

CHAPTER 153

STORMWATER MANAGEMENT

ARTICLE I

General Provisions

- § 153.1. Short title.
- § 153.2. Grant of Power.
- § 153.3. Purposes.
- § 153.4. Applicability.
- § 153.5. Fees.
- § 153.6. Interpretation and Definitions.

ARTICLE II

Stormwater Plan Requirement

- § 153.7. General requirements.
- § 153.8. Exemptions for small developments.

ARTICLE III

*Stormwater Plan Contents: Submitted Preliminary
With Subdivision and Land Development Plan*

- § 153.9. General format.
- § 153.10. Professional certification.
- § 153.11. Runoff calculations.
- § 153.12. Detention facility ROUTINGS.
- § 153.13. Stormwater controls.
- § 153.14. Easements, rights-of-way, deed restrictions.
- § 153.15. Other permits/approvals.
- § 153.16. Maintenance Program.
- § 153.17. Financial Guarantees.

ARTICLE IV
Stormwater Plan Contents: Final Plan

§ 153.18. Required Documentation.

ARTICLE V
Stormwater Plan Review Procedures

§ 153.19. Pre-application Phase.

§ 153.20. Preliminary and final stormwater plan reviews.

§ 153.21. Status of the stormwater plan after final approval.

§ 153.22. Stormwater plan modifications.

ARTICLE VI
Stormwater Management PERFORMANCE STANDARDS

§ 153.23. Stormwater Management Districts.

§ 153.24. General PERFORMANCE STANDARDS.

§ 153.25. Technical PERFORMANCE STANDARDS.

§ 153.26. Storm Frequencies.

§ 153.27. Calculation Methods.

§ 153.28. Release Rate Percentage.

§ 153.29. No Harm Evaluation.

§ 153.30. Design Criteria for Stormwater Management Controls.

§ 153.31. Criteria for Collection/Conveyance Facilities.

§ 153.32. Erosion and Sedimentation Controls.

§ 153.33. As-Built Drawings.

ARTICLE VII
Maintenance of Facilities and Systems

§ 153.34. Maintenance responsibilities.

§ 153.35. Maintenance agreement for privately owned stormwater facilities.

§ 153.36. Municipal Stormwater Maintenance Fund.

ARTICLE VIII

Inspection of Controls

§ 153.37. Inspection procedures.

**ARTICLE IX
*Disclaimer of Liability***

§ 153.38. Disclaimer of Liability.

**ARTICLE X
*Enforcement and Administration***

§ 153.39. Enforcement.

[HISTORY: Adopted by the BOROUGH COUNCIL 10-22-58 as Ord. No. 305¹; amended in its entirety on 9-5-84 by Ord. No. 683; amended in its entirety on 4-19-95 by Ord. No. 833; amended partially on 11-1-95 by Ord. No. 841.]

**ARTICLE I
*General Provisions***

§ 153.1. Short Title.

This Article shall be known and may be cited as the "Borough of Whitehall Stormwater Management Ordinance" or just the "Stormwater Regulations".

§ 153.2. Grant of Power.

A portion of this Article (areas lying outside of the Monongahela Watershed) is adopted in accordance with the authority granted to municipalities to regulate subdivision and land development by the Pennsylvania Municipalities Planning Code, Act 247 of 1968, as amended (53 P.S. 10101, et seq.). The remainder portion of this article (areas lying within the Monongahela Watershed) is adopted in accordance with the authority granted to municipalities to regulate subdivision and land development by The Storm Water Management Act of October 9, 1978 (P.L. 864, No. 167 P.S. Sections 680.1-680.17) as amended and The Storm Water Management guidelines adopted by the General Assembly. This ordinance shall supersede all previous ordinances.

§ 153.3. Purposes.

These regulations are adopted and implemented to achieve the following general purposes and objectives:

153.3.1. To manage stormwater runoff resulting from land alterations and disturbance activities in accordance with watershed stormwater management plans adopted pursuant to the Pennsylvania Storm Water Management Act (Act 167 of 1978,

¹ Editor's Note: This ordinance was originally adopted as Ch. 158, but all references to Ch. 158 and §§ 158.1 through 158.27 were amended to read Ch. 153 and §§ 153.1 through 153.27 by Ord. No. 787 adopted 9-2-92.

as amended).

153.3.2. To utilize and protect the desirable existing natural drainage systems and to preserve the flood protection capacity of streams.

153.3.3. To encourage natural infiltration of rainfall to preserve groundwater supplies and stream flows.

153.3.4. To provide for adequate maintenance of all permanent stormwater management facilities in the Borough.

153.3.5. To update and revise the existing Ordinance No. 833 due to changes in the engineering and legal concepts concerning storm water management.

§ 153.4. Applicability.

The provisions of this Chapter shall apply to all subdivision and land developments unless specifically exempted or otherwise modified herein.

§ 153.5. Fees.

The applicant will be responsible for all fees associated with the approval and installation of the stormwater management plan; such fees to include, but not limited to, inspection, engineering, legal, and administrative. Said fees are posted with the municipality. Such fees will be established from time to time by the Borough by resolution; engineer costs and expenses shall be billed to the Borough that shall be payable by the applicant.

§ 153.6. Interpretation and Definitions.

Interpretation

The word "person" includes a corporation, association, partnership or individual. The words "shall" and "will" are mandatory; the word "may" is permissive. The word "Building" includes structure or any part thereof. Words used in the present tense include the future tense. Words in the masculine gender shall include the feminine gender.

Definitions

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

ACT - The Stormwater Management Act (Act of October 4, 1978, P.L. 864 No. 167; 32 P.S. Sections 680.1-680.17, as amended by Act of May 24, 1984, No. 63).

APPLICANT - A landowner or developer (Including his/her heirs, successors and assigns), as defined by the Pennsylvania Municipalities Planning Code, Act 247 of 1968, as amended by Act 170 of 1988, as further amended by Act 209 of 1990 and Act 131 of 1992, who has filed an application for development within the Borough of Whitehall.

CHANNEL - A natural or artificial waterway which periodically or continuously contains moving water or which forms a connecting link between two bodies of water. It has a defined bed and banks which confine the water.

CONSERVATION DISTRICT (ACCD) - The Allegheny County Conservation District.

COUNTY- Allegheny County, Pennsylvania.

CULVERT- A closed conduit for the free passage of surface drainage under a highway, railroad, canal or other embankment.

DESIGN CRITERIA- Engineering guidelines specifying construction details and materials and/or objectives, results or limits which must be met by a facility, structure, or process in performance of its intended functions.

DESIGN STORM - The magnitude of precipitation from a storm event measured in probability of recurrence (e.g., 25-year storm) and duration (e.g. 24-hour), and used in computing stormwater management control systems.

DETENTION - The slowing or attenuating of runoff entering the natural drainage pattern or storm drainage system by temporarily holding water on a surface area such as detention basins, reservoirs, on roof tops, in streets, parking lots, or within the drainage system itself, and releasing the water at a desired rate of discharge.

DETENTION BASIN - A basin designed to attenuate stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate. A detention basin can be designed to drain completely after a storm event, or it can be designed to contain a permanent pool of water, in which case it is called a retention basin.

DEVELOPMENT - Any activity, construction, alteration, change in land use or similar action that affects stormwater runoff characteristics.

DEVELOPMENT SITE - A lot, parcel or tract of land on which development is taking place or is proposed.

DISCHARGE - Rate of flow, specifically fluid flow. A volume of fluid flowing from a conduit or channel, or being released from detention storage, per unit of time. Commonly expressed as cubic feet per second (cfs), million gallons per day (mgd), gallons per minute (gpm), or cubic meters per second (cms). See also "Rate of Runoff."

DRAINAGE - Interception and removal of excess surface water or groundwater from land by artificial or natural means.

