promote the public health, safety and welfare by establishing a comprehensive storm water management program designed to:

- 102.1. Manage storm water runoff, soil erosion and sedimentation, both during and upon completion of a land disturbance activity, by regulating activities that cause such problems.
- 102.2. Use and preserve the desirable existing natural drainage.
- 102.3. Encourage recharge of groundwater where appropriate and prevent degradation of groundwater quality.
- 102.4. Maintain and/or improve the existing flows and quality of streams and watercourses in the Township and the Commonwealth.
- 102.5. Preserve and/or restore the flood carrying capacity of streams.
- 102.6. Provide for property maintenance of all permanent storm water management structures.
- 102.7. Provide performance standards and design criteria for watershed-wide storm water management and planning.

§103. AUTHORITY.

The Board of Supervisors of Salisbury Township is empowered to regulate these activities by authority of:

- 103.1. Act of October 4, 1978, 32 P.S.P.L. 864 (Act 167), known as the “Storm Water Management Act”;

- 103.2. Act of December 21, 1968 (P.L. 170), known as the Pennsylvania Municipalities Planning Code, Act 247, as reenacted and amended by Act 170 of 1988, and subsequently amended; and,
- 103.3. The express and implied powers granted to the Board of Supervisors under the Second Class Township Code, Act of May 1, 1933 (P.L. 103, No. 69), reenacted and amended July 10, 1947 (P.L. 1481, No. 567), as amended.

§104. APPLICABILITY.

The provisions, regulations, limitations, and restrictions of this Ordinance shall apply to the following activities, unless the activity is exempt in Section 104.3.:

- 104.1. **Major Land Disturbance Activity.** The use of land for any purpose involving:
- 104.1.1. Installation of new impervious or semi-impervious surface that is either in excess of thirteen thousand (13,000) square feet or thirty percent (30%) of the total lot area, or
 - 104.1.2. Diversion of piping of any natural or man-made watercourse, or
 - 104.1.3. Installation of ground cover, grading, filling, or excavation in excess of two (2) acres.
- 104.2. **Minor Land Disturbance Activity.** The use of land for any purpose involving:
- 104.2.1. Installation of new impervious or semi-impervious surface between three thousand (3,000) and thirteen thousand (13,000) square feet, or
 - 104.2.2. Removal of ground cover, grading, filling, or excavation between five thousand (5,000) square feet and two (2) acres.
- 104.3. **Exemptions.** The following activities are specifically exempt from the plan requirements of this Ordinance; however, the activity must comply with all design requirements of the Ordinance.
- 104.3.1. Use of land for gardening and landscaping of the property, provided all activities are located outside of the building setback area and a substantial ground cover is maintained in the setback area.
 - 104.3.2. Agriculture, when operated in accordance with a conservation plan or erosion and sedimentation control plan approved by the Lancaster County Conservation District, or waived by the Board of Supervisors.
 - 104.3.3. All activities conducted by authority of Salisbury Township Board of Supervisors.

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104.3.4. All activities which fall under the following criteria:

A. New Impervious Area:

Total Parcel Size	Minimum Distance (feet)*	New Impervious Areas
0 – 0.50 acre	10	500 sq. ft.
.5 – 1.0 acre	50	2,500 sq. ft.
1.0 – 2.0 acres	100	10,000 sq. ft.
2.0 – 5.0 acres	250	15,000 sq. ft.
>5.0 acres	500	20,000 sq. ft.

*The minimum distance between the proposed impervious area and/or storm water controls/structure discharge point to the down slope property line. In lieu of meeting the minimum distance criteria, the applicant may provide documentation from a registered professional in the State of Pennsylvania that the increased flows from the site leave the site in the same manner as the pre-development condition, and that there will be no adverse effects to adjacent property, or the increased flows reach a natural drainageway or existing storm water management structure before affecting adjacent property.

B. Lands improved with existing structures to which an additional five hundred (500) square feet of impervious surface is added, if flows from the site after development leave the site in the same manner as the pre-development condition.

§105. RIGHT-OF-ENTRY.

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

The landowner shall grant to the Township, or its agents, access to the site of the work at all times, while under construction, for inspecting the work.

§106. REPEALER.

Any ordinance and/or resolution of Salisbury Township inconsistent with any of the provisions of this Ordinance, is hereby repealed to the extent of the inconsistency only.

§107. SEVERABILITY.

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

§108. COMPATIBILITY WITH OTHER PERMIT AND ORDINANCE REQUIREMENTS.

Permits issued pursuant to this Ordinance do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance of another governing body. Any provision of any other statute, code, ordinance, or regulation which provides greater protection against the problems to be addressed by this Ordinance, shall control in the event of conflicting regulations.

§109. MUNICIPAL LIABILITY.

The degree of storm water management sought by the provisions of this Ordinance is considered reasonable for regulatory purposes. The issuance of permits by Salisbury Township, its officers, or employees, shall not be deemed to relieve the developer of responsibility, if any such responsibility exists, to those adversely affected by the drainage of water. Further, the Township, through the issuance of a permit, assumes no responsibility to either the developer or the adjoining property owner affected by the drainage of water.

§110. DEFINITIONS.

110.1. General. Words and phrases shall be presumed to be used in their ordinary context, unless such word or phrase is defined or interpreted differently within this section.

110.2. General Terms. Unless otherwise stated, the following terms, whether capitalized or in lower case, shall, for the purposes of this Ordinance, have the meanings herein indicated.

110.2.1. Words in the present tense imply also the future tense.

110.2.2. Words in the plural include the singular, and words in the singular include the plural.

110.2.3. The masculine gender shall include the feminine and the neuter.

110.2.4. The word “building” shall be construed as if followed by the words “or a part thereof.”

110.2.5. The word “may,” is always permissive, and the words “shall” and “will” are mandatory.

110.3. Specific Terms. Other terms or words used herein shall be interpreted or defined as follows:

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.

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AGRICULTURAL USE OF LAND – The tilling of the soil, the raising of crops and the keeping or raising of livestock, such as cattle, hogs, horses, sheep, goats, poultry, rabbits, birds, fish, bees, and other similar animals. This definition also includes noncommercial greenhouses and mushroom houses, roadside stands, and incidental slaughter of livestock raised on the site for personal consumption.

APPLICANT – A landowner, as herein defined, or agent of the landowner, who has filed an application for storm water management permit.

AS-BUILT PLANS – Sets of prints of the original facilities showing those changes made during the construction process.

BOARD OF SUPERVISORS – The Board of Supervisors of Salisbury Township, Lancaster County, Pennsylvania.

BUILDING – Any structure, either temporary or permanent, having walls and a roof, designed or used for the shelter of any person, animal or property, and occupying more than one hundred (100) square feet of area.

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

CISTERN – An underground reservoir or tank for storing rainwater.

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

DEDICATION – The deliberate assignment of land by its owner to another party.

DESIGN STORM – The magnitude of precipitation from a storm event measured in probability of occurrence (e.g., ten-year storm) and duration (e.g., 24 hours), and used in computing storm water management control systems.

DETENTION BASIN – A reservoir that temporarily contains storm water runoff and releases it gradually into a watercourse or storm water drainage system at a pre-determined rate.

DEVELOPER – Anyone who undertakes land disturbance activities as defined in this Ordinance.

DEVELOPMENT – Any man-made change to improve or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations.

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

EROSION – The processes by which soil particles are detached and transported by action of natural forces.

FLOODPLAIN – Any area susceptible to being inundated by water from natural resources and as specified in the Official Floodplain Ordinance of Salisbury Township.

FLOOR ELEVATION – The elevation of the lowest level of a particular building, including the basement.

GROUNDWATER RECHARGE – Replenishment of existing natural undergroundwater supplies.

IMPERVIOUS SURFACE – A surface made of materials that prevent the percolation of water into the ground.

INFILTRATION STRUCTURES – A structure designed to direct runoff into the ground (e.g., french drains, seepage pits, seepage trench).

LAND DISTURBANCE ACTIVITY – The use of land for activities in the following categories:

MAJOR LAND DISTURBANCE ACTIVITY – The use of land for any purpose involving:

1. Installation of new impervious or semi-impervious surface that is either in excess of thirteen thousand (13,000) square feet or thirty percent (30%) of the total lot area, or
2. Diversion of piping of any natural or man-made watercourse, or
3. Installation of ground cover, grading, filling, or excavation in excess of two (2) acres, except for exemption stated in Section 104.3.

MINOR LAND DISTURBANCE ACTIVITY – The use of land for any purpose involving:

1. Installation of new impervious or semi-impervious surface between three thousand (3,000) and thirteen thousand (13,000) square feet, or
2. Removal of ground cover, grading, filling, or excavation between five thousand (5,000) square feet and two (2) acres, except for exemption stated in Section 104.3.

LANDOWNER – The legal, beneficial, equitable 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 conditions), a lessee (if he is authorized under the lease

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to exercise the rights of the landowner), or any other person having a proprietary interest in land.

LOT – Any parcel or tract of land intended as a single unit for purposes of ownership, transfer of ownership, use, rent, improvement, or development. The word “lot” includes the word “plot,” “parcel” or “tract.”

LOT AREA – The total area within the lot lines of a lot.

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

PERSON – An individual, partnership, association, corporation, or other legally recognized entity, and the members of such partnership or association, and the officers of such corporation.

RETENTION BASIN – A reservoir designed to retain storm water runoff with its primary release of water being through the infiltration of said water into the ground.