DRAINAGE AREA - The contributing land area to a single drainage basin, expressed in acres, square miles, or other units of area; also called a catchment area, watershed, or river basin; the land area served by a drainage system or by a watercourse receiving storm and surface water, also called "sub area."

DRAINAGE BASIN - The land area from which water is carried off by a natural drainage system; also called a watershed or catchment area.

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

ENCROACHMENT- Any structure or activity which in any manner changes, expands or diminishes, the course, current or cross section of any watercourse, floodway or body of water.

EROSION- Wearing away of the lands by running water, glaciers, winds and waves.

EROSION CONTROL- The application of measures to reduce erosion of land surfaces.

FLOODPLAIN - A normally dry land area adjacent to stream channels that is susceptible to inundation by overbank stream flows. For regulatory purposes, the Pennsylvania Flood Plain Management Act (Act of October 4, 1978, P.L. 851, No. 166) and regulations pursuant to the Act define the floodplain as the area inundated by a 100-year flood and delineated on a map by FEMA (Federal Emergency Management Agency) or by the applicant in accordance with Borough ordinance requirements.

GROUND COVER - Materials covering the ground surface.

GROUND WATER - Subsurface water occupying the saturation zone, from which wells and springs are fed.

GROUND WATER RECHARGE - Replenishment of ground water naturally by precipitation or runoff or artificially by spreading or injection.

HYDRAULICS - The branch of science concerned with the mechanics of fluids, especially liquids. As applied in stormwater management, the study of the characteristics of water flow in, and conveyance capacity of, a watercourse, considering such factors as depth, velocity and turbulence.

HYDROLOGY - The science dealing with the waters of the earth and their distribution and circulation through the hydrosphere (above on and within the earth). Engineering hydrology deals with the application of hydrologic concepts to the design of projects for use and control of water, as well as the calculation of the rates of stormwater runoff.

HYDROGRAPH - A graph showing the quantity of runoff at a specific point in time during a rainfall event.

IMPERVIOUS MATERIAL OR SURFACE - Material which resists the entrance or passing through of water or other liquids. Some examples: pavement or roofs.

INFILTRATION - The flow or movement of water through the interstices or pores of a soil or other porous medium.

INTERMITTENT FLOW - Flow that starts and stops again at different intervals.

LAND DEVELOPMENT - Any of the following activities:

- (1) The improvement of one lot or two or more contiguous lots, tracts or parcels or land for any purpose involving:
 - (a) A group of two or more residential or non-residential buildings, whether proposed initially or cumulatively, or a single non-residential building on a lot or lots regardless of the number of occupants, or tenure; or

- (b) The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means or, for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features;

- (2) A subdivision of land.

LAND DISTURBANCE - Any activity involving grading, tilling, digging or filling or stripping of vegetation; or any other activity which causes land to be exposed to the danger of erosion or changed water flow characteristics.

MAINTENANCE-The upkeep necessary for efficient operation of stormwater structures and facilities.

MUNICIPALITY - The Borough of Whitehall.

NATURAL STORM WATER RUNOFF REGIME - A watershed where natural surface configurations, runoff characteristics and defined drainage conveyances have attained the conditions of equilibrium.

OUTFALL - The points at which stormwater runoff leaves streams, storm sewers, swales, or other well defined natural or artificial drainage features, as well as areas of dispersed overland flows within the site and/or leaving the site.

OUTLET STRUCTURE - A structure designed to control the volume of stormwater runoff from a detention or retention facility during a specific length of time.

OWNER - The person or the association which is responsible for the care of the structure(s) described.

PA DER - Pennsylvania Department of Environmental Resources.

PEAK RATE OF RUNOFF (OR DISCHARGE) - The maximum rate of flow of water at a given point and time resulting from a predetermined storm.

PERFORMANCE STANDARD - A standard which establishes an end result or outcome which is to be achieved but does not prescribe specific means for achieving it. A specification standard in contrast is one which prescribes the exact characteristics to be used, leaving little interpretation by the applicant. The allowable release rate is an example of a performance standard; the design standards for storm sewers are specification standards.

PERSON - An individual, partnership, public or private association or corporation, firm, trust, estate, municipality, government unit, public utility or any legal entity whatsoever, which is recognized by law as the subject of rights and duties.

PERVIOUS MATERIAL - Material which permits the passage or entrance of water or other liquid. (e.g. grass, earth, stone, and trees).

PRE-APPLICATION CONFERENCE - A meeting with the Borough prior to a formal application submittal.

POINT OF INTEREST - A point of hydrologic and/or hydraulic concern such as a bridge, culvert, or channel section, for which the rate of runoff is computed or measured.

RATE OF RUNOFF - Instantaneous measurement of water flow expressed as a unit of volume per unit of time, also referred to as DISCHARGE. Usually stated in cubic feet per second (cfs) or gallons per minute (gpm).

RELEASE RATE PERCENTAGE - The watershed factor determined by comparing the maximum rate of runoff from a subbasin to the contributing rate of runoff to the watershed peak rate at specific points of interest.

RETENTION BASIN - A type of detention basin designed to contain a permanent pool of water.

RETURN PERIOD - The average interval in years over which an event of a given magnitude can be expected to recur.

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

RUNOFF CHARACTERISTICS - The surface components of any watershed which affect the rate, amount, and direction of stormwater runoff. These may include but are not being limited to: vegetation, soils, slopes, and man-made landscape alterations.

ROUTING - Using an inflow hydrograph to simulate the water flow thru a storage facility creating storage data and an outflow hydrograph.

SCS - Soil Conservation Service, U.S. Department of Agriculture.

SEDIMENT - Solid material, both mineral and organic, that is in suspension, is being transported, or has been removed from its site or origin by air, water, gravity, or ice and has come to rest on the earth's surface.

SEDIMENTATION- The process by which Mineral or organic matter is accumulated or deposited by moving water, wind or gravity.

SOIL-COVER COMPLEX METHOD - A method of runoff computation developed by the U.S. Soil Conservation Service and specifically found in its publication "Urban Hydrology for Small Watersheds," Technical Release No. 55, SCS, (or most current edition). There are several runoff models which implement this methodology and it is not limited to the TR-55.

STORAGE FACILITY - (See Detention Basin).

STORM FREQUENCY - (See Design Storm.)

STORM SEWER - A pipe, culvert or underground open channel that carries intercepted surface runoff, street water, and other washwaters, or drainage, but excludes domestic sewage and industrial wastes.

STORMWATER COLLECTION/CONVEYANCE SYSTEM - Natural or engineered structures which collect and transport stormwater through or from a drainage area to the point of final outlet, including but not limited to, any of the following: conduits and appurtenant features,

canals, channels, ditches, streams, culverts, streets and pumping stations.

STORMWATER MANAGEMENT PLAN - The plan for managing stormwater runoff from a specific development site.

STORMWATER RUNOFF - Waters resulting from snow melt or precipitation within a drainage basin, flowing over the surface of the ground, collected in channels and conduits, and carried by receiving streams.

STREAM - A watercourse.

SUBAREA - A portion of the watershed that has similar hydrological characteristics and drains to a common point. Also called a drainage area.

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

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

VOLUME OF STORMWATER RUNOFF - Quantity of water normally measured cubic feet, or acre-feet, measured or determined analytically from (1) runoff coefficients; (2) rainfall/runoff ratios; and (3) areas underneath hydrographs.

WATERCOURSE (WATERWAY) - Any channel of conveyance of surface water having a defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

WATERSHED - The entire region or area drained by a river or other body of water whether natural or artificial. A "designated watershed" is an area delineated by PA. DER and approved by the Environmental Quality Board as one for which the county is required to prepare a watershed stormwater management plan in accordance with the Pennsylvania Stormwater Management Act. Also called a drainage basin.

WATERS OF THE COMMONWEALTH - Rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs and other bodies or channels of conveyance of surface water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth. (Source: The Clean Streams Law)

ARTICLE II ***Stormwater Plan Requirements***

§ 153.7. General Requirements.