RUNOFF – The surface water discharge or rate of discharge of a given watershed after a fall of rain or snow that does not enter the soil, but runs off the surface of the land.

SCS – Soil Conservation Service, U.S. Department of Agriculture (USDA).

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

SEDIMENTATION BASIN – A reservoir designed to retain sediment.

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

SEMI-IMPERVIOUS SURFACE – A surface, such as stone, rock, concrete, or other material which prevents some percolation of water into the ground.

SITE – Any lot or parcel of land, or combination of contiguous lots or parcels of land, which, when combined, constitutes the area of an entire project.

STORM SEWER – A system of pipes, conduits, swales, or other similar structures, including appurtenant works which carries intercepted runoff, and other drainage, but excludes domestic sewage and industrial wastes.

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

STORM WATER MANAGEMENT – A program of controls and measures designed to regulate the quantity and quality of storm water runoff from a development while promoting the protection and conservation of groundwater and groundwater recharge.

STORM WATER MANAGEMENT FACILITIES – Those controls and measures (e.g., storm sewers, berms, terraces, bridges, dams, basins, infiltration systems, swales, watercourses, and floodplains) used to effect a storm water management program.

STREET – A highway, road, avenue, lane, or alley, whether publicly or privately-owned, which includes an impervious surface cartway.

SUBWATERSHED – The smallest drainage unit of a watershed for which storm water management criteria have been established.

SWALE – A wide, shallow ditch which gathers or carries surface water runoff.

TOWNSHIP – Salisbury Township, Lancaster County, Pennsylvania.

WATERCOURSE – A permanent or intermittent stream, river, brook, run, creek, channel, swale, pond, lake, or other body of water, whether natural or man-made, for gathering or carrying surface water.

WATERSHED – The entire region or area drained by a river or other body of water, whether natural or man-made.

WET POND – A pond containing a permanent pool of water designed to store storm water runoff for a given storm event and release it at a predetermined rate.

CHAPTER 26

PART 1B

DESIGN REQUIREMENTS

§201. GENERAL.

The following general standards shall be applied to all land disturbances within Salisbury Township to promote flow attenuation, erosion and sediment control and flood control.

- 201.1. All storm water management plans shall be designed and certified by individuals registered in the Commonwealth of Pennsylvania and qualified to perform such duties.
- 201.2. Where applicable, storm water management facilities shall comply with the requirements of Chapter 105 (Water Obstructions and Encroachments) of Title 25, Rules and Regulations of the Pennsylvania Department of Environmental Protection.
- 201.3. Storm water management facilities that involve a State highway shall be subject to the approval of the Pennsylvania Department of Transportation.
- 201.4. Storm water runoff from a project site shall flow directly into a natural watercourse, into an existing storm sewer system, or onto adjacent properties in a manner similar to the runoff characteristics of the pre-development flow. The applicant must provide proof to the Township that he or his agent has informed the immediate downstream property owner of changes to the storm water discharge as a result of the proposed development.
- 201.5. Storm water runoff shall not be transferred from one watershed to another, unless the watersheds are subwatersheds of a common watershed which join together within the perimeter of the property, or the effect of the transfer does not alter the peak discharge onto adjacent lands, or drainage easements from the affected landowners are provided.
- 201.6. All storm water runoff flowing over the project site shall be considered in the design of the storm water management facilities.
- 201.7. Innovative methods for the detention and control of storm water runoff may be used when approved by the Township. Various combinations of methods should be tailored to suit the particular requirements of the type of development and the topographic features of the project site. The following is a partial listing of detention and control methods which can be utilized in storm water management systems where appropriate:
 - 201.7.1. Detention basins and retention basins (the use of wet ponds and retention basins require prior Township approval).

- 201.7.2. Roof-top storage.
- 201.7.3. Parking lot ponding.
- 201.7.4. Seepage pits, seepage trenches or other infiltration structures.
- 201.7.5. Concrete lattice block surfaces.
- 201.7.6. Grassed channels and vegetated strips.
- 201.7.7. Cisterns and underground reservoirs.
- 201.7.8. Routed flow over grass.
- 201.7.9. Decreased impervious surface covered.

- 201.8. The calculated peak rate of storm water runoff from the project site after development shall not exceed the peak rate of runoff from the project site before development activities.

When Act 167 Subwatershed Boundary Maps are available for Salisbury Township, the calculated peak rate of storm water runoff from the project site after development shall not exceed the peak rate of runoff from the project site before development activities, or shall be reduced to levels in accordance with the Act 167 Subwatershed Boundary Maps, whichever requires greater reduction.

Act 167 Subwatershed Boundary Maps, when prepared, will be available for review in the Township Office or at the Lancaster County Engineer's Office.

Runoff calculations for the pre-development and post-development comparison shall consider six (6) different storm frequencies (2-, 5-, 10-, 25-, 50-, and 100-year storm events).

- 201.9. **No storm** water facilities shall be placed in, over or immediately adjacent to the following features:
- A. Sinkholes
 - B. Closed depressions
 - C. Lineaments in carbonate areas
 - D. Fracture traces
 - E. Caverns
 - F. Intermittent lakes
 - G. Ephemeral streams
 - H. Bedrock pinnacles (surface or subsurface)

- 201.9.1. Storm water management basins shall not be located closer than one hundred (100) feet from the rim of sinkholes or closed depressions, nor within one hundred (100) feet from disappearing streams; nor shall these basins be located closer than fifty (50) feet from lineaments or fracture

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traces; nor shall these basins be located closer than twenty-five (25) feet from surface or identified subsurface pinnacles.

201.9.2. Storm water resulting from land disturbance activities shall not be discharged into sinkholes.

201.10. The following principles shall be applied to the design plan and construction schedule to minimize soil erosion and sedimentation:

201.10.1. Stripping of vegetation, grading or other soil disturbance shall be done in a manner which will minimize soil erosion.

201.10.2. Whenever feasible, natural vegetation shall be retained and protected.

201.10.3. The extent of the disturbed area and the duration of its exposure shall be kept to a minimum, within practical limits.

201.10.4. Either temporary seeding, mulching, or other suitable stabilization measures shall be used to protect exposed critical areas during construction.

201.10.5. Drainage provisions shall accommodate the storm water runoff both during and after construction.

201.10.6. Soil erosion and sedimentation facilities shall be installed before any on-site grading.

§202. STORM WATER MANAGEMENT DISTRICTS.

The Township shall comply with the applicable provisions of the Act 167 Storm Water Management Plan as prepared by Lancaster County, upon adoption of said Plan. The provisions of this Ordinance have been promulgated to regulate development within the Township in a manner consistent with the Act 167 Storm Water Management Plan, as prepared by Lancaster County, and to satisfy the requirements of Section 11(b) of the Storm Water Management Act of Pennsylvania.

§203. METHODS OF CALCULATION RUNOFF.

203.1. The methods of computation used to determine peak discharge and runoff shall be:

203.1.1. The USDA Soil Conservation Service Soil-Cover-Complex Method, as set forth in the latest edition of *Urban Hydrology for Small Watersheds, Technical Release No. 55*, as published by SCS, shall be used for all drainage areas greater than fifty (50) acres; or

203.1.2. The Rational Method of $Q=CIA$, where “Q” is the peak discharge of the watershed in cubic feet per second, “C” is the coefficient of runoff, “I” is

the intensity of rainfall in inches per hour, “A” is the area of the watershed in acres; or

203.1.3. Any other method approved by the Township.

If the Soil-Cover-Complex Method is used, storm water runoff shall be based on the following 24-hour storm events (Antecedent Moisture Content 1 must be assumed):

<u>Storm Event</u>	<u>Inches of Rainfall</u>
2 years	3.1
5 years	4.1
10 years	5.0
25 years	5.5
50 years	6.2
100 years	7.0

If the Rational Method is used, the PennDOT Region 5, Pennsylvania Rainfall Intensity-Duration-Frequency Chart shown in the Pennsylvania Department of Transportation Design Manual, Part 2, January 1990, or latest revision thereof, shall be used to determine the rainfall intensity in inches per hour. This chart is attached hereto as an Appendix and is made a part hereof.

- 203.2. Runoff calculations shall include a hydrologic and hydraulic analysis indicating volume and velocities of flow and the grades, sizes and capacities of water-carrying structures, sediment basins, retention and detention structures and sufficient design information to construct such facilities. Runoff calculations shall also indicate both pre-development and post-development rates for peak discharge of storm water runoff from the project site.
- 203.3. For the purpose of calculating pre-development on-site peak discharges, all on-site runoff coefficients shall be based on actual land use assuming summer or good land cover conditions. Off-site land use conditions used to determine storm flows for designing storm water facilities shall be based on actual land uses assuming winter or poor land cover conditions.
- 203.4. Criteria and assumptions to be used in the determination of storm water runoff and design of management facilities are as follows:
- 203.4.1. Runoff coefficients should be based on the information contained in the Appendices, if the actual land use is listed. If the actual land use is not listed in the Appendices, runoff coefficients shall be chosen from other published documentation, and a copy of said documentation shall be submitted with the storm water management report.
- 203.4.2. Times of concentration shall be based on the following design parameters:

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- A. Sheet Flow. The maximum length for each reach of sheet or overland flow before shallow concentrated or open channel flow develops is one hundred fifty feet (150). Sheet flow shall be determined using the Manning's kinematic solution shown in the Sheet Flow section of Worksheet No. 1 in the Appendices.
- B. Shallow Concentrated Flow. Travel time for shallow concentrated flow shall be determined using Figure 3-1 from the latest edition of *Urban Hydrology for Small Watersheds, Technical Release No. 55*, as published by SCS, as shown in the Appendices.
- C. Open Channel Flows. At points where sheet and shallow concentrated flows concentrate in field depressions, swales, gutters, curbs, or pipe collection systems, the travel times and downstream end of the site between these design points shall be based upon Manning's equation and/or acceptable engineering design standards, as determined by the Township Engineer.