No final subdivision or land development plan shall be approved, no permit authorizing construction issued, or any earthmoving or land disturbance activity initiated until the final stormwater management plan for the development site is approved in accordance with the provisions of this Article.

§ 153.8. Criteria for Small Developments.

At the time of application, the Borough Engineer shall determine if the subdivision of land development qualifies as a "small development" and, therefore, is eligible for a simplified stormwater management plan submission. For the purposes of this article, a small development is as follows:

153.8.1. Any subdivision or land development which results (or will result when fully constructed) in the creation of five thousand (5,000) or less square feet of impervious surface area shall be classified as a small development and is exempt from a storm water management plan submission.

Small developments must provide safe management of stormwater runoff in accordance with the performance standard of this Article and as approved by the Borough Engineer. Any stormwater management facilities constructed as part of the development shall be designed to control the peak pre development stormwater runoff for the 2, 10 and 25 year storm. The detention facility must be able to safely pass the post development 100 year storm peak discharge. The facility must provide an emergency outlet which can discharge the peak runoff for the undetained post development 100 year storm.

153.8.2. Applications for small developments shall include a plan which describes, narratively and graphically, the type and location of proposed on-site stormwater management techniques or the proposed connection to an existing storm sewer system. The plan should show accurately site boundaries; contours at five-foot intervals for areas of greater than 15 percent slope gradient and at two-foot intervals for areas with less than 15 percent slope; location of watershed and/or subarea boundaries on the site (if applicable); and any watercourses, flood plains or existing drainage facilities or structures located on the site.

153.8.3. The pre and post development calculations which show the amount of increased impervious area for the land development must be submitted prior to receiving an exception from submission of a stormwater management plan.

153.8.4. If applicable, a copy of the D.E.R. stream encroachment permit and all supporting calculations must be submitted prior to an exemption.

153.8.5. If the land development discharges its runoff into a floodway of a natural or man made swale or ditch, and is located upstream of a known area of continuous flooding, the calculations showing no increase in the peak water surface elevation at the point of flooding shall be submitted for review.

153.8.6. The Borough Engineer shall review and approve the proposed provisions for stormwater management for a small development. Where the applicant is proposing to connect to an existing storm sewer, the applicant shall demonstrate that sufficient capacity exists in the storm sewer from the point of connection to the point of outlet in the natural drainage system. The Borough Engineer shall determine if the proposed development site is part of a larger parcel or tract for which a stormwater management plan was approved previously and, therefore, subject to any specific stormwater management control contained in the prior plan.

153.8.7 For a parcel or tract of land held under single ownership, only one application for a small development, as defined above, shall be permitted before requiring a stormwater management plan for the entire parcel.

ARTICLE III

Stormwater Plan Contents: Submitted Preliminary with Subdivision and Land Development Plan

§ 153.9. General Format.

The stormwater plan shall be prepared using the general performance and technical standards requirements for plan format contained in the subdivision and Land Development Ordinance and in this article with the following additions:

153.9.1. Watershed Location Map- Provide a key map showing the location of the development site within the watershed(s) and watershed(s) subarea(s). On all site drawings, show the boundaries of the watershed(s) and subarea(s) as they are located on the development site and identify watershed name(s) and subarea number(s).

Example: Use a U.S.G.S. map with the watershed, watershed subarea, and the subject property all outlined and designated.

153.9.2. Subwatershed map - A plan must be submitted showing all the drainage areas and subwatersheds for the pre and post development peak runoff calculations.

Example: Use the site plan and draw the watersheds and subwatersheds on the plan.

153.9.3. Floodplain boundaries - Identify 100-year floodplains on the development site as shown on the FEMA mapping where applicable. In the case where no FEMA mapping exists for a watercourse that borders the proposed development site, the applicant's determination of the 100-year floodplain for any watercourse or water body on the development site shall be used.

153.9.4. Natural features - Show all bodies of water (natural and artificial), watercourses (permanent and intermittent), swales, wetlands and other natural drainage courses on the development site, or which will be affected by runoff from the development.

153.9.5. Soils - Provide a map showing soil types and boundaries within the development site (consult County, SCS, U.S. Geologic Survey Maps for information).

153.9.6. Contours - Show existing and final contours at intervals of two feet; in areas with slopes greater than 15%, five-foot contour intervals may be used.

153.9.7. Stormwater management controls - Show any existing stormwater management and/or drainage structures, such as storm sewers, swales, culverts, etc., which are located on the development site, or which are located off-site but will be

affected by runoff from the development.

153.9.8. Appendix A - The preliminary stormwater management plan checklist must be completed and submitted.

153.9.9. A Soil Erosion and Sedimentation Pollution Control Plan or NPDES Plan in accordance with Chapter 102 of DER Administrative Code Title 25 as authorized by the Clean Streams Law, Act 222, amended, and current Borough Erosion and Sedimentation Control Ordinance must be submitted.

153.9.10. Land Cover - Show existing and final land cover classifications as necessary to support and illustrate the runoff calculations performed.

153.9.11. Drainage Area Delineations - Show the boundaries of the drainage areas employed in the runoff calculations performed.

153.9.12. Stormwater Management Controls - Show any existing stormwater management or drainage controls and/ or structures, such as sanitary and storm sewers, swales, culverts, etc. which are located on the development site, or which are located offsite but will be affected by runoff from the development.

§ 153.10. Professional Certification.

The stormwater management plan (including all calculations) must be prepared, signed and sealed by a registered professional engineer, or land surveyor with training and expertise in hydrology and hydraulics, or such other professional persons as are qualified to make certification under the laws of Pennsylvania. The preparer of the stormwater management plan must fill out and submit Appendix C with said plan.

§ 153.11. Runoff Calculations.

The acceptable methods of calculation for use in determining stormwater runoff correspond with the recommendations of The Monongahela River Watershed Plan, prepared by the County, in order to maintain a uniform, watershed wide approach. The following methods for calculating pre and post development runoff rates have been stipulated in the standards and criteria of the watershed plan:

Methods of runoff calculation, such as,

1. The Rational Method may be used for drainage areas less than or equal to three (3) acres.
2. SCS TR-55, TR-20, HEC-1 or the Penn State Runoff Model must be used for all drainage areas greater than three (3) acres.

All pertinent information used to generate the pre and post developed discharge rates must be included with the storm water management plan. Also all calculations for the sizing of the stormwater control facilities must be submitted with the stormwater management plan.

§ 153.12. Detention Facility Routings.

All inflow hydrographs to detention facilities must be routed using methodology that analyzes detention storage and outflow simultaneously with respect to time. The modified-puls method or approved equal, as found in Haestad Method's Pond 2 or the Army Corps of Engineer's HEC-1 is recommended.

§ 153.13. Stormwater Controls.

All proposed stormwater runoff control measures must be shown on the plan, including methods for collecting, conveying, and storing stormwater runoff on-site which are to be used both during and after construction. Erosion and sedimentation controls must be shown on a separate plan. The preliminary plan should provide information on the general type, location, sizing, etc. of all proposed facilities and their relationship to the existing watershed drainage system.

153.13.1. If the development is to be constructed in stages, the applicant must demonstrate that stormwater facilities will be installed to manage stormwater runoff safely during each stage of development.

153.13.2. A schedule for the installation of all temporary and permanent stormwater control measures and devices shall be submitted.

153.13.3. If appropriate, a justification should be submitted as to why any preferred stormwater management techniques, as listed in Section 608, are not proposed for use.

§ 153.14. Easements, Rights of Way, Deed Restrictions.

All existing and proposed easements and rights-of-way for drainage and/or access to stormwater control facilities shall be shown, and the proposed owner identified. Show any areas subject to special deed restrictions relative to or affecting stormwater management on the development site.

§ 153.15. Other Permits and Approvals.