A sample worksheet for calculating times of concentration is provided in the Appendices.

§204. USE OF PERFORMANCE STANDARDS AND CRITERIA.

The methodology for determining required storm water controls for a regulated activity is outlined below:

- 204.1. Compute.
 - 204.1.1. Pre-development hydrograph at the site discharge point for the required 24-hour design storm.
 - 204.1.2. Post-development hydrograph at the site discharge point incorporating any "non-detention" techniques, such as pervious areas, swales, infiltration trenches, etc.

Note: Hydrographs may be obtained from SCS TR-55 method or from use of the "modified" rational formulas.
- 204.2. Compare. Post-development hydrographs with pre-development hydrographs. If the peak rate of runoff and the shape of the hydrographs are nearly identical to the same significant figure, storm water management has been achieved. Detention will not be required.
- 204.3. Design. Detention/retention facilities, in conjunction with any non-detention techniques, such that post-development peak rates from the site will not exceed permissible levels for required design storms.

§205. WATER-CARRYING FACILITIES.

- 205.1. The design of storm water management collection/conveyance systems that service drainage areas within the site shall be based upon a twenty-five (25) year storm frequency event. Storm water management facilities that convey off-site storm water through the site must be designed to convey a fifty (50) year event.
- 205.2. All storm sewer pipes, culverts, manholes, inlets, endwalls, and end-sections shall be constructed in accordance with Pennsylvania Department of Transportation *Publication 408*, as amended.
- 205.3. Storm sewer pipes, culverts, manholes, inlets, endwalls, and end-sections proposed for dedication or located along streets shall conform to the requirements of the Pennsylvania Department of Transportation, Bureau of Design, *Standards for Roadway Construction*, Publication No. 72, in effect at the time the design is submitted, as modified by the adopted Township construction standards.
- 205.4. Capacities. The capacities of the pipes, gutters, inlets, culverts, outlet structures, and swales shall consider all possible hydraulic conditions. The following are minimum design standards:
- 205.4.1. Grass swales and roadside gutters shall consider both the channel velocity and stability based upon a low degree of retardant (“n” of 0.03), and the channel capacity based upon a high degree of retardant (“n” of 0.05).
- 205.4.2. The “n” factors to be used for paved or rip-rap swales or gutters shall be based on accepted engineering design practices.
- 205.4.3. The “n” value for pipes is provided in the Appendices.
- 205.4.4. The velocity to be used in the design of any piped storm water conveyance system shall be based on the maximum velocity obtainable. The capacity shall be based upon full flow conditions.
- 205.5. Minimum Pipe Size. Storm water management pipe collection and conveyance systems shall have a minimum diameter of fifteen (15) inches and shall be installed on sufficient slope to provide a minimum velocity of three feet per second (3 fps) when flowing full. No double piping shall be permitted.
- 205.6. Material Specification. The following are approved for use; alternatives may be accepted subject to approval by the Township:
- 205.6.1. Storm Water Pipe. The following are approved types of storm water pipe:

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- A. Reinforced cement concrete, tongue and groove, shall conform to AASHTO M-170.
- B. Corrugated polyethylene – smooth-lined (SLCPP) shall conform to ASSHTO-295-851.
- C. Corrugated aluminized steel Type II, helical design shall conform to AASHTO M-36.

All storm water pipes that are located within a public street, or offered for dedication to the Township, shall be in accordance with Section 205.6.1.A.

205.6.2. Storm Water Culvert. The following are approved types of storm water culverts:

- A. Cement concrete case in place shall conform to PennDOT standards.
- B. Pre-stressed concrete shall conform to PennDOT standards.
- C. Corrugated aluminized steel, Type II shall conform to PennDOT standards.
- D. Corrugated aluminum alloy shall conform to PennDOT standards.

All storm water culverts that are located within a public street, or offered for dedication to the Township, shall be in accordance with Section 205.6.2.A. and 205.6.2.B.

205.6.3. Pipe sizes with nominal diameters greater than seventy-two (72) inches shall require structural design submittals for approval.

205.6.4. All culverts shall have reinforced concrete precast or cast in place full flow inverts to limits of required endwall sections, with invert base end cut-off walls extending three (3) feet below channel flow line, including fish channels, as required by the Pennsylvania Department of Environmental Protection.

205.6.5. Installation of culverts will not require protective parapets when having a maximum five (5) feet vertical rise from flow channel invert to crown of street, with the required maximum 3 to 1 embankment slope from limit of right-of-way elevation of flow channel invert. All other installations shall require protective concrete parapets and approaches.

205.6.6. All culvert structures shall require submission of construction drawings, to assure compliance to H-25 loading, flow design capacity, and calculated life cycle of proposed structures.

- 205.7. All storm sewer pipes and culverts shall be laid to a minimum depth of one (1) foot from subgrade of streets or access drives to the crown of pipe.
- 205.8. Endwalls and end sections shall be used where storm water runoff enters or leaves the storm sewer horizontally from a natural or man-made channel.
- 205.9. Inlets shall be placed on both sides of the street at low spots, at a maximum of six hundred (600) feet apart along a storm sewer pipe, at **points of change** in the horizontal or vertical directions of storm sewers, and at points where the flow in gutters exceeds three (3) inches. Inlets shall normally be along the curb line at or beyond the curb radius points. For the purpose of inlet location at corners, the depth of flow shall be considered for each gutter. At intersections, the depth of flow across the through streets shall not exceed one and one-half (1½) inches. Inlets shall be depressed two (2) inches below the grade of the gutter or ground surface. Manholes may be substituted for inlets at locations where inlets are not required to handle surface runoff.
- 205.10. Manholes shall not be spaced more than six hundred (600) feet apart. Additionally, manholes shall be placed at points of abrupt changes in the horizontal or vertical direction of storm sewers. Inlets may be substituted for manholes where they will serve a useful purpose.
- 205.11. Curves in pipes or box culverts, without an inlet or manhole, are prohibited. Tee joints, elbows and wyes are also prohibited.
- 205.12. All inlets and manholes must have poured concrete channels in order to provide unimpeded conveyance through the structure.
- 205.13. Storm water roof drains and pipes, wherever possible, shall discharge water into a storm water runoff dispersion and infiltration control device and not into storm sewers or street gutters.
- 205.14. Surface Flow Characteristics. Grass-lined channels shall be considered stable if the calculated velocity does not exceed the allowable velocities shown below:
- 205.14.1. Three (3) feet per second where only sparse vegetation can be established and maintained because of shade or soil condition.
- 205.14.2. Four (4) feet per second where normal growing conditions exist and vegetation is to be established by seeding.
- 205.14.3. Five (5) feet per second where a dense, vigorous sod can be quickly established or where water can be temporarily diverted during establishment of vegetation. Netting and mulch or other equivalent methods for establishing vegetation shall be used.
- 205.14.4. Six (6) feet per second where there exists a well-established sod of good quality.

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Where swale bends occur, the allowable velocities listed above shall be divided by the following factors:

<u>Degree of Bend</u>	<u>Velocity</u>
0 to 30	1.50
30 to 60	1.75
60 to 90	2.00
90 and over	2.50

The above grass-lined channel flows may be exceeded if the designer can provide acceptable supportive design criteria as proof of erosion prevention.

Where the velocity of storm water runoff exceeds the allowable velocity, erosion protection must be provided.

The method of erosion protection proposed must be supported by the appropriate design information and/or references.

- 205.15. All existing and natural watercourses, channels, drainage systems, and areas of surface water concentration shall be maintained in their existing condition, unless the Township approves an alteration.
- 205.16. Flow velocities from any storm sewer may not result in a deflection of the receiving channel.
- 205.17. Energy dissipaters shall be placed at the outlets of all storm sewer pipes where flow velocities exceed maximum permitted channel velocities.
- 205.18. The capacities of open channels shall be computed from the Manning equation. Permissible open channel velocities and design standards shall be in accordance with good engineering practice, as documented in the *Engineering Field Manual for Conservation Practices*, USDA, SCS, or in *Design Charts for Open-Channel Flow*, Hydraulic Design Series No. 3, U.S. Department of Transportation.
- 205.19. Protective grating must be provided at all headwalls to prevent clogging and unauthorized access to storm water facilities.
- 205.20. **When possible**, storm sewer crossings of streets shall be perpendicular to the street centerline.
- 205.21. Storm facilities not located within a public right-of-way shall be contained in, and centered within, an easement.
- 205.22. Phasing Plans. When applications are submitted in phases, and if temporary facilities are required for construction of a phase, such facilities shall be included in the submitted plans. All phases of development must comply with the provisions of this Ordinance. In the event temporary measures cannot adequately handle the storm

water runoff, the main outfall line shall be included as part of the construction of the proposed phase.