A list of any approvals/permits relative to stormwater management that will be required from other governmental agencies (e.g., a water obstruction permit from PA DER) and anticipated dates of submission/receipt should be included with the preliminary plan submission. Copies of applications may be requested by the Borough.

§ 153.16. Maintenance Program.

The preliminary application shall contain a proposed maintenance plan for all stormwater control facilities, in accordance with the following:

153.16.1. Identify the proposed ownership entity (e.g., municipality, property owner, a homeowner's association, or other management entity).

153.16.2. If ownership is to be an entity other than the Borough, include a maintenance program for all facilities, outlining the type of maintenance activities, probable frequencies, personnel and equipment requirements, and estimated annual maintenance costs.

153.16.3. Identify method of financing continuing operation and maintenance if facility is to be owned by other than the Borough or other governmental agency.

153.16.4. Include copies of any legal agreements required to implement the maintenance program and, if applicable, copies of the maintenance agreement as required by Article 700 of this ordinance.

§ 153.17. Financial Guarantees.

Submit financial guarantees in accordance with the provisions of Article 1000 of this ordinance.

ARTICLE IV

Stormwater Plan Contents: Submitted with Final Subdivision and Land Development Plan

§ 153.18. Required Documentation.

153.18.1. General Requirements. The following information shall be submitted prior to final approval:

153.18.1.1. All information pertaining to stormwater management from the preliminary plan along with any changes.

153.18.1.2. Final maps showing the exact nature and location of all temporary and permanent stormwater management controls along with design and construction specifications. Details for the construction of all facilities shall be included as part of the construction drawings.

153.18.1.3. A schedule for the installation of all temporary and permanent stormwater control measures and devices.

153.18.1.4. An accurate survey showing all current and proposed easements and rights-of-ways and copies of all proposed deed restrictions.

153.18.1.5. A maintenance program establishing ownership and maintenance responsibilities for all stormwater control facilities (identify specific person or entity) and detailing financial requirements and sources of funding. Submit any legal agreements required to implement the maintenance program and copies of the maintenance agreement as specified by this Article.

153.18.1.6. Financial guarantees, to ensure that all stormwater controls are installed properly and functioning satisfactorily.

153.18.1.7. Anything else within reason that might be required by the Borough Engineer and/or Borough of Whitehall to effectuate the purposes of this ordinance.

153.18.1.8. Appendix B - The final stormwater management plan

checklist must be completed and submitted.

153.18.2. Additional Information. The information requested in Appendices A, B, and C must be submitted.

ARTICLE V

Stormwater Plan Review Procedures

§ 153.19. Pre-Application Phase.

During the Pre-Application Conference, applicants are encouraged to consult with the Borough Engineer, the Allegheny County Planning Department, and the County Conservation District on the applicable regulations and techniques for safely managing stormwater runoff from the development site in a manner consistent with the Borough ordinances. These agencies may be helpful in providing the data that is necessary for preparing the stormwater management plan for the development site.

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

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

§ 153.20. Preliminary and Final Stormwater Plan Reviews.

153.20.1. Preliminary and Final Plans Required. Stormwater management plans, in accordance with the requirements of this Chapter, will be submitted with the preliminary and final subdivision or land development plan application to the Borough Manager, together with the appropriate fees.

153.20.2. Review by Borough Engineer - Preliminary and final stormwater management plans will be reviewed by the Borough Engineer.

153.20.3 Notification of Affected Municipalities - If during the review of the proposed stormwater management plan, the Borough determines that properties in adjacent municipalities may be affected by the stormwater runoff and proposed management system for the site, the applicant will notify the affected municipality(ies) and provide an opportunity to submit comments as part of the preliminary or final plan reviews. Copies of the plans will be made available to the municipalities upon request. Comments received will be submitted to the Planning Commission and Borough Council.

153.20.4. Borough Engineer's Review - The Borough Engineer shall approve or disapprove the preliminary and final stormwater management plan based on the requirements of the Borough's Code, the standards and criteria of the watershed plan and good engineering practice. The engineer shall submit a written report, along with supporting documentation, to the Borough Planning Commission for its consideration as part of the overall subdivision or land development plan review. In the cases where the Borough will be responsible for the maintenance of the stormwater management facility, the Borough Engineer shall also prepare a recommended

maintenance program for review and approval by the Council.

153.20.5. Approval of Storm Water Plan Required for Subdivision and Land Development Approval - No preliminary or final approval shall be granted for the overall subdivision or land development application until a stormwater management plan for the site has been approved.

153.20.6. Permits Required from Other Governmental Agencies - Where the subdivision or land development application requires a water obstruction or erosion/sedimentation permit then final subdivision or land development plan approval shall be conditional upon receipt of such permits. However, no building permit shall be issued, or construction started, until the permits are received and copies filed with the Borough.

153.20.7. County Planning Review.

153.20.7.1. The Borough shall forward a copy of the stormwater plan, along with all runoff calculations, shall be forwarded to the Allegheny County Planning Department. A report of the findings will be returned to the Borough within 30 days.

153.20.7.2. If the Department determines that the plan fails to comply with the watershed standards and criteria or that a possibility exists for harmful downstream impacts from the development site, the applicant will be advised so that proposed stormwater management controls can be modified. The Borough Engineer shall not approve the development site's stormwater management plan until it receives a positive review from the County Planning Department.

153.20.8. Status of the Engineer's Determination - The approval/disapproval of the site's stormwater management plan by the Borough Engineer shall be considered final. The governing body shall not reverse the engineer's determination by approving or disapproving the site's stormwater management plan or any specific control measure in contradiction to the engineer's action. The governing body may request modifications or alternative approaches to the stormwater management controls, provided these are agreed to by the Borough Engineer and the applicant's engineer.

153.20.9. Financial Guarantees and dedication of public improvements.

153.20.9.1. Guarantee of Completion - A completion guarantee in the form of a bond, cash deposit, certified check or other negotiable securities acceptable to the Borough, shall be filed. The guarantee shall cover all streets, sanitary sewers, stormwater management facilities, water systems, fire hydrants, sidewalks and other required improvements; it shall be in the amount and form prescribed by the Municipal Planning Code (Section 509).

153.20.9.2. Release of Completion Guarantee - The procedures for requesting and obtaining a release of the completion guarantee shall be in a manner prescribed by the Municipalities Planning Code (Section 510).

153.20.9.3. Default of Completion Guarantee - If improvements are not installed in accordance with the approved final plan, the governing body may

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 improvements covered by said security, the governing body may at its option install part of such improvements 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 improvements. All 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 improvements covered by such security and not for any other municipal purpose.

153.20.10. Dedication of Public Improvements.

153.20.10.1. When Streets, sanitary sewers, stormwater management facilities, water lines or other required improvements in the development have been completed in accordance with the final approved plan, such improvements shall be deemed private until such time as they have been offered for dedication to the municipality and accepted by separate ordinance or resolution or until they have been condemned for use as a public facility.

153.20.10.2. Prior to acceptance of any improvements or facilities, the Borough Engineer shall inspect it to ensure that it is constructed in accordance with the approved plan and is functioning properly. In the case of any stormwater control facility, it must be free of sediment and debris.

153.20.10.3. The owner shall submit as-built plans for all facilities proposed for dedication.

153.20.10.4. Maintenance Guarantee - Prior to acceptance of any improvements or facilities, the applicant shall provide a financial security to secure the structural integrity and functioning of the improvements. The security shall: (1) be in the form of a bond, cash, certified check or other negotiable securities acceptable to the Borough, (2) be for a term of 18 months, and (3) be in an amount equal to 15 percent of the actual cost of the improvements and facilities so dedicated.

§ 153.21. Status of the Stormwater Plan After Final Approval.

Upon recording of the final plat, the applicant may start to install or implement the approved stormwater management controls, subject to the provisions of the above. If site development or building construction does not begin within two years of the date of final approval of the subdivision or land development plan, then before doing so, the applicant shall resubmit the stormwater management plans to verify that no condition has changed within the watershed that would affect the feasibility or effectiveness of the previously approved stormwater management controls. Further if, for any reason, development activities are suspended for 2 years or more, then the same requirement for resubmission of the stormwater management plan shall apply. The terms of these subsequent reviews shall be subject to the provisions of this Ordinance and any amended additional ordinances subsequently passed.

§ 153.22. Stormwater Plan Modifications.

153.22.1. Procedures for Approving Plan Modifications. Requests for modifications in the final approved stormwater management controls shall be submitted to the Borough Engineer as follows:

153.22.1.1. If the request is initiated before construction begins, the stormwater plan must be resubmitted and reviewed according to Articles II, III, and IV of this Chapter.

153.22.1.2. If the request is initiated after construction is underway, the Borough Engineer shall have the authority to approve or disapprove the modification, based on field inspection, provided the request changes in stormwater controls do not result in any modifications to other approved Borough land use/development requirements. The Borough Engineer shall maintain a record of all changes approved for the stormwater management controls and shall submit these to Borough Council with the final as-built plans for the development, prior to the acceptance of any improvements by the Borough and/or the release of any bond money for improvements being constructed. If no bond money was required, this information must be submitted prior to the Borough's final inspection of the plan is completed and approval is granted.

ARTICLE VI STORMWATER MANAGEMENT PERFORMANCE STANDARDS

§ 153.23. Stormwater Management Zones - Monongahela River Watershed

153.23.1. For purposes of stormwater management, the municipality of Whitehall Borough is divided into the stormwater management release rate zones. The zones are designated in the Monongahela River Watershed Plan and a map of these zones may be found in Appendix D of this Ordinance. The following Release Rate Zones are located within the Borough of Whitehall:

Zone 22
Zone 32
Zone 34
Zone 35
Zone 43

One or more of these districts may be further subdivided into subareas which have similar hydrological characteristics and drain to a common point.

153.23.2. The location and boundaries of the watershed(s) and subareas are shown on the "Municipal Stormwater Management Zone Map" which is hereby adopted as part of this section. A copy of this District Map is available through the Borough Office.

§ 153.24. General Performance Standards.

The following provisions shall be considered the overriding performance standards against which all proposed stormwater control measures shall be evaluated:

153.24.1. Any landowner and/or any person engaged in the alteration or

development of land which may affect stormwater runoff characteristics shall implement such measures as are reasonably necessary to prevent injury to health, safety or other property. Such measures shall include actions as required and shall be evaluated according to the following standards:

153.24.1.1. To assure that the maximum rate of stormwater runoff is no greater after development than prior to development activities; or

153.24.1.2. To manage the quantity, velocity and direction of resulting stormwater runoff in a manner which otherwise adequately protects health and property from possible injury.

153.24.2. The stormwater management plan for the development site must consider all the stormwater runoff flowing over the site.

153.24.3. Where existing storm sewers are reasonably accessible, proposed developments may be required to connect with the storm sewer system unless insufficient capacity or other reasons can be demonstrated to prevent the connection.

153.24.4. No discharge of toxic materials into any stormwater management system shall be permitted. Where required by federal and state regulation, the landowner or developer shall be responsible for obtaining a NPDES permit for stormwater discharges.

153.24.5. For any development that is to be constructed in stages, the applicant must demonstrate that stormwater facilities will be installed to manage stormwater runoff safely during each stage of development.

§ 153.25. Technical Performance Standards.

The Stormwater Management performance standards contained in this section are intended to implement the standards and criteria contained in the Monongahela River Stormwater Management Plan, adopted and approved in accordance with the Pennsylvania Storm Water Management Act. If there is any discrepancy between the provisions of this section and the standards and criteria of the plan, or if the watershed plan is subsequently amended, then the standards/ criteria of the current watershed plan shall govern.

§ 153.26. Storm Frequencies.

Stormwater management facilities on all development sites shall control the peak stormwater discharge for the 2-, 10-, 25- and 100-year storm frequencies. The SCS 24-hour, Type II Rainfall Distribution shall be used for analyzing stormwater runoff for both pre- and post development conditions. The 24-hour total rainfall for these storm frequencies in the watershed are:

Design Storm Return Period	24-Hour Rainfall Depth in Inches
2-year	2.50
10-year	3.61
25-year	4.31

100-year 5.71

The Rational Method shall be used for analyzing the stormwater runoff for small watersheds as specified in this article. The rainfall intensities for the design storms are as specified:

Design Storm Return Period	5 Minute Duration Intensity in Hour
2 - year	4.1
10 - year	5.2
25 - year	5.6
100 - year	6.5

(For additional information or data on other return periods, consult PennDOT's part 2 manuals, Chapter 10, for the Intensity - Duration - Frequency Curves.

§ 153.27. Calculation Methods.

153.27.1. Development Sites: For the purposes of computing peak discharges and runoff hydrographs from development sites and drainage areas larger than three acres, calculations shall be performed using the methodologies presented in SCS Publication, Technical Release 55 (TR 55) or TR 20, HEC 1, Penn State Runoff Method (PSRM), or other approved method for analyzing these types of watersheds. For development sites less than three acres, the Rational Method may be utilized using the design storm criteria shown in Section 153.26 or other approved method for analyzing these types of watersheds. The appropriate calculations and worksheets or acceptable computer printouts, as approved by the Borough Engineer, must be submitted regardless of the methodology used for these calculations. An approved simulation of the modified puls (Haestad's Method Pond 2, HEC 1) routing methodology shall be used in analysis for routing the design storm hydrographs through the detention/retention facility. The proper stage/storage and stage/discharge curves and routed outflow hydrographs must be submitted for approval.

153.27.2. Stormwater Collection/Conveyance Facilities: For the purpose of designing storm sewers, open swales and other stormwater runoff collection and conveyance facilities, the Rational Method shall be applied. Rainfall intensities for a 25 year design storm with a minimum five (5) minute duration must be used and should be obtained from the Pennsylvania Department of Transportation's Part II Manual, Chapter 10, Rainfall Intensity Charts. However, if the existing Tc is larger than five (5) minutes, it should be used as the rainfall duration.

153.27.3. Detention/Retention Basin: The inflow hydrograph shall be routed through the detention/retention facility by using the Modified Puls method (or other recognized routing method subject to the approval of the Municipality and the County). The routing curves and outflow hydrographs for each design storm must be submitted.

153.27.4. Pre-development Conditions: Pre-development conditions shall be assumed to be those which exist on any site at the time of adoption of the Monongahela River Stormwater Management Plan. Hydrologic conditions for all areas

with pervious cover (i.e., fields, woods, lawn areas, pastures, cropland, etc.) shall be assumed to be in "good" condition, and the lowest recommended SCS runoff curve number (CN) shall be applied for all pervious land uses within the respective range for each land use and hydrologic soil group.

§ 153.28. Release Rate Percentage.

153.28.1. Definition: The release rate percentage defines the percentage of the pre-development peak rate of runoff that can be discharged from an outfall on the site after development. It applies uniformly to all land development or alterations within a subarea.

153.28.2. Procedure for Use:

153.28.2.1. Identify the specific subarea in which the development site is located from the watershed map located in Appendix D of the Ordinance and obtain the subarea release rate percentage from the following Release Rate Percentages:

Zone 22	60%
Zone 32	70%
Zone 34	50%
Zone 35	70%
Zone 43	100%

All others areas not located within an assigned zone by the Monongahela River Watershed Plan are assigned the release rate of 100%.

153.28.2.2. Compute the pre- and post-development runoff hydrographs for each stormwater outfall on the development site using an acceptable calculation method for the 2-, 10-, 25- and 100-year storms. If the post-development peak runoff rate and the runoff volume is less than or equal to the pre-development peak runoff rate and volume, then additional stormwater control shall not be required at that outfall.