- 205.23. Capacity Improvements (in areas which allow direct release). If the developer can prove that it would be feasible to provide capacity improvements to relieve the capacity deficiency in the existing drainage network, the adequate capacity improvements could be provided by the developer in-lieu-of storm water management facilities on the development site. Any capacity improvements would be designed based on development of all areas tributary to the improvements and the capacity criteria specified in this Ordinance. The type and amount of development that the developer must consider shall be either based on the current zoning or established by the Township, whichever results in a greater amount of impervious surface. It shall be assumed that all new development upstream of a proposed capacity improvement would implement applicable storm water management techniques, consistent with this Ordinance.

§206. DETENTION AND RETENTION BASINS.

- 206.1. Storm water management facilities shall be provided so that the peak discharge of the calculated post-development runoff to an adjacent property does not exceed the peak discharge of the calculated pre-development runoff. Except as specified in Act 167, Watershed Storm Water Management Plans, as adopted by the County of Lancaster, Pennsylvania.
- 206.1.1. Runoff calculations for the pre-development and post-development comparison shall consider six (6) different storm frequencies (2-, 5-, 10-, 25-, 50-, and 100-year storm events).
- 206.1.2. The developer or his agent should show to the satisfaction of the Township that:
- A. The peak discharge can be properly handled by the existing or proposed downstream storm water management facilities;
 - B. The peak discharge will not be detrimental to the downstream areas; and,
 - C. The peak discharge has been reduced to levels in accordance with the Act 167 Subwatershed Boundary Maps available for review in the Township Office, or at the Lancaster County Engineer's Office.
- 206.2. Permanent detention and retention basins shall be designed to store the storm water runoff of the one hundred (100) year post-development storm event minus the water discharged from the basin by any primary and/or secondary outlets. The storage volume shall be calculated from the beginning of the storm event until such time as the inflow rate equals the outflow rate that is discharged through outlets from the basin.

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- 206.3. All basins shall be structurally sound and shall be constructed of sound and durable materials, as determined by the Township with the advice of the Township Engineer. The completed structure and the foundation of all basins shall be stable under all probable conditions of operation, and shall be capable of discharging the peak discharge of a post-development one hundred (100) year storm event through the emergency spillway facilities, and all other outlets combined in a manner which will not damage the integrity of the facility or the downstream drainage areas.
- 206.4. The effect on downstream areas, if the basin embankment fails, shall be considered in the design of all basins. Where possible, the basin shall be designed to minimize the potential damage caused by such failure of the embankment.
- 206.5. Basins which are not designed to release all storm water shall be specifically identified as retention basins or wet pond basins. All other basins shall include provisions for de-watering, particularly the bottom, and shall not create swampy and/or un-maintainable conditions. Low-flow channels and tile fields may be used to de-water the bottom of a basin.
- 206.6. An outlet structure to permit draining the basin to a completely dry position within twenty-four (24) hours must be provided.
- 206.7. Discharge structures shall be designed to eliminate the possibility of blockage during operation.
- 206.8. All outlet structures and emergency spillways shall include a satisfactory means of dissipating the energy of flow at its outlet to assure conveyance of flow without endangering the safety and integrity of the basin and the downstream drainage area.
- 206.9. Detention basins and/or retention basins which are designed with earth fill dams shall incorporate the following minimum standards:
- 206.9.1. The maximum water depth shall not exceed six (6) feet, unless approved by the Board of Supervisors.
- 206.9.2. The minimum top width of all dams shall be five (5) feet.
- 206.9.3. The side slopes of earth fill dams shall not be less than three (3) horizontal to one (1) vertical.
- 206.9.4. Basins without restricted access shall have impoundment areas with side slopes no greater than five (5) horizontal to one (1) vertical.
- 206.9.5. A cutoff trench of impervious material shall be provided under all dams.
- 206.9.6. All pipes and culverts through dams shall be reinforced concrete and have properly spaced concrete cutoff collars or anti-seep collars.

- 206.9.7. All riser pipes shall be reinforced cement concrete.
- 206.9.8. A minimum one (1) foot freeboard above the maximum design water surface elevation at the emergency spillway shall be provided.
- 206.9.9. Minimum finished floor elevations for all buildings that would be affected by a basin, other temporary impoundments, or open conveyance systems where ponding may occur, shall be two (2) feet above the Q100 year water surface. If basement or underground facilities are proposed, detailed calculations addressing the effects of storm water ponding on the structure and waterproofing and/or floodproofing design information shall be submitted for approval.
- 206.10. Where retention basins, seepage pits, seepage tanks, seepage trenches and/or french drains are located in an area that is suspected to contain sinkholes, closed depressions, fracture traces, or caverns, the applicant shall include an analysis of the potential for accelerated sinkhole development in the specific geology of the site due to the concentration of water introduction to the subsurface.
- This information shall include a seepage report containing a test pit soils analysis, prepared by a soil scientist, and percolation test results in accordance with Pennsylvania Department of Environmental Protection regulations (Chapter 73, Section 15). The bottom of the test pits shall be no less than thirty (30) inches below the elevation at which the soil/ seepage interface is designed (i.e., the bottom of the trench, pit, etc.)
- 206.11. Retention basins must provide enough capacity to store the entire runoff volume created by a 100-year, 24-hour storm event. If supporting documentation, as stated above, is provided to the Township Engineer, the applicant may:
- A. Reduce the required volume by twenty (20) percent, or
 - B. Determine the volume required using twenty (20) percent of the percolation rate to perform routing calculations, whichever volume is greater.
- 206.12. Retention basins shall incorporate the following minimum design standards:
- 206.12.1. Infiltration systems greater than three (3) feet deep shall be located no less than thirty (30) feet from basement walls or the drain field of a sanitary sewer system.
 - 206.12.2. Infiltration systems designed to handle runoff from commercial or industrial impervious parking areas shall be no closer than one hundred (100) feet from any water supply well.
 - 206.12.3. Infiltration systems may not receive runoff until the entire contributory drainage area to the infiltration system has received final stabilization.

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206.12.4. The storm water management facility design shall provide an emergency overflow system with measures to provide a non-erosive velocity of flow along its length and at the outfall.

206.13. A liner of impervious material must be provided in all wet ponds. In-lieu-of an impervious liner, the applicant may supply sufficient information to the Township prepared by a soil scientist, which includes an analysis of the potential for sinkhole development and demonstrates to the Township that sinkholes will not develop.

§207. EROSION AND SEDIMENT CONTROL.

207.1. All earthmoving activities shall be conducted in such a way as to minimize accelerated erosion and resulting sedimentation. Measures to control erosion and sedimentation shall, at a minimum, meet the standards of the Lancaster County Conservation District and Chapter 102 (Erosion Control) of Title 25, Rules and Regulations of the Pennsylvania Department of Environmental Protection.

207.2. The erosion and sedimentation control plan must be available at all times at the project site. When required, a permit allowing earthmoving activity shall be obtained by the developer before any construction on the project site shall begin.

207.3. Approval of an erosion and sedimentation control plan by the Township shall not be construed as an indication that the plan complies with the standards of any agency of the Commonwealth.

207.4. The erosion and sedimentation control plan shall be submitted to the Lancaster County Conservation District for its review and approval.

§208. FLOODPLAIN.

Storm water management facilities located within or affecting the floodplain of, any watercourse shall also be subject to the requirements of the Zoning Ordinance of Salisbury Township, or any other Township Ordinance, regulating construction and development within areas of the Township subject to flooding.

§209. EASEMENTS.

Easements shall be provided where storm water or surface water drainage facilities are proposed, whether located within or beyond the boundaries of the property. Although normal lot grading does not require easements, swales which receive runoff from more than one other lot or from more than one-half ($\frac{1}{2}$) acre must be provided with an easement. Easements shall have a minimum width of twenty (20) feet and shall be adequately designed to provide area for (a) the collection and discharge of water, (b) the maintenance, repair and reconstruction of the drainage facilities, and (c) the passage of machinery for such work. Easements shall include a description

of an ownership and maintenance program, in a recordable form, that clearly sets forth responsibility for all temporary and permanent storm water management facilities.

CHAPTER 26

PART 1C

PERMIT PROCEDURES AND PLAN REQUIREMENTS

§301. GENERAL.

A land disturbance activity, as defined in this Ordinance, shall not be initiated until a Storm Water Management Permit has been issued.

§302. PROCEDURE.

An application for a Storm Water Management Permit may be submitted at the Salisbury Township Municipal Office on any business day.

302.1. The Township Zoning Officer may review the application with the Township Engineer, Solicitor, the Lancaster County Conservation District, and other Township officials in order to determine approval, conditional approval or disapproval of the application.

302.2. The Township Zoning Officer shall, within ninety (90) days from the Township receipt of an application, issue a permit, or conditional approval, or disapprove the application and transmit the decision in writing to the applicant.

302.3. A notice of disapproval shall cite the reasons for disapproval.

§303. INFORMATION TO BE PROVIDED.

303.1. Minor Land Disturbance Activity. An application for a Storm Water Management Permit for a Minor Land Disturbance Activity, as defined in this Ordinance, shall include one (1) completed copy of the Application for a Minor Land Disturbance Activity (see Appendices), and filing fee in the amounts specified in the fee schedule, as established by resolution of the Board of Supervisors.

303.2. Major Land Disturbance Activity. An application for a Storm Water Management Permit for a Major Land Disturbance Activity, as defined in this Ordinance, shall include the following items:

303.2.1. One (1) completed copy of the application for a Storm Water Management Permit, Major land Disturbance Activity (see Appendix No. 8).