If the post-development peak runoff rate and volume are greater than the pre-development peak runoff rate and volume, then stormwater management shall be required. The maximum allowable release rate from the detention facility shall be calculated by multiplying the subarea release rate percentage by the pre-development rate of runoff from the development site for each of the four design storms.

§ 153.29. No Harm Evaluation.

153.29.1. A "No Harm Evaluation" will be considered only in the following instances:

153.29.1.1. In the Monongahela River Watershed: only in instances where the discharge from the development site occurs directly to the Monongahela River, an adequately sized storm or combined sewer which

discharges directly into the Monongahela River, or through a properly sized and designed regional stormwater detention facility.

153.29.1.2. The analysis for the no-harm evaluation shall be submitted to the municipal engineer and Allegheny County Planning Department for review and approval.

153.29.1.3. The "No Harm Evaluation" shall be prepared by a registered engineer who is experienced in hydrology and hydraulics. The "No Harm Evaluation" analysis shall be completed using the following procedure:

153.29.1.4. The analysis shall be completed using the Penn State Runoff Model (PSRM) in the following manner:

153.29.1.4.1. Develop the runoff hydrograph(s) for the design storms of the site and areas tributary to it using the PSRM for pre-development conditions using the land use characterizations contained in the Monongahela River Watershed Stormwater Management Plan.

153.29.1.4.2. Develop the post-development discharge hydrograph from the proposed site using the PSRM.

153.29.1.4.3. Subtract the runoff hydrograph ordinates under pre-development conditions (step 1) from the discharge hydrograph ordinates (step 2), maintaining the time scales of both hydrographs for one-to-one correspondence.

153.29.1.4.4. Obtain the PSRM for the existing conditions for the Monongahela River Watershed from the County.

153.29.1.4.5. Locate the subbasin(s) in which the proposed development is located and into which the discharge hydrograph enters. If more than one subbasin receives this incremental flow, divide the flow accordingly.

153.29.1.4.6. Add the incremental increase computed in step 3 to the runoff hydrograph of the subbasin(s) identified in step 5.

153.29.1.4.7. Route the adjusted runoff hydrograph through the Monongahela River Watershed PSRM and note any increase in peak flows which would occur in downstream subbasins. If no increase is noted, then the "No-Harm" has been demonstrated. If no increase is observed in peak flows, the increased potential for erosion and/ or sedimentation in downstream channels resulting from any change in the flood hydrograph predicted by the model shall be evaluated. If no increased potential can be demonstrated by appropriated technical means, then the "No-Harm" exemption may be requested.

153.29.1.4.8. If an increase in peak flow is observed in any of the downstream subbasins or increased potential for erosion and/ or

sedimentation is indicated, the "No-Harm" exemption shall not be granted.

§ 153.30. Design Criteria for Stormwater Management Controls.

153.30.1 General Design Guidelines

153.30.1.1. Applicants may select runoff control techniques, or combinations of techniques, as provided in this Stormwater Management Ordinance, which are most suitable to the level of stormwater runoff control required, the type of development, and the natural features of the site. Cost of maintenance shall be one of the considerations in the designs selected. All controls are subject to the approval of the Borough Engineer. The Engineer may request specific information on design and/or operating features of the proposed storm water controls in order to determine their suitability and adequacy in terms of the standards of this Chapter.

153.30.1.2. In selecting and designing stormwater management systems and controls, applicants may be guided by the following references:

1. "Urban Hydrology for Small Watersheds," Technical Release No. 55, USDA, Soil Conservation Service, June 1986 (or most recent edition).
2. "Part II Design Manual," The Pennsylvania Department of Transportation, 1990 Edition (or most recent update).
3. "HEC 1 and HEC 2", U.S. Army Corps of Engineers, most recent edition.
4. "Soil Erosion and Sedimentation Control Manual," Pennsylvania Department of Environmental Resources, March 1982.
5. "Standards and Specifications for Soil Erosion and Sediment Control," Maryland Water Resources Administration, 1983.
6. "Urban Stormwater Management," Special Report No. 49, American Public Works Administration, 1981.
7. "Water Resources Protection Measures in Land Development - A Handbook," University of Delaware Water Resources Center, April 1974.
8. "Design and Construction of Sanitary and Storm Sewers," WPCF Manual of Practice No. 9, Water Pollution Control Federation, 1970.

153.30.1.3. The applicant should consider the effect on the proposed stormwater management techniques of any special soil conditions or geological hazards which may exist on the development site. In the event such conditions are identified on the development site, the Borough may require in-depth studies by a competent

geotechnical engineer.

153.30.1.4. In developing a stormwater management plan for a particular site, stormwater controls shall be selected according to the following preference:

153.30.1.4.1. Infiltration of runoff on site.

153.30.1.4.2. Stormwater detention/ retention facilities.

153.30.1.4.3. Infiltration practices shall be used to the extent practicable to reduce peak runoff and promote groundwater recharge. A combination of successive practices may be used to achieve the applicable minimum control requirements. Justification shall be provided by the applicant for rejecting each of the preferred practices based on actual site conditions.

153.30.2. Criteria for Stormwater Detention Facilities.

153.30.2.1. If a detention facility (ies) is utilized for the development site, the facility (ies) shall be designed such that post-development peak runoff rates from the developed site are controlled to those rates defined by the subarea release rate percentage for the 2-, 10-, 25- and 100-year storm frequencies.

153.30.2.2. All detention facilities shall be equipped with outlet structures to provide discharge control for the four (4) designated storm frequencies. Provisions shall also be made to safely pass the post-development 100-year storm runoff in the event of an outlet structure failure without damaging or impairing the continued function of the facilities. Should any stormwater management facilities qualify as a dam under PA DER Chapter 105 criteria, the facility shall be designed in accordance with those regulations and meet the regulations concerning dam safety.

153.30.2.3. Shared-storage facilities, which provide detention of runoff for more than one development site, may be considered within a single subarea. Such facilities shall meet the design criteria contained in this section. In addition, runoff from the development sites involved shall be conveyed to the facility in a manner so as to avoid adverse impacts, such as flooding or erosion, to channels and properties located between the development site and the shared- storage facilities.

153.30.2.4. Where detention facilities will be utilized, multiple-use facilities, such as lakes, ballfields or similar recreational uses, shall be considered first as storage facilities wherever feasible, subject to the approval of the Borough and Pennsylvania Department of Environmental Resources Chapter 105 regulations.

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

1. Inflow and outflow structures should be designed and installed to prevent erosion. The bottoms of above ground detention facilities must be protected from soil erosion. All outlet velocities must be calculated and submitted. If riprap is used, the sizing calculations must be submitted.

2. Control and removal of debris both in the storage structure and in all inlet or outlet devices must be a design consideration. Trash racks on the outlet structures are required to minimize debris that enters the structure.
3. Inflow and outflow structures, pumping stations, and other structures should be protected and designed to minimize safety hazards.
4. The interior slope of a detention/ retention basin shall be 2:1 (horizontal to vertical). Restriction of access (fences, walls, etc.) may be necessary depending on the location of the facility to protect adjacent property owners.
5. A detention/retention basin with a water depth greater than 10 feet shall require a supporting report from a geotechnical engineer and shall be constructed under the supervision of the geotechnical engineer.
6. Landscaping must be provided for the facility which harmonizes with the surrounding area.
7. The facility must be accessible for maintenance purposes, considering the frequency and type of equipment that will be required. A maintenance schedule must be submitted and approved by the Borough.
8. Details of the facility must be shown on the plan.
9. A riprap channel with underdrain for low flows must be sized properly and provided within the pond.
10. If an underground facility (i.e. tank, sump) is proposed, two cleanout manholes with steps must be provided at opposite ends of the facility.
11. An emergency spillway must be provided for all detention/retention facilities. For above ground basins, the spillway must be sized to pass the unrouted 100 year post development storm with 1 foot of freeboard.
12. Outlet control structures shall be constructed of reinforced concrete (cast-in-place, precast, or block) and provided with trash racks approved by the Borough Engineer.
13. All impoundment areas and low flow channels shall be adequately underdrained to prevent long term ponding of water.
14. All detention facilities to be maintained by the Borough shall be provided with an access road (with a legal easement) for maintenance purposes. Such roads shall be minimum of 10 feet

wide, have a maximum grade of 15 percent, and be of a stone or impervious surface.

15. An As-Built drawing shall be required for each stormwater detention facility constructed. (The drawing shall represent the volume of the facility and stage- storage relationship). The drawing shall be stamped by a registered professional engineer and submitted to the Borough within sixty (60) days of the completion of the facility. No facility will be accepted until this requirement has been fulfilled.
16. The exterior slope of a detention/retention basin shall not exceed a two (2) horizontal to a one (1) vertical.

§ 153.31. Criteria for Collection/ Conveyance Facilities.

153.31.1. All stormwater runoff collection or conveyance facilities, whether storm sewers or other open or closed channels, shall be designed in accordance with the following basic standards:

153.31.1.1. All sites shall be graded to provide drainage away from and around structures in order to minimize any potential flooding damage.

153.31.1.2. Lots located on the highside of streets shall extend roof and french drains to the storm sewer in the street or to the gutter line of the street if no sewer exists. Lowside lots shall extend roof and french drains to a stormwater collection/conveyance system or natural watercourse in accordance with the approved stormwater management plan for the development site.

153.31.1.3. Collection/conveyance facilities should not be installed parallel and close to the top or bottom of a major embankment to avoid the possibility of causing the embankment to fail.

153.31.1.4. All collection/conveyance facilities shall be designed to convey the 25-year storm peak flow rate from the contributing drainage area and to carry it to the nearest suitable outlet or natural watercourse. Off-site conveyance shall be provided with easements to an existing storm sewer system or natural watercourse.

153.31.1.5. Where drainage swales or open channels are used, they shall be suitably lined to prevent erosion and designed to avoid excessive velocities. Calculations must be presented for the velocities and it must be shown that the proposed surface for the swale is adequate.

153.31.1.6. Wherever storm sewers are proposed to be utilized, they must comply with the following criteria:

153.31.1.6.1. Designed to traverse under seeded and planted areas. If constructed within 10 feet of the road paving, walks, or other surfaced areas, the drains shall have a narrow trench, and maximum compaction of backfill to prevent settlement of the superimposed surface

or development.

153.31.1.6.2. Installed after excavating and filling in the area to be traversed is completed, unless the drain is installed in the original ground with a minimum of 3 feet cover and/or adequate protection during the fill construction.

153.31.1.6.3. Designed with a concrete cradle when traversing fill areas of indeterminate stability, and designed with anchors when gradient of sewer exceeds twenty (20%) percent, and designed with concrete encasement or special backfill requirements when traversing under a paved area.

153.31.1.6.4. Designed to handle adequately the anticipated stormwater flow and to be constructed and maintained economically. The minimum pipe size shall be 15 inches in diameter.

153.31.1.6.5. Drain pipe, trenching, bedding and backfilling requirements shall conform to the requirements of the Borough and/or applicable requirements of the Pennsylvania Department of Highways Specifications, Current Form 408.

153.31.1.6.6. All pipe shall be made of either P.V.C., corrugated plastic pipe, corrugated plastic pipe with smooth interior walls, corrugated metal/steel, or reinforced concrete. All corrugated metal pipe shall be polymer coated. Pipe under a Borough cartway shall be reinforced concrete pipe with a minimum diameter of 15 inches.

153.31.1.6.7. Storm inlets and structures shall be designed to be adequate, safe, self-cleaning and unobtrusive and shall be consistent with the standards of the Borough.

153.31.1.6.8. Appropriate grates shall be designed for all catch basins, stormwater inlets and other entrance appurtenances in accordance with Borough specifications.

153.31.1.6.9. Manholes shall be designed so that the top shall be at finished grade and sloped to conform to slope of finished grade. Top castings of structures located in roads or parking areas shall be machined or installed to preclude "rattling."

153.31.1.6.10. Where a proposed storm sewer connects with an existing storm sewer system, the applicant shall demonstrate that sufficient capacity exists in the downstream system to handle the additional stormwater flow.

153.31.1.6.11. Storm sewer outfalls shall be equipped with energy dissipation to prevent erosion and conform with applicable requirements of the PA DER for stream encroachments (Chapter 105 of the Department's Rules and Regulations).

§ 153.32. Erosion and Sedimentation Pollution Controls.

Proposed Erosion and Sedimentation Pollution Control measures should be submitted with the stormwater management plan. These plans shall follow the guidelines set forth in the Borough's Erosion and Sediment Pollution Control Ordinance Chapter 152 of this code. In addition the plan shall be prepared in accordance with the Pennsylvania Erosion/ Sedimentation Regulations (25 PA Code, Chapter 102) and the standards and guidelines of the County Conservation District.

§ 153.33. As-Built Drawings.

153.33.1. Prior to releasing the final bond monies, the Borough shall receive an as-built drawing, signed and sealed by a registered surveyor and these plans shall include the following:

153.33.1.1. The location of any roads or driveways constructed for the land development or single family home.

153.33.1.2. The location, tops and flow lines of all storm sewers constructed within the land development or single family home.

153.33.1.3. The location depth and contours of the detention or retention facilities constructed for the land development or single family home.

153.33.1.4. A detail of the outlet structure for the detention or retention facility as constructed.

153.33.1.5. A revised stormwater management report reflecting the final contours for a detention pond as constructed.

**ARTICLE VII
MAINTENANCE OF FACILITIES AND SYSTEMS**

§ 153.34. Maintenance Responsibilities.

153.34.1. The stormwater management plan for the development site shall establish responsibilities for the continuing operation and maintenance of all proposed stormwater control facilities. The proposed maintenance plan should be consistent with the general maintenance policies stated in the Borough stormwater management plan and also consistent with the following principles:

153.34.1.1. If a development consists of structures or lots which are to be separately owned and in which streets, sewers, and other public improvements are to be dedicated to the Borough, stormwater control facilities should also be dedicated to and maintained by the Borough.

153.34.1.2. If a development site is to be maintained in single ownership or if sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of stormwater control facilities should be the responsibility of the owner or private management entity.

153.34.2. The Borough Council shall make the final determination on the continuing maintenance responsibilities as part of the final application review based on the recommendation of the Planning Commission. The Council reserves the right to accept or reject the ownership and operating responsibility of any or all of the stormwater management controls.

§ 153.35. Maintenance Agreement For Privately Owned Stormwater Facilities.

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

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

153.35.1.2. The owner shall convey to the Borough easements and/or rights-of-way to assure access for periodic inspections by the Borough and maintenance if required.

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

153.35.1.4. The owner shall establish any special maintenance funds or other financing sources, in accordance with the approved maintenance plan.

153.35.1.5. If the owner fails to maintain the stormwater control facilities, following due notice by the Borough to correct the problems, the Borough shall perform the necessary maintenance or corrective work. The owner shall reimburse the Borough for all costs or a lien shall be placed on the property.

153.35.2. The Borough may require other items to be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities. The maintenance agreement shall be subject to the review and approval of the Borough Solicitor.

§ 153.36. Municipal Stormwater Maintenance Fund.

153.36.1. Persons installing stormwater management storage facilities shall be required to pay a specified amount to the Municipal Stormwater Maintenance Fund to help defray the costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:

153.36.1.1. If the storage facility is to be privately owned and maintained, the deposit shall cover the cost of periodic inspections performed by the Borough for a period of ten (10) years as estimated by the Borough Engineer. After that period of time, inspections will be performed at the expense of the

municipality.

153.36.1.2. If the storage facility is to be owned and maintained by the Borough, the deposit shall cover the estimated costs for maintenance and inspections for ten (10) years. The Borough Engineer will establish the estimated costs utilizing information submitted by the applicant.