303.2.2. Four (4) copies of the Storm Water Management Plan and reports (see Section 305 for contents). If this information was filed with an

application under the Township Subdivision and Land Development Ordinance, additional copies do not need to be submitted.

- 303.2.3. Permit fee in the amount specified in the fee schedule as established by resolution or ordinance of the Board of Supervisors.
- 303.2.4. Financial security when required by Part 1D, "Completion or Guarantee of Facilities."

§304 STORM WATER MANAGEMENT PLAN CONTENTS.

304.1. The applicant shall submit plans prepared in accordance with the following standards and include the following information:

304.1.1. General.

- A. All plans shall be on sheet sizes consistent with the Salisbury Township Subdivision and Land Development Ordinance.
- B. Proposed name or identifying title of project.
- C. Name and address of the landowner and developer of the project site.
- D. Plan date and date of the latest revision to the plan, north point, graphic scale, and written scale. All plans shall be at a scale of ten (10) feet, twenty (20) feet, thirty (30) feet, forty (40) feet, fifty (50) feet, or one hundred (100) feet to the inch.
- E. A location map, for the purpose of locating the project site to be developed, at a minimum scale of two thousand (2,000) feet to the inch, showing the relation of the tract to adjoining property and to all streets and Township boundaries existing within one thousand (1,000) feet of any part of the tract of land on which the project site is proposed to be developed.
- F. A note on the plan indicating any area that is proposed to be offered for dedication to the Township.
- G. A note on the plan indicating any area that is not to be offered for dedication, along with a statement that the Township is not responsible for the maintenance of any area not dedicated to, and accepted for, public use, and that no alteration to swales or basins or placement of structures within easements shall be permitted.
- H. Certificate, signed and sealed by an individual registered in the Commonwealth of Pennsylvania and qualified to perform such duties,

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indicating compliance with the provisions of this Ordinance (see Appendices).

304.1.2. Existing Features.

- A. Tract boundaries showing distances, bearings and curve data, as located by field survey or by deed plotting, total acreage of tract, and total acreage of project if less than the entire tract.
- B. Existing Topographical Data. This information shall be provided by field survey of contour lines, indicating the natural drainage patterns of the site, along with the appropriate grades of all slopes. Contour lines shall be provided at vertical intervals of two (2) feet for land with an average natural slope of four percent (4%) or less, and at vertical intervals of five (5) feet for more steeply sloping land. Additionally, the benchmark and the datum used shall also be indicated.
- C. Names of all owners of all immediately adjacent land, the names of all proposed or existing developments immediately adjacent, and the locations and dimensions of any streets or easements shown thereon.
- D. The names, locations and dimensions of all existing streets, railroads, watercourses, drainage facilities, floodplains, and other significant features located either within the property or two hundred (200) feet from the property.
- E. The size, capacity and condition of the existing storm water management system and any other facility that may be used to convey storm flows.
- G. Soil types as designated by the U. S. Department of Agriculture, Soil Conservation Service, Soil Survey of Lancaster County.

304.1.3. Proposed Features.

- A. Proposed land use, the number of lots and dwelling units and the extent of commercial, industrial or other nonresidential uses.
- B. Locations and dimensions of all proposed streets, sidewalks, lot lines, building locations, parking compounds, impervious and semi-impervious surfaces, sanitary sewer facilities, water facilities, and areas proposed for public dedication.
- C. Proposed changes to land surface and vegetative cover, including areas to be cut or filled.
- D. Proposed Topographical Data. This information shall be provided by contour lines indicating the natural drainage patterns of the site,

along with the approximate grades of all slopes. Final contours at vertical intervals of two (2) feet for land with an average natural slope of four percent (4%) or less, and at vertical intervals of five (5) feet for more steeply sloping land.

- E. All storm sewers, along with any proposed connections to existing facilities.
- F. Groundwater recharge methods, such as seepage pits, beds or trenches. When these structures are used, the locations of septic tank infiltration areas and wells must be shown.
- G. Other control devices or methods, such as rooftop storage, grass swales, parking lot ponding, vegetated strips, and detention or retention basins.
- H. Plans and provisions of all proposed storm water management facilities, including vertical and horizontal alignment, size and type of material. This information shall be of the quality required for the construction of all facilities.
- I. When plan applications are submitted in sections, a generalized storm water management plan for the entire project site shall be submitted, in addition to the detailed storm water management plan for the proposed section. This generalized plan shall demonstrate how the storm water of the proposed section will relate to the entire development. The amount and velocity at the discharge point of the section shall be included in the data submitted. If temporary facilities are required for construction of a section, such facilities shall be included in the submitted plans.
- J. Type, location and extent of all erosion and sedimentation control measures shall be shown on an erosion and sedimentation control plan that conforms to the requirements of Part IV of the *Soil Erosion and Sedimentation Control Manual* of the Pennsylvania Department of Environmental Protection.

304.2. Written report, including or prepared in accordance with the following:

- 304.2.1. Calculations, assumptions, criteria, and references used in the design of storm water management facilities, the establishment of capacities, and the pre-development and post-development peak discharge.
- 304.2.2. For all basins, a plotting or tabulation of the storage volumes and discharge curves with corresponding water surface elevations, inflow, hydrographs, and outflow hydrographs.

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- 304.2.3. For all proposed detention and retention basins which hold two (2) acre feet or more of water, and have an embankment that is six (6) feet or more in height, soil structures and characteristics shall be provided. Plans and data prepared by a registered professional experienced and education in soil mechanics shall be submitted. These submissions shall provide design solutions for frost-heave potential, spring-swell potential, soil bearing strength, water infiltration, soil settling characteristics, fill and backfilling procedures and soil treatment techniques as required to protect the improvements or structures.
- 304.2.4. Description of all erosion and sedimentation control measures, temporary as well as permanent, including the staging of land moving activities, sufficient in detail to clearly indicate their function. All erosion and sedimentation control measures shall conform to the requirements of the Pennsylvania Department of Environmental Protection, *Soil Erosion and Sedimentation Control Manual*.
- 304.2.5. Description of an ownership and maintenance program, in a recordable form, that clearly sets forth the ownership and maintenance responsibilities for all temporary and permanent storm water management facilities and erosion and sedimentation control facilities which shall include:
- A. Description of method and extent of the temporary and permanent maintenance requirements.
 - B. When maintained by a private entity, identification of an individual, corporation, association, or other entity responsible for ownership and maintenance.
 - C. When maintained by a private entity, a copy of the legally-binding document which provides that the Township shall have the right to:
 - a. Inspect the facilities at any time.
 - b. Require the private entity to take corrective measures and assign the private entity reasonable time periods for any necessary action.
 - c. Authorize maintenance to be done by the Township or an agent or contractor of the Township and the liening of the cost of the work against the properties of the private entity responsible for the maintenance.
 - D. Establishment of suitable easements for access to storm water management facilities

- E. When an assignment of responsibility is made to the Township, it must include an acknowledgment of their formal acceptance of the responsibility.

This document shall be recorded by the Township in the Office of the Lancaster County Recorder of Deeds upon issuance of a permit.

- 304.2.6. A Pennsylvania Department of Transportation Highway Occupancy Permit for any storm water discharge onto, or storm water management facility located within, the right-of-way of any State road.
- 304.2.7. Notification from the Pennsylvania Department of Environmental Protection of approval, or that no approval is necessary for all storm water facilities that affect an existing watercourse, or has an upland drainage area of greater than one-half (1/2) square mile.

§305 MODIFICATION OF PLANS.

A modification of an approved Storm Water Management Plan shall require a new permit, except that the Township Zoning Officer may authorize modification, provided that such modifications do not (1) alter the storm water management facilities in a manner which significantly affects the discharge of storm water to an adjacent property, or (2) significantly relocate a major storm water management facility within the project. The Township Zoning Officer has the right to submit any alteration of a storm water management facility to the Township Engineer, Solicitor or other Township official for review.

§306 WAIVER AND APPEAL PROCEDURE.

The provisions of this Ordinance are intended as minimum standards for the protection of the public health, safety and welfare. The Board of Supervisors may grant a waiver for literal compliance with mandatory provisions of the Ordinance if the applicant can demonstrate either (1) that compliance would cause undue hardship as it applies to a particular property, or (2) that an alternative proposal will allow for equal or better results.

Additionally, the Board of Supervisors may hear and decide appeals, where it is alleged that the Township, or its staff, has failed to follow prescribed procedures, or has misinterpreted or misapplied any of the Ordinance.

The approval of the waiver or appeal shall not have the effect of making null and void the intent and purpose of the Ordinance. In the approval of a waiver or appeal, the Board of Supervisors may impose such conditions as will, in its judgment, secure substantially the objectives of the standards and requirements of the Ordinance.

- 306.1. Application Procedures (Waiver-Appeal). All requests for waivers or appeals shall be processed in accordance with the following:

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- 306.1.1. A request for a waiver or appeal shall be submitted at the Salisbury Township Municipal Office on any business day. The request shall be made in writing (see Appendix No. 9) and identify (1) the specific section of the Ordinance or decision which is requested for waiver or appeal, (2) the proposed alternative to the requirement, when applicable, and (3) justifications for an approval of the waiver or appeal.
- 306.1.2. The Township Zoning Officer shall (1) schedule the request for consideration by the Board of Supervisors at a public meeting within sixty (60) days of receipt and (2) provide adequate notice to the applicant and any other involved parties of the meeting at which consideration of the request is scheduled.
- 306.1.3. The Board of Supervisors shall, following the consideration of the request, take such public action as it shall deem advisable and notify all involved parties within twenty (20) days of the action. Such notice shall cite the findings and reasons for the deposition of the waiver or appeal.