153.36.1.3. The amount of deposit to the fund shall be converted to present worth of the annual series values. The Borough Engineer shall determine the present worth equivalents which shall be subject to the approval of the Borough Council.

153.36.2. If a storage facility is proposed that also serves as a recreation facility (e.g., ball field, lake), the Borough may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purposes.

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

ARTICLE VIII INSPECTION OF CONTROLS

§ 153.37. Inspection Procedures.

153.37.1. The Borough Engineer or a designated representative shall inspect the construction of the temporary and permanent stormwater management for the development site. The permittee shall notify the Borough Engineer forty-eight (48) hours in advance of the completion of the following key development phases:

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

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

153.37.1.3. During construction of the permanent stormwater facilities at such times as specified by the Borough Engineer.

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

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

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

153.37.3. If, during construction, the contractor or permittee identifies any site conditions, such as subsurface drainage, which could affect the feasibility of the approved stormwater facilities, he must notify the Borough Engineer within twenty-four (24) hours of the discovery of such condition and request a field inspection. The Borough Engineer shall determine if the condition requires a stormwater modification.

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

ARTICLE IX DISCLAIMER OF LIABILITY

§ 153.38. Disclaimer of Liability.

153.38.1. Neither the granting of any approval under the stormwater management provisions of this Article nor the compliance with the provisions of this Article or with any condition imposed by a Borough official hereunder shall relieve any person from any responsibility for damage to persons or property resulting therefrom, or as otherwise imposed by law, nor impose any liability upon the Borough for damages to persons or property.

153.38.2. The granting of a permit which includes any stormwater management facilities shall not constitute a representation, guaranty or warranty of any kind by the Borough, or by an official or employee thereof, of the practicability or safety of any structure, use or other plan proposed and shall create no liability upon or cause of action against such public body, official or employee for any damage that may result pursuant thereto.

ARTICLE X ENFORCEMENT AND ADMINISTRATION

§ 153.39. Enforcement.

153.39.1. Right of Entry - Upon presentation of proper credentials, duly authorized representatives of the Borough may enter at reasonable times upon any property to investigate or ascertain the condition of the subject property in regard to an aspect regulated by this ordinance.

153.39.2. Notification - In the event that the applicant, developer, owner or his/ her agent fails to comply with the requirements of this ordinance or fails to conform to the requirements of any permit, a written notice of violation shall be issued. Such

notification shall set forth the nature of the violation(s) and establish a time limit for correction of the violation(s). Upon failure to comply within the time specified, unless otherwise extended by the Borough, the applicant, developer, owner or his/ her agent shall be subject to the enforcement remedies of this ordinance.

153.39.3. Preventive Remedies -

153.39.3.1. In addition to other remedies, the municipality may institute and maintain appropriate actions by law or in equity to restrain, correct or abate a violation, to prevent unlawful construction, to recover damages and to prevent illegal occupancy of a building or premises.

153.39.3.2. In accordance with the Planning Code (Section 515.1), the municipality may refuse to issue any permit or grant approval to further improve or develop any property which has been developed in violation of this chapter.

153.39.4. Enforcement Remedies -

153.39.4.1. Any person, who has violated or permitted the violation of the provisions of this ordinance shall upon being found liable therefore in a civil enforcement proceeding commenced by the Borough, pay a fine of not less than \$50.00 and not more than \$500.00 plus court costs, including reasonable attorney fees incurred by the municipality. No judgement shall commence or be imposed, levied or be payable until the date of the determination of a violation by the district justice.

153.39.4.2. If the defendant neither pays nor timely appeals the judgement, the Borough may enforce the judgement pursuant to applicable rules of civil procedure.

153.39.4.3. Each day that a violation continues shall constitute a separate violation unless the district justice further determines that there was a good faith basis for the person violating the ordinance to have believed that there was no such violation. In such case there shall be deemed to have been only one such violation until the fifth day following the date of the district justice's determination of a violation; thereafter each day that a violation continues shall constitute a separate violation.

153.39.4.4. All judgments, costs and reasonable attorney fees collected for the violation of this Ordinance shall be paid over to the Borough.

153.39.4.5. The court of common pleas, upon petition, may grant an order of stay, upon cause shown, tolling the per diem fine pending a final adjudication of the violation and the judgement.

153.39.4.6. Nothing contained in this section shall be construed or interpreted to grant to any person or entity other than the municipality the right to commence any action for enforcement pursuant to this section.

153.39.5. Additional Remedies - In addition to the above remedies, the Borough may also seek remedies and penalties under applicable Pennsylvania statutes,

or regulations adopted pursuant thereto, including but not limited to the Storm Water Management Act (32 P.S. Section 693.1-693.27) and the Erosion and Sedimentation Regulations (25 Pennsylvania Code, Chapter 102). Any activity conducted in violation of this ordinance or any Pennsylvania approved watershed stormwater management plan may be declared a public nuisance by the Borough and abatable as such.

APPENDIX A

**PRELIMINARY STORMWATER MANAGEMENT PLAN CHECKLIST
BOROUGH OF WHITEHALL STORMWATER MANAGEMENT PROGRAM**

**FOR A DETAILED DESCRIPTION SEE SECTION NO. 5 TITLED STORMWATER PLAN
CONTENTS: PRELIMINARY SUBMITTED WITH SUBDIVISION AND LAND
DEVELOPMENT PLAN.**

		SUBMITTED
1.	Key map showing watershed location	_____
2.	Subwatershed Map	_____
3.	Flood Plain outline on site plan if Appropriate	_____
4.	Natural features shown on site plan	_____
5.	Soils Map	_____
6.	Contours shown existing and final	_____
7.	Stormwater Management Controls (existing) shown on site plan	_____
8.	Signed and sealed by Professional Certification	_____
9.	Runoff calculations submitted including:	

Hydrographs Pre & Post Development
 Hydrographs into and out of
 Detention Facilities
 TR-55 Worksheets or Accept
 Computer Printouts
 Outlet Structures Velocities
 with riprap

10. Stormwater Management controls proposed shown on site plan

11. All Easements, Rights-Of-Way and/or Deed Restrictions shown on site plan

12. A list submitted stating all permits required and applied for to date

13. Maintenance Program Plan

 Date Submitted
 Plan

 Name of

 Developer

*Requires additional information

APPENDIX B

**FINAL STORMWATER MANAGEMENT PLAN CHECKLIST
BOROUGH OF WHITEHALL STORMWATER MANAGEMENT PROGRAM**

**FOR A DETAILED DESCRIPTION SEE SECTION NO.6 TITLED STORMWATER PLAN
CONTENTS: SUBMITTED WITH FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN.**

SUBMITTED

- 1. All information required in the Preliminary Plan including any changes and/or revisions _____
- 2. Final maps including _____
 - A. Details on all structures _____
 - B. Storm Sewer Profiles _____
 - C. Temporary and permanent Stormwater Management Controls _____
 - D. All design and construction Specifications _____
- 3. A schedule for installation of all temporary and permanent control methods shown on site plan _____
- 4. An accurate survey _____
- 5. Maintenance Program Plan _____
- 6. Final Guarantees _____

Date Submitted
Plan

Name of

Developer

**APPENDIX C
STORMWATER MANAGEMENT PLAN
RECORD OF TRAINING AND EXPERIENCE**

Name of Plan Preparer: _____

Name of Employer: _____ Telephone: _____

Formal Education: _____

Name of College or Technical Institution: _____

Curriculum or Program: _____

Degree Received: _____

Other Training: _____

Name of Training: _____

Presented By: _____

Date: _____

Name of Training: _____

Presented By: _____

Date: _____

RECENT STORMWATER MANAGEMENT PLANS APPROVED:

Name of Project: _____

County: _____

Municipality: _____

Date Approved: _____

Name of Project: _____

County: _____

Municipality: _____

Date Approved: _____