§307 EXPIRATION OF A STORM WATER MANAGEMENT PERMIT.

- 307.1. All Storm Water Management Permits shall expire twelve (12) months from the date of issuance, unless an extension of time is approved. An extension of an unexpired Storm Water Management Permit shall be issued by the Township Zoning Officer following the submission of a written request, provided the following characteristics are present.
 - 307.1.1. The subject property or affected surrounding area has not been altered in a manner which requires alteration to the Storm Water Management Plan, and
 - 307.1.2. In the case where substantial improvements have not been completed, any new standard would not affect the application.
- 307.2. The refusal of an extension of time shall cite the reasons for such refusal.
- 307.3. A Storm Water Management Permit shall not expire while a request for an extension is pending.

CHAPTER 26

PART 1D

COMPLETION OR GUARANTEE OF FACILITIES

§401. COMPLETION OF FACILITIES AS PART OF A SUBDIVISION OR LAND DEVELOPMENT.

Storm water management facilities that are part of a subdivision or land development plan shall be completely installed prior to final plan approval, unless the developer submits proper financial security with the final plan application in accordance with the Salisbury Township Subdivision and Land Development Ordinance.

§402 DETERMINATION OF FINANCIAL SECURITY.

Where required, the developer shall file with the Board of Supervisors financial security in an amount sufficient to cover the costs of all storm water management facilities required by this Ordinance. Without limitation as to other types of financial security which the Township may approve, which approval shall not be unreasonably withheld, Federal- or Commonwealth-chartered lending institution irrevocable letters of credit and restrictive or escrow accounts in such lending institutions shall be deemed acceptable financial security. Such financial security shall be posted with a bonding company or Federal- or Commonwealth-chartered lending institution chosen by the developer, provided said bonding company or lending institution is authorized to conduct such business within the Commonwealth. Such bond, or other security, shall provide for, and secure to the public, completion of all storm water management facilities within one (1) year of the date fixed on the final approved plan for such facilities. The amount of financial security shall be equal to one hundred ten percent (110%) of the cost of the required facilities for which financial security is to be posted. The cost of the facilities shall be established by submission to the Board of Supervisors of a bona fide bid or bids from the contractor or contractors chosen, the developer to complete the facilities, or in the absence of such bona fide bids, the cost shall be established by estimate and approved by the Township. If the developer requires more than one (1) year from the date of posting of the financial security to complete the required facilities, the amount of financial security may be increased by an additional ten percent (10%) for each one (1) year period beyond the first anniversary date from posting of financial security, or to an amount not exceeding one hundred ten percent (110%) of the cost of completing the required facilities, as reestablished on or about the expiration of the preceding one (1) year period by using the above bidding procedure.

§403 FINANCIAL SECURITY FOR STAGED DEVELOPMENT.

In the case where development is projected over a period of years, the Board of Supervisors may authorize submission of storm water management plan applications by section or stages of development subject to such requirements or guarantees as to storm water management facilities

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in future sections or stages of development as it finds essential for the protection of any finally-approved section of the development.

§404 RELEASE OF FINANCIAL SECURITY.

As the work of installing the required storm water management facilities proceeds, the developer may request the Township to release or authorize the release of, from time to time, such portions of the financial security necessary for payment to the contractor or contractors performing the work. Any such requests shall be in writing addressed to the Township which shall have forty-five (45) days from receipt of such request within which to allow the Township Engineer to certify, in writing, to the Township that such portion of the work upon the facilities has been completed in accordance with the approved plan. Upon such certification, the Township shall authorize release by the bonding company or lending institution of an amount as estimated by the Township Engineer fairly representing the value of the facilities completed or, if the Township fails to act within said forty-five (45) day period, the Township shall be deemed to have approved the release of funds as requested. The Township may, prior to final release at the time of completion and certification by the Township Engineer, require retention of ten percent (10%) of the estimated cost of the aforesaid facilities.

§405 SCHEDULE OF INSPECTIONS.

- 405.1. During construction, the Township Engineer or other authorized Township official, may inspect the premises to determine that the work is progressing in compliance with the information provided on the approved storm water management plan and with all applicable Township laws and ordinances.
- 405.2. The cost for the conducting of inspections by the Township Engineer or other authorized Township official shall be borne by the developer in accordance with the inspection fee adopted by resolution of the Board of Supervisors.
- 405.3. In the event the Township Engineer or authorized official discovers that the work does not comply with the approved plan or any applicable laws and ordinances, the Township shall suspend any existing permits related to the development until the required corrections have been made. Any portion of the work which does not comply with the approved plan must be corrected by the developer within ten (10) days. No work may proceed on any subsequent phase of the storm water management, the subdivision or land development, or the building construction, until the relating permits have been reinstated.
- 405.4. If, at any stage of the work, the Township Engineer or authorized official determines that the soil or other conditions are not as stated or shown in the approved application, or that there has been a false statement of misrepresentation by the developer, the Township Engineer or authorized official may refuse to approve further work, and the Township may revoke existing permits until a revised plan is submitted and approved, as required by Section 602 of this Ordinance.

§406 FINAL INSPECTION.

- 406.1. When the developer has completed all the required facilities, he shall notify the Township in writing by certified or registered mail, and shall send a copy of such notice to the Township Engineer. The Township shall, within ten (10) days after receipt of such notice, authorize the Township Engineer to inspect the required facilities. The Township Engineer shall promptly file a report, in writing, with the Township and shall mail a copy of the report to the developer by certified or registered mail. The report shall be made and mailed within thirty (30) days after receipt by the Township Engineer of the previously mentioned authorization by the Township.
- 406.2. Based on the report of the Township Engineer, the Township shall indicate approval or rejection of the storm water management facilities, either in whole or in part, and if not approved, state reasons for the rejection. The Township shall immediately notify the developer in writing, by certified or registered mail, of its actions.
- 406.3. If the Board of Supervisors or the Township Engineer fails to comply with the time limitation provisions contained herein, all storm water management facilities will be deemed to have been approved, and the developer shall be released from all liability, pursuant to its performance guaranty bond, or other security agreement.
- 406.4. If any portion of said improvements are not approved or are rejected by the Township, the developer shall proceed to complete the same and, upon completion, the same procedure of notification outlined herein shall be followed.

§407 REMEDIES TO EFFECT COMPLETION OF FACILITIES.

In the event any storm water management facilities, which may be required, have not been installed as provided in this Ordinance, or in accordance with the approved final plan, the Board of Supervisors has the power to enforce any corporate bond or other security by appropriate legal and equitable remedies. If proceeds of such bond or other security are insufficient to pay the cost of installing or making repairs or corrections to all the facilities covered by said security, the Board of Supervisors may, at its option, install such facilities in all or part of the development and may institute appropriate legal or equitable action to recover the monies necessary to complete the remainder of the facilities. All of the proceeds, whether resulting from the security or from any legal or equitable action brought against the developer, or both, shall be used solely for the installation of the storm water management facilities covered by such security, and not for any other purpose.

CHAPTER 26

PART 1E

MAINTENANCE GUARANTEE

§501. MAINTENANCE OF FACILITIES ACCEPTED BY THE TOWNSHIP.

Where the Board of Supervisors accepts dedication of all or some of the required storm water management facilities following completion, the Board of Supervisors may require the posting of financial security to secure structural integrity of said facilities, as well as the functioning of said facilities in accordance with the design and specifications as depicted on the approved storm water management plan for a term not to exceed eighteen (18) months from the date of acceptance of dedication. Said financial security shall be the same type as required in Section 402 with regard to installation of such facilities, and the amount of the financial security shall not exceed fifteen percent (15%) of the actual cost of installation of said facilities.

§502 MAINTENANCE OF FACILITIES BY PRIVATE ENTITY.

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

§503 MAINTENANCE OF FACILITIES BY LANDOWNER OF INDIVIDUAL LOT.

503.1. When storm water management facilities are to be located on an individual lot, and when they are the responsibility of that landowner to maintain, a description of the facility and the terms of the required maintenance shall be incorporated as part of the deed to the lot.

503.2. If the Township determines at any time that any permanent storm water management facility has been eliminated, altered or improperly maintained, the landowner of the lot shall be advised of corrective measures required and given a reasonable period of time, not to exceed thirty (30) days, within which to take such corrective action. If such corrective action is not taken by the landowner, the Township may cause the work to be done and shall take appropriate action to file a municipal claim pursuant to the Pennsylvania Municipal Claims and Tax Liens Act, Act of May 16, 1923, P.L. 207, as amended and supplemented, as a lien against the real property upon which the work was done.

§504 MAINTENANCE FUND FOR PERPETUAL CARE OF FACILITIES.

Where the Board of Supervisors accepts dedication of storm water management facilities, the Board of Supervisors may require the developer to establish, at the time of dedication, a maintenance fund adequate for the perpetual care of such facilities, including detention basins.

CHAPTER 26

PART 1F

ADMINISTRATION

§601. REMEDIES.

Any person, partnership or corporation who, being the owner of land on which a land disturbance activity has occurred or is engaged in a land disturbance activity, as defined in this Ordinance, shall comply with the provision of this Ordinance and the Storm Water Management Permit. Any land disturbance activity conducted in violation of this Ordinance or the Storm Water Management Permit is hereby declared a public nuisance.

In case of a violation, Salisbury Township may initiate the following actions:

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

601.1.1. The noncompliance with or failure to implement any provision of the Storm Water Management Plan, or

601.1.2. A violation of any provision of this Ordinance related to the project, or

601.1.3. The creation of any condition or the commission of any act during construction which constitutes or creates a hazard or nuisance or which endangers the life or property of others.

601.2. Under the suspension of a permit, only such work as the Township so authorized may proceed. This work shall be limited to that which is necessary to correct the violation.

601.3. The Township shall reinstate a suspended permit when:

601.3.1. The Township inspected and approved the corrections to the storm water management facilities or the elimination of the hazard or nuisance, and

601.3.2. The Township is satisfied that the violations of the Ordinance have been corrected.

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

601.4.1. Revoke a permit.

- 601.4.2. Require protective measures to be done and assign a reasonable time for the necessary action.
 - 601.4.3. Authorize protective measures to be done and lien all cost of the work against the property on which work is required.
 - 601.4.4. A permit that has been revoked cannot be reinstated. The applicant may apply for a new permit in accordance with the processing procedures in Part 1C.
- 601.5. Civil Remedies. Suits to restrain, prevent or abate a violation of this Ordinance may be instituted in equity or at law by the Township. Such proceedings in equity or law may be initiated before any court of competent jurisdiction. In cases of emergency where, in the opinion of the court, the circumstances of the case require immediate abatement of the unlawful conduct, the court may, in its decree, fix a reasonable time during which the person responsible for the unlawful conduct shall correct or abate the same. The expense of such proceedings shall be recoverable from the violator in such manner as may now or hereafter be provided by law.
- 601.6. Notification of Suspension or Revocation of a Storm Water Management Permit. In case of suspension or revocation of a Storm Water Management Permit, the Township shall provide written notification of the violation to the landowner and/or applicant at his last known address. Such notification shall:
- 601.6.1. Cite the specific violation, describe the requirements which have not been met, and cite the provisions of the Ordinance relief upon.
 - 601.6.2. Identify the specific protective measures to be taken.
 - 601.6.3. Assign a reasonable time necessary for action or, in the case of revocation, identify if the Township has authorized protective measures to be performed at cost to the landowner.
 - 601.6.4. Identify the right to request a hearing before the Board of Supervisors, if aggrieved by the suspension or revocation.

§602. PENALTIES.

- 602.1. Any person who shall violate any of the provisions of this Ordinance, or who shall fail to comply with any written notice from Salisbury Township, which describes a condition of noncompliance, shall be guilty of a summary offense, and, upon conviction thereof, shall be subject to a fine payable to Salisbury Township of not more than one thousand dollars (\$1,000) for each violation, recoverable with cost. In default of payment of the fine, such person shall be liable to imprisonment for not more than thirty (30) days. A new and separate violation shall be deemed committed for each day after receipt of the previously mentioned notice that such violation exists.

STORM WATER MANAGEMENT

602.2. In addition, the Township may institute injunctive or any other appropriate action or proceeding of 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, or other appropriate forms of remedy or relief.

§603. APPEALS.

Any person, partnership, corporation, or organization aggrieved by any action of the Township, or its agent, may appeal to the Board of Supervisors within twenty (20) days of that action.

§603. EFFECTIVE DATE.

This Ordinance shall become effective five (5) days after its enactment by the Board of Supervisors of Salisbury Township, Lancaster County, Pennsylvania, in lawful session duly assembled.

DULY ORDAINED AND ENACTED this _____ day of _____, 2000, by the Board of Supervisors of Salisbury Township, Lancaster County, Pennsylvania, in lawful session duly assembled.

BOARD OF SUPERVISORS OF SALISBURY TOWNSHIP

By: _____
Chairman

Vice-Chairman

Secretary-Treasurer

ATTESTED:

Secretary

(SEAL)

CHAPTER 26

PART 1G

APPENDICES

APPENDIX NO. 1**PennDOT REGION 5**
PENNSYLVANIA RAINFALL INTENSITY-DURATION-FREQUENCY**STORM DATA BASE CHART (Inches/Hour)**

Time (Minutes)	Storm Frequency (Years)					
	2	5	10	25	50	100
5.0	4.63	5.40	6.02	6.70	7.51	8.19
6.0	4.34	5.15	5.70	6.39	7.22	7.90
7.0	4.12	4.95	5.42	6.10	6.95	7.62
8.0	3.92	4.70	5.17	5.85	6.70	7.36
9.0	3.75	4.50	4.95	5.62	6.47	7.12
10.0	3.59	4.30	4.75	5.41	6.26	6.90
11.0	3.45	4.15	4.58	5.22	6.07	6.70
12.0	3.32	4.00	4.42	5.05	5.88	6.50
13.0	3.21	3.85	4.27	4.89	5.71	6.33
14.0	3.10	3.70	4.16	4.74	5.56	6.16
15.0	3.00	3.55	4.00	4.60	5.40	6.00
20.0	2.60	3.10	3.50	4.03	4.78	5.34
25.0	2.31	2.65	3.15	3.61	4.30	4.83
30.0	2.09	2.45	2.82	3.27	3.92	4.41
40.0	1.76	2.05	2.39	2.78	3.34	3.79
50.0	1.53	1.77	2.08	2.42	2.92	3.33
60.0	1.35	1.60	1.85	2.15	2.60	2.98

APPENDIX NO. 2

RUNOFF COEFFICIENTS "C" FOR RATIONAL FORMULA

Soil Group	A			B			C			D		
Slope	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Land Use												
Cultivated Land												
winter conditions	.14	.23	.34	.21	.32	.41	.27	.37	.48	.34	.45	.56
summer conditions	.10	.16	.22	.14	.20	.28	.19	.26	.33	.23	.29	.38
Fallowed Fields												
poor conditions	.12	.19	.28	.17	.25	.34	.23	.33	.40	.27	.35	.45
good conditions	.08	.13	.16	.11	.15	.21	.14	.19	.26	.18	.23	.31
Forest/Woodland	.08	.11	.14	.10	.14	.18	.12	.16	.20	.15	.20	.25
Grass Areas												
good conditions	.10	.16	.20	.14	.19	.26	.18	.22	.30	.21	.25	.35
average conditions	.12	.18	.22	.16	.21	.28	.20	.25	.34	.24	.29	.41
poor conditions	.14	.21	.30	.18	.28	.37	.25	.35	.44	.30	.40	.50
Impervious Areas	.90	.91	.92	.91	.92	.93	.92	.93	.94	.93	.94	.95
Weighted Residential												
lot size 1/8 acre	.29	.33	.36	.31	.35	.40	.34	.38	.44	.36	.41	.48
lot size 1/4 acre	.26	.30	.34	.29	.33	.38	.32	.36	.42	.34	.38	.46
lot size 1/3 acre	.24	.28	.31	.26	.32	.35	.29	.35	.40	.32	.36	.45
lot size 1/2 acre	.21	.25	.28	.24	.27	.32	.27	.31	.37	.30	.34	.43
lot size 1 acre	.18	.23	.26	.21	.24	.30	.24	.29	.36	.28	.32	.41

APPENDIX NO. 3

RUNOFF CURVE NUMBERS “CN” FOR SCS METHOD

Soil Group	A			B			C			D		
	Slope	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%
Land Use												
Cultivated Land												
winter conditions	48	60	75	62	73	82	68	78	90	77	88	95
summer conditions	35	51	58	48	55	65	57	65	73	64	69	79
Fallowed Fields												
poor conditions	45	54	65	56	63	73	64	74	81	69	77	87
good conditions	30	44	48	43	48	55	48	54	63	56	60	68
Forest/Woodland	30	40	43	42	46	50	45	50	53	50	56	61
Grass Areas												
good conditions	35	51	53	48	54	63	56	59	74	62	63	80
average conditions	45	53	58	52	55	65	60	63	79	65	69	84
poor conditions	48	55	67	56	67	77	66	74	85	73	81	90
Impervious Areas	96	97	98	96	97	98	96	97	98	96	97	98
Weighted Residential												
lot size 1/8 acre	71	75	78	74	76	82	78	80	87	81	83	90
lot size 1/4 acre	62	67	71	66	69	76	67	69	76	75	78	88
lot size 1/3 acre	59	65	69	64	66	74	65	66	75	74	77	87
lot size 1/2 acre	57	63	68	62	64	73	63	65	73	72	76	86
lot size 1 acre	55	62	67	61	63	72	61	64	72	71	75	85

APPENDIX NO. 4

WORKSHEET NO. 1 TIME OF CONCENTRATION (T_c) OR TRAVEL TIME (T_t)

Project _____ By _____ Date _____
 Location _____ Checked _____ Date _____
 Circle one: President Developed _____

Circle one: T_c T_t through subarea _____

Notes: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic or description of flow segments.

Sheet Flow (applicable to T _c only)	Segment ID			
1. Surface description (table 3-1).....				
2. Manning's roughness coeff., n (table 3-1).....				
3. Flow length. L (total L ≤ **150 ft).....ft				
4. Two-year, 24-hour rainfall. P ₂in				
5. Land slope. sft/ft				
6. $T_t = \frac{0.007 (nl)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute T _thr		+	=	

Shallow Concentrated Flow	Segment ID			
7. Surface description (paved or unpaved).....				
8. Flow length. Lft				
9. Watercourse slope. sft/ft				
10. Average velocity. V (figure 3-1)ft/s				
11. $T_t = \frac{L}{3600 V}$ Compute T _thr		+	=	

Channel Flow	Segment ID			
12. Cross sectional flow area. aft ²				
13. Wetted perimeter. P _wft				
14. Hydraulic radius. $r = \frac{a}{P_w}$ Compute rft				
15. Channel slope. sft/ft				
16. Manning's roughness coeff., n				
17. $V = \frac{1.49 r^{2/3}}{n}$ Compute Vhr				
18. Flow length. Lft				
19. $T_t = \frac{L}{3600 V}$ Compute T _thr		+	=	
20. Watershed or subarea T _c or T _t (add T _t in steps 6, 11 and 19)hr				

*Table 3-1 per latest TR-55, Urban Hydrology for Small Watershed.

**150' sheet flow length per latest TR-55 revision.

APPENDIX NO. 5**MANNING “n” VALUES FOR PIPES**

Pipe Material	Manning “n”
Helical Corrugated Steel/Aluminum 2-2/3 x 1/2 Corrugations Diameter (inches)	
15	0.014
18	0.015
21	0.016
24	0.017
27	0.018
30	0.019
36	0.020
42	0.021
48	0.021
Reinforced Concrete All Diameters	0.013
Corrugated Polyethylene Smooth Lining All Diameters	0.012
Note: Arch pipe shall have the Manning “n” of an equal periphery of circular pipe.	

APPENDIX NO. 6

APPLICATION FOR A STORM WATER MANAGEMENT PERMIT
MINOR LAND DISTURBANCE

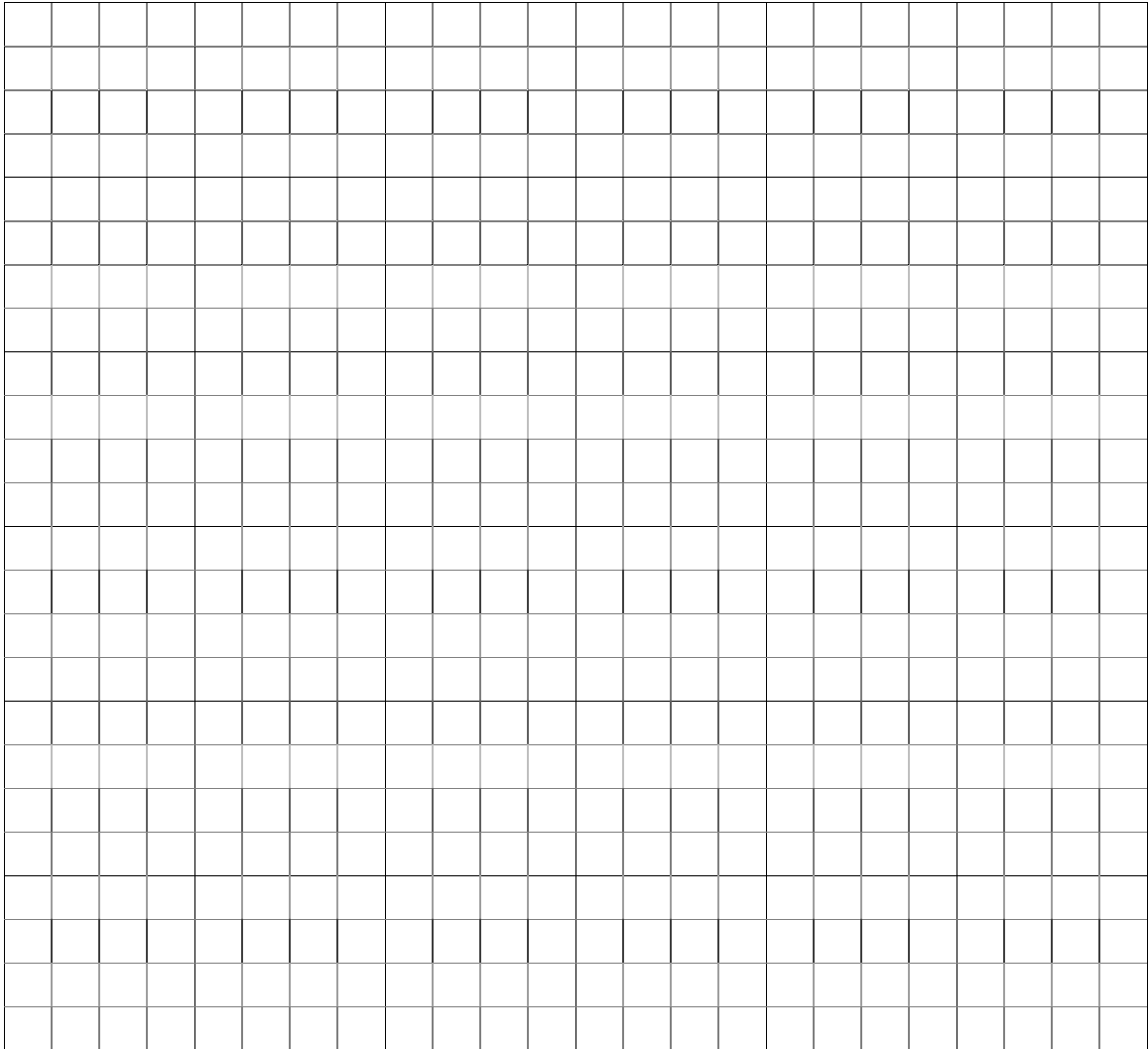
SALISBURY TOWNSHIP
Lancaster County, Pennsylvania

Application is hereby made to Salisbury Township for the issuance of a Storm Water Management Permit pursuant to the specifications herewith submitted.	
1. Name of Property Owner(s):	
Address:	
	Telephone No.:
2. Name of Applicant (if other than owner):	
Address:	
	Telephone No.:
3. Project Location:	
4. If the property is the subject of a subdivision or land development, provide plan book record number or Township identification number. _____	
5. Brief Description of Work to be Performed: _____ _____ _____	
A general plan of the lot configuration, building location, grading, and storm water management facilities shall be shown on the reverse side of this page.	
6. Storm Water Management Plan Prepared By:	
Address:	
	Telephone No.:
The undersigned hereby represents that, to the best of their knowledge and belief, all information listed above and on the reverse side of this page is true, correct, and complete.	
Date:	Signature of Applicant
For Township Use Only	
File No.:	Date of Receipt/Filing:

PLEASE COMPLETE THE GENERAL PLAN ON THE REVERSE SIDE OF THIS PAGE.

STORM WATER MANAGEMENT

GENERAL PLAN



Scale: 1"=_____ (4 squares per inch)

The following shall be shown on the Plan:

Lot Configuration

Building Location

Contours or Flow Arrows

Storm Sewers

Berms

Terraces

Bridges

Dams

Infiltration System

Swales

Watercourses

Floodplains

Basins

APPENDIX NO. 7

APPLICATION FOR A STORM WATER MANAGEMENT PERMIT
MAJOR LAND DISTURBANCE

SALISBURY TOWNSHIP
Lancaster County, Pennsylvania

Application is hereby made to Salisbury Township for the issuance of a Storm Water Management Permit pursuant to the specifications herewith submitted.	
1. Name of Property Owner(s):	
Address:	
	Telephone No.:
2. Name of Applicant (if other than owner):	
Address:	
	Telephone No.:
3. Project Location:	
4. Type of Earth Disturbance Activity:	
A. New impervious or semi-impervious surface _____ (sq. ft./ac.)	
B. Diversion or piping of natural or man-made watercourse _____ (linear ft.)	
C. Installation of the following:	
Culvert _____	Retention Basin _____
Detention Basin _____	Sediment Basin _____
D. Removal of ground cover, grading, filling, or excavation _____ (sq. ft./ac.)	
5. If the property is the subject of a subdivision or land development, provide plan book record number or Township identification number.	

6. Storm Water Management Plan Prepared By:	
Address:	
	Telephone No.:
The undersigned hereby represents that, to the best of their knowledge and belief, all information listed above and on the reverse side of this page is true, correct, and complete.	
Date:	Signature of Applicant
File No.:	For Township Use Only Date of Receipt/Filing:

APPENDIX NO. 8

APPLICATION FOR A WAIVER OR APPEAL
STORM WATER MANAGEMENT ORDINANCE

SALISBURY TOWNSHIP
Lancaster County, Pennsylvania

Application is hereby made to Salisbury Township for the consideration of a waiver or appeal to the provisions of the Storm Water Management Ordinance is herewith submitted.	
1. Name of Property Owner(s):	
Address:	
	Telephone No.:
2. Name of Applicant (if other than owner):	
Address:	
	Telephone No.:
3. Project Location:	
4. Specify section(s) of the Salisbury Township Storm Water Management Ordinance for which a Waiver is requested:	

5. The proposed alternative to the requirements: _____	

6. Specify the justification for approval of a waiver or appeal: _____	

The undersigned hereby represents that, to the best of their knowledge and belief, all information listed above is true, correct and complete.	
Date:	Signature of Applicant
File No.:	For Township Use Only Date of Receipt/Filing: