

**HOUSTON BOROUGH**

**WASHINGTON COUNTY, PENNSYLVANIA**

**ORDINANCE NO. 492**

An Ordinance of Houston Borough, Washington County, Pennsylvania to provide minimum standards regulating the stormwater runoff from land alteration and disturbance activities.

NOW, THEREFORE, be it ordained and enacted by the Municipality Supervisors of Houston Borough, Washington County, Pennsylvania and it is hereby ordained and enacted by and with the authority of the same as follows:

**Article 100  
General Provisions**

**Section 101. Purpose:**

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

- A. To manage stormwater runoff resulting from land alteration and disturbance activities in accordance with Houston Borough Stormwater Management Plan as adopted by the Houston Borough Municipality Supervisors.
- B. To utilize and preserve the desirable existing natural drainage systems, preserve the flood-carrying capacity of existing streams, and preserve existing storm event water surface elevations in existing streams.
- C. To encourage natural infiltration of rainfall to preserve ground water supplies and stream flows.
- D. To provide for adequate maintenance of all permanent stormwater management facilities in the municipality.

**Section 101.1 Statutory Authority**

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

- A. Act of October 4, 1978, 32 P.S., P.L. 864 (Act 167) Section 680.1 et seq., as amended, the "Stormwater Management Act" (hereinafter referred to as "the Act");
- B. Water Resources Management Act of 2002, as amended;

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- C. Second Class Municipality Code, 53 P.S. Sections 66501 et seq., 66601 et seq., and the Borough Code, 53 P.S. Section 46201 et seq.;
- D. Pennsylvania Municipalities Planning Code, Act 247, as amended.

**Section 102. Applicability:**

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

**Section 102.1 Regulated Activities:**

The following activities are defined as “regulated activities” and shall be regulated by this Ordinance unless exempted by Section 102.2:

- A. Land development,
- B. Subdivisions, where impermeable or less permeable surfaces, earth disturbances, or other disturbance or manipulation of the stormwater is performed
- C. Alteration of the natural hydrologic regime,
- D. Construction of or addition of new impervious or semi-pervious surfaces (i.e., driveways, parking lots, roads, etc.),
- E. Construction of new buildings or additions to existing buildings,
- F. Redevelopment,
- G. Diversion piping or encroachments in any natural or man-made channel,
- H. Nonstructural and structural stormwater management BMPs or appurtenances thereto,
- I. Earth disturbance activities of greater than five thousand (5,000) square feet, (NOTE 1)

NOTE 1: This Ordinance applies to any earth disturbance activity greater than or equal to five thousand (5,000) square feet that is associated with a development or redevelopment project. Earth disturbance activities and associated stormwater management controls are also regulated under existing state law and implementing regulations. This Ordinance shall operate in coordination with those parallel requirements; the requirements of this Ordinance shall be no less restrictive in meeting the purposes of this Ordinance than state law. Table 102.1 summarizes the applicability requirements of the ordinance.” “Proposed Impervious Surface” in Table 102.1 includes new, additional, or replacement impervious surface/cover. Repaving existing surfaces without reconstruction does not constitute “replacement.”

**TABLE 102.1  
ORDINANCE APPLICABILITY**

Ordinance Article or Section	Type of Project	Proposed Impervious Surface				Earth Disturbance		
		0-5,000 sq. ft.	5,000-10,000 sq. ft. (Small)	10,000 sq. ft to 1 Acre (Large)	> 1 Acre (Large)	0-5,000 sq. ft.	5,000 to 10,000 sq. ft. (Small)	>10,000 Sq. Ft. (Large)
Stormwater Management Plan	Development	N/A	Modified to a Drainage Plan	Yes	Yes	N/A	Modified to a Drainage Plan	Yes
Non-Structural BMP Practices in Design	Development	N/A	Yes	Yes	Yes	Yes	Yes	Yes
Groundwater Recharge	Development	N/A	Yes	Yes	Yes	Yes	N/A	Yes
Water Quality Requirements	Development	N/A	Yes	Yes	Yes	Yes	N/A	Yes
Stormwater Peak Rate Control	All Development and Earth Disturbance	N/A	Exempt	Yes	Yes	Yes	Yes	Yes
Erosion & Sediment Control Plan Submission to WCD	Development	N/A	Yes	Yes	Yes	Yes	Yes	Yes
	Redevelopment	N/A	Yes	Yes	Yes	Yes	Yes	Yes

**Legend:**

Yes – stormwater management plan required.

N/A - Not applicable – exempt from drainage plan submission.

Exempt - Exempt from required section provision – Drainage plan submission may still be required if other section provisions are applicable (yes in box).

Modified - Modified drainage plan required – Sites with between five thousand (5,000) square feet and ten-thousand (10,000) square feet of proposed impervious surface or earth disturbance must submit a “drainage plan” to the Municipality.

**Section 102.2 Requirements for Small Developments:**

1. At the time of application, the Municipality shall determine if the subdivision or 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 any subdivision or land development which results (or will result when fully constructed) in the creation of a total aggregate of 10,000 or less square feet of impervious surface area. For small developments which result in the addition of a total aggregate of less than 5,000 square feet of impervious area, no stormwater

management is required. However, such developments must still provide safe conveyance of the stormwater to a storm sewer or a natural or man-made waterway.

2. Small developments shall be exempt from the preparation of a Stormwater Management Plan as specified by Sections 104.1 and 104.2 of this Article. However, such developments must still provide safe management of stormwater runoff with the methods to be approved by the Municipality Engineer. Any stormwater management facility constructed, as part of the development, shall be designed to control the peak stormwater runoff for the 2, 10, 25 and 100-year design storms. For small developments which result in the addition of 5,000 square feet but less than 10,000 square feet of impervious surface area, stormwater management shall be provided. However, the small development will be exempt from the preparation of a stormwater management report by a professional engineer, but must submit a "Drainage Plan" under the requirements of subsection 3.
3. Applications for all small developments (5,000 to 10,000 square feet of impervious surface) shall include a "Drainage 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 site watershed and/or subarea boundaries (if applicable); Lot Lines and surrounding owners names on all sides; watercourses, floodplains or existing drainage facilities, and structures located on site. Further sections of this ordinance outline more requirements for a "Drainage Plan".
4. The Municipality Engineer shall review and approve or reject the proposed provisions for stormwater management for a small development if the Municipality review determines 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.
5. 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.

6. **Additional Requirements:**
  - a. **Exemption Responsibilities** - An exemption shall not relieve the Applicant from implementing such measures as are necessary to protect public health, safety, and property.
  - b. **HQ and EV Streams** - An exemption shall not relieve the Applicant from meeting the special requirements for watersheds draining to identified high quality (HQ) or exceptional value (EV) waters and Source Water Protection Areas (SWPA) and requirements for nonstructural project design sequencing (Section 104.3.1 **Non-Structural Project Design**).
  - c. **Drainage Problems** - If a drainage problem is documented or known to exist downstream of or is expected from the proposed activity, then the Municipality may require the Applicant to comply with this Ordinance.
  - d. **Emergency Exemption** - Emergency maintenance work performed for the protection of public health, safety, and welfare. A written description of the scope and extent of any emergency work performed shall be submitted to the Municipality within two (2) calendar days of the commencement of the activity. If the Municipality finds that the work is not an emergency, then the work shall cease immediately, and the requirements of this Ordinance shall be addressed as applicable.
  - e. **Maintenance Exemption** - Any maintenance to an existing stormwater management system made in accordance with plans and specifications approved by the municipal Engineer or Municipality.
  - f. Even though the developer is exempt, he is not relieved from complying with other regulations.

**Section 103. Definitions:**

For the purposes of this Ordinance, these terms shall be defined as follows:

**Applicant:** A landowner or developer, as defined by this Ordinance, who has filed an application for development, including his/her heirs, successors and assigns.

**BMP (Best Management Practice)**

Methods, measures, or practices used to prevent or reduce surface runoff and/or water pollution including, but not limited to, structural and nonstructural stormwater management practices and operation and maintenance procedures. See also Non-structural Best Management Practice (BMP).

**Channel:** A natural stream that conveys water, a ditch or open channel excavated for the flow of water.

**Conservation District (WCCD):** The Washington County Conservation District.

**Design Storm:** The magnitude of precipitation from a storm event measured in probability of occurrence (e.g., 25-year storm) and duration (e.g., 24-hour), and used in computing stormwater management control systems.

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**Detention:** The slowing, dampening, or attenuation of runoff entering the natural drainage pattern or storm drainage system by temporarily holding water in a detention basin, retention basin, reservoir 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 facility designed to attenuate peak stormwater runoff by storing and releasing the runoff at a pre-determined rate. A detention facility is designed to drain completely after a rainfall event. The facility shall not hold any water for longer than 24 hours after the peak discharge from the facility occurs.

**Developer:** Any landowner, agent of such landowner, or tenant with permission of such landowner, who makes or causes to be made a subdivision of land or land development.

**Development:** Any activity, construction, alteration, or 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.

**DBH (Diameter at Breast Height):** The location of standard measurement of a tree diameter in accordance with the USDA Forest Service's Forest Inventory and Analysis (FIA) program manual, available from that department, presently measured at 4-1/2 feet from the ground surface.

**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).

**Drainage:** Interception and removal of excess surface water or groundwater from land by artificial or natural means.

**Drainage Area:** The contributing 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 area served by a drainage system or by a water course receiving storm and surface water.

**Drainage Basin:** The area from which water is carried off by the drainage system; 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.

**Earth Disturbance Activity** – A construction or other human activity which disturbs the surface of land including, but not limited to, clearing and grubbing, grading, excavations, embankments, land development, agricultural plowing or tilling, timber harvesting activities, road maintenance activities, mineral extraction, and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

**Emergency Spillway** – A conveyance area that is used to pass peak discharge greater than the maximum design storm controlled by the stormwater facility.

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**Encroachment** – A structure or activity that changes, expands, or diminishes the course, current, or cross-section of a watercourse, floodway, or body of water.

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

**Erosion and Sediment Control Plan** – A plan that is designed to minimize accelerated erosion and sedimentation. Said plan must be submitted to and approved by the appropriate Conservation District before construction can begin.

**Exceptional Value Waters** – Surface waters of high quality which satisfy Pennsylvania Code Title 25 Environmental Protection, Chapter 93, Water Quality Standards, §93.4b(b) (relating to anti-degradation).

**Freeboard:** Measurement from a water surface elevation to the top of a hydraulic structure. (e.g. Detention/Retention Basin, inlets, manholes, etc.)

**Floodplain:** A normally dry land area adjacent to stream channels that is susceptible to being inundated by over bank 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 municipal ordinance requirements.

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

**HEC-HMS (Hydrologic Engineering Center):** Computer model developed by the Army Corps of Engineers to predict flood hydrographs.

**HEC-RAS (Hydrologic Engineering Center):** Computer model developed by the Army Corps of Engineers to perform one-dimensional hydraulic calculations for a full network of natural and constructed channels.

**High Quality Waters** – Surface waters having a level of quality which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water by satisfying Pennsylvania Code Title 25 Environmental Protection, Chapter 93, Water Quality Standards, § 93.4b(a).

**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 channel, conduit or watercourse, considering such factors as depth, velocity and turbulence.

**Hydrology:** The science dealing with waters of the earth and their distribution and circulation through the atmosphere. Engineering hydrology deals with the application of hydrologic concepts to determine volume and rate of runoff.

**Impervious Material:** Material which resists the entrance of water or other liquids.

**Impervious Surface** – A surface that prevents the infiltration of water into the ground. Impervious surfaces include, but are not limited to, streets, sidewalks, pavements, driveway areas, or roofs. Any surface areas designed to be gravel or crushed stone shall be regarded as impervious surfaces.

**Land Development** – Any of the following activities:

- (i) The improvement of one (1) lot or two (2) or more contiguous lots, tracts, or parcels of land for any purpose involving:
  - a. A group of two (2) or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure, or
  - b. The division or allocation of land or space, whether initially or cumulatively, between or among two (2) or more existing or prospective occupants by means of, or for the purpose of, streets, common areas, leaseholds, condominiums, building groups, or other features;
- (ii) A subdivision of land;
- (iii) Development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

**Large Land Development** – a Land Development as defined in the regulated activities, being larger than a small development.

**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.

**Landowner:** The legal or beneficial owner or owners of land, including the holder of an Option or Contract to Purchase (whether or not such Option or Contract is subject to any condition), a Lessee if he/she is authorized under a Lease Agreement to exercise the rights of the landowner, or other persons having a proprietary interest in land.

**Nonpoint Source Pollution** – Pollution that enters a waterbody from diffuse origins in the watershed and does not result from discernible, confined, or discrete conveyances.

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

**Nonstructural Best Management Practice (BMPs)** – Methods of controlling stormwater runoff quantity and quality, such as innovative site planning, impervious area and grading reduction, protection of natural depression areas, temporary ponding on site, and other techniques

**Outfall:** Points or areas at which stormwater runoff leaves a structure or site, which may include streams, storm sewers, swales or other well defined natural or artificial drainage features, as well as areas of dispersed overland flows.

**Outlet Structure:** A structure designed to control the volume of stormwater runoff that passes through it during a specific length of time.

**PADEP:** Pennsylvania Department of Environmental Protection.

**Peak Rate of Runoff (or Discharge):** The maximum 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 choice to the applicant. The release rate percentage is an example of a performance standard; the design standards for storm sewers are specification standards.

**Pervious Material:** Material which permits the entrance of water or other liquid.

**Point of Interest (Control Point):** A point of hydraulic concern such as a bridge, culvert, or channel section, for which the rate of runoff is computed or measured, and usually located at the downstream limits of a subarea.

**Rational Method:** Defined method of using a process of calculation to determine rainfall contributions from drainage basin stormwater runoff.

**Rate of Runoff:** Instantaneous measurement of water flow expressed in 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).

**Regulated Earth Disturbance Activity** – Defined under NPDES Phase II regulations as earth disturbance activity of one (1) acre or more with a point source discharge to surface waters or the Municipality's storm sewer system or five (5) acres or more regardless of the planned runoff. This includes earth disturbance on any portion of, part, or during any stage of a larger common plan of development.

**Release Rate Percentage:** The percentage of pre-development peak rate of runoff from a watershed subarea (as delineated in a watershed plan), which defines the allowable post development peak discharge from any development site in that subarea. The release rate percentage is determined by computing the following ratio:

$$\frac{\text{Subarea post development peak rate of runoff}}{\text{Subarea pre-development peak rate of runoff}} \times 100 = \text{Release Rate Percentage}$$

**Retention-facility:** A facility designed to attenuate peak stormwater runoff while maintaining a permanent pool of water, and releasing the remaining runoff at a pre-determined rate.

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

**SCS:** Soil Conservation Service, U.S. Department of Agriculture.

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**Seasonal High Water Table (SHWT):** Soil zone where repeat water saturation has occurred as evident from water level monitoring record, or by mottled (discolored due to lack of oxygen) zones of soils exist.

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

**Slope (or percent slope):** To diverge from the vertical or horizontal; incline: The amount or degree of such deviation: An inclined line, surface, plane, position, or direction.

**Small Development:** Any subdivision, land development, or development which results, or will result when fully constructed, in the creation of an aggregate total of 10,000 square feet, or less, of additional impervious surface area from the date of this Ordinance.

**Soil Cover Complex Method:** A method or runoff computation developed by the U.S. Soil Conservation Service and found in its publication "Urban Hydrology for Small Watersheds". Technical Release No.55, SCS, January 1975 (or most current edition).

**State Water Quality Requirements** – As defined under state regulations -- protection of *designated* and *existing* uses (see 25 Pennsylvania Code Chapters 93 and 96)--including:

A. Each stream segment in Pennsylvania has a "designated use," such as "cold water fishery" or "potable water supply," which is listed in Chapter 93. These uses must be protected and maintained under state regulations.

B. "Existing uses" are those attained as of November 1975, regardless of whether they have been designated in Chapter 93. Regulated earth disturbance activities must be designed to protect and maintain existing uses and maintain the level of water quality necessary to protect those uses in all streams and to protect and maintain water quality in special protection streams.

C. Water quality involves the chemical, biological, and physical characteristics of surface water bodies. After regulated earth disturbance activities are complete, these characteristics can be impacted by the addition of pollutants such as sediment and changes in habitat through increased flow volumes and/or rates as a result of changes in land surface area from those activities. Therefore, permanent discharges to surface waters must be managed to protect the stream bank, stream bed, and structural integrity of the waterway to prevent these impacts.

**Storage Facility:** (See Detention Basin or Retention Basin).

**Storm Sewer:** An underground conduit that carries intercepted surface runoff, street water, and other 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, basins, canals, channels, ditches, streams, culverts, streets and pumping stations.

**Stormwater Management District:** An area whose boundaries are contiguous with those of the watersheds located in Houston Borough.

**Stormwater Management Plan:** The plan for managing stormwater runoff from a specific development site, prepared by a professional engineer registered to practice in Pennsylvania.

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**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 of interest.

**Subdivision** – The division or redivision of a lot, tract, or parcel of land by any means into two (2) or more lots, tracts, parcels, or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of lease, partition by the court for distribution to heirs or devisees, transfer of ownership, or building or lot development; provided, however, that the subdivision by lease of land for agricultural purposes into parcels of more than ten (10) acres not involving any new street or easement of access or any residential dwelling shall be exempted.

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

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

**Municipality Stormwater Management Plan:** The plan for managing stormwater.

**Type (II) Rainfall:** Rainfall pattern and distribution of magnitude and duration, defined by the Soil Conservation Service branch of the US National Resource Conservation Service, defined for a given geographical area of the United States. In the local geographical area defined as a Type II pattern.

**Volume of Stormwater Runoff:** Quantity of water normally measured in inches, 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 PADEP, 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.

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

**Woods** – A natural groundcover with more than one (1) viable tree of a DBH of six (6) inches or greater per fifteen hundred (1,500) square feet which existed within three (3) years of application;

a cover condition for which SCS curve numbers have been assigned, or to which equivalent Rational Method runoff coefficients have been assigned.

**Section 104. General Requirements**

- A. Applicants proposing regulated activities in the Municipality which do not fall under the exemption criteria shown in Section 104 shall submit an application, application fees, a Drainage Plan or Stormwater Management Plan, and the respective submittals, consistent with this Ordinance, to the Municipality for review. The stormwater management criteria of this Ordinance shall apply to all portions of the entire proposed development even if development is to take place in stages.
- B. The Applicant is required to find practicable alternatives to the surface discharge of stormwater, the creation of impervious surfaces, and the degradation of waters of the Commonwealth and must maintain as much as possible the natural hydrologic regime.
- C. The Stormwater Management Plan must be designed consistent with the sequencing provisions of Section 104.3.1 to ensure maintenance of the natural hydrologic regime, to promote groundwater recharge, and to protect groundwater and surface water quality and quantity. The Stormwater Management Plan designer must proceed sequentially in accordance with 104.3.1 of this Ordinance.
- D. Stormwater drainage systems shall be designed in order to permit unimpeded flow along natural watercourses, except as modified by stormwater management facilities or open channels consistent with this Ordinance.
- E. Existing points of concentrated drainage that discharge onto adjacent property shall not be altered in any manner which could cause property damage and will not be incorporated in the plans without permission of the affected property owner(s) and shall be subject to any applicable discharge criteria specified in this Ordinance.
- F. Areas of existing diffused drainage discharge, whether proposed to be concentrated or maintained as diffused drainage areas, shall be subject to any applicable discharge criteria in the general direction of existing discharge, except as otherwise provided by this Ordinance.
- G. If diffused drainage discharge is proposed to be concentrated and discharged onto adjacent property, the Applicant must document that adequate downstream conveyance facilities exist to safely transport the concentrated discharge or otherwise prove that no erosion, sedimentation, flooding, or other impacts will result from the concentrated discharge.
- H. Where a development site is traversed by existing streams, drainage easements shall be provided conforming to the line of such streams. The terms of the easement shall conform to the stream buffer requirements contained in Section 108.B.7 of this Ordinance.
- I. Any stormwater management facilities regulated by this Ordinance that would be located in or adjacent to waters of the Commonwealth or delineated wetlands shall be subject to approval by DEP through the Joint Permit Application or the Environmental Assessment Approval process, or where deemed appropriate, by the DEP General Permit process. When there is a question as to whether wetlands may be involved, it is the responsibility of the Applicant or his agent to show that the land in question cannot be classified as wetlands; otherwise, approval to work in the area must be obtained from DEP.

- J. Any proposed stormwater management facilities regulated by this Ordinance that would be located on state highway rights-of-way shall be subject to approval by PennDOT.
- K. Minimization of impervious surfaces and infiltration of runoff through seepage beds, infiltration trenches, etc., is encouraged where soil conditions permit in order to reduce the size or eliminate the need for detention facilities or other structural BMPs.
- L. All stormwater runoff shall be pretreated as defined by the State Water Quality Requirements for protection of *designated* and *existing* uses (see 25 Pennsylvania Code Chapters 93 and 96) for water quality prior to discharge to surface or groundwater.
- M. All regulated activities within the Municipality shall be designed, implemented, operated, and maintained to meet the purposes of this Ordinance, through these two elements:
  - 1. Erosion and sediment control during earth disturbance activities (e.g., during construction), and
  - 2. Water quality protection measures after completion of earth disturbance activities (i.e., after construction), including operations and maintenance.
- N. No regulated earth disturbance activities within the Municipality shall commence until the requirements of this Ordinance are met.
- O. Post-construction water quality protection shall be addressed as required by Section 109.2 "Water Quality Requirements & Stormwater Best Management Practices".
- P. Operations and maintenance of permanent stormwater BMPs shall be addressed as required by Section 112.3 "Responsibilities for Operations and Maintenance of Stormwater Controls and BMPs".
- Q. All BMPs used to meet the requirements of this Ordinance shall conform to the state water quality requirements and any more stringent requirements as set forth by the Municipality.

**Section 104.1. Permit Requirements by the Municipality and Other Governmental Entities**

The following permit requirements may apply to certain regulated earth disturbance activities and must be met prior to commencement of regulated earth disturbance activities, as applicable:

- A. A Permit to construct the stormwater facilities as approved by the Municipality Council.
- B. All regulated earth disturbance activities subject to permit requirements by DEP under regulations at 25 Pennsylvania Code Chapter 102.
- C. Work within natural drainageways subject to permit by DEP under 25 Pennsylvania Code Chapter 105.
- D. Any stormwater management facility that would be located in or adjacent to surface waters of the Commonwealth, including wetlands, subject to permit by DEP under 25 Pennsylvania Code Chapter 105.
- E. Any stormwater management facility that would be located on a state highway right-of-way or require access from a state highway shall be subject to approval by PennDOT. In the case where a driveway entrance is required from a state road to access stormwater facilities, a highway occupancy permit and any further approval required by the PennDOT will be applied and obtained by the applicant for the development.

- F. Culverts, bridges, storm sewers, or any other facilities which must pass or convey flows from the tributary area and any facility which may constitute a dam subject to permit by DEP under 25 Pennsylvania Code Chapter 105.

**Section 104.2. Erosion and Sediment Control During Regulated Earth Disturbance Activities**

- A. No Regulated Earth Disturbance activities within the Municipality shall commence until the Municipality receives an approval from the Conservation District of an erosion and sediment control plan for construction activities.
- B. DEP has regulations that require an erosion and sediment control plan for any earth disturbance activity of five thousand (5,000) square feet or more, under 25 Pennsylvania Code § 102.4(b).
- C. In addition, under 25 Pennsylvania Code Chapter 92, a PA DEP Permit for Stormwater Discharges Associated with Construction Activities is required for land disturbances greater than 1 Acre.
- D. Evidence of any necessary permit(s) for regulated earth disturbance activities from the appropriate DEP regional office or County Conservation District must be provided to the Municipality. The issuance of an NPDES Construction Permit (or permit coverage under the statewide General Permit (PAG-2)) satisfies the requirements of subsection.
- E. A copy of the erosion and sediment control plan and any required permit, as required by DEP regulations, shall be available on the project site at all times.
- F. Additional erosion and sediment control design standards and criteria are recommended to be applied where infiltration BMPs are proposed. They shall include the following:
  - 1. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase to maintain maximum infiltration capacity. Additional measures, such as placement of Orange Construction Fencing around proposed Infiltration BMPs during construction to minimize or eliminate traffic overtop these areas, and temporary sealing off of pipes and inlet connections to Infiltration BMPs to prevent sediment clogging should be done.
  - 2. Infiltration BMPs shall not be constructed nor receive runoff until the entire drainage area contributory to the infiltration BMP has achieved final stabilization.

**Section 104.3. Stormwater Plan Requirements:**

- A. **General Requirements:** No final subdivision or land development plan shall be approved, no permit authorizing construction issued, or any earth moving 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. The following items shall be included in the stormwater management plan or drainage plan (small development):
1. **General:** A general description of the project including those areas described in **Section 104.3.1.B.**
  2. General description of proposed permanent stormwater management techniques, including construction and materials specifications of the materials to be used for stormwater management facilities;
  3. USGS map at 1"=2000' scale with the project area outlined.
  4. An erosion and sediment control plan, including all reviews and letters of adequacy from the Conservation District.
- B. **Maps:**
- Map(s) of the project area shall be submitted on 24-inch x 36-inch sheets and/or shall be prepared in a form that meets the requirements for recording at the offices of the Recorder of Deeds of Washington County. The contents of the map(s) shall include, but not be limited to:
1. The location of the project relative to highways, municipal boundaries, or other identifiable landmarks.
  2. Existing contours at intervals of two (2) feet. In areas of slopes greater than [25] percent, 5-foot contour intervals may be used.
  3. Existing streams, lakes, ponds, or other waters of the Commonwealth within the project area.
  4. Other physical features including flood hazard boundaries, stream buffers, existing drainage courses, areas of natural vegetation to be preserved, and the total extent of the upstream area draining through the site.
  5. The locations of all existing and proposed utilities, sanitary sewers, water wells, and water lines within the project area and within fifty (50) feet of outer property lines.
  6. A map overlay showing soil names, boundaries and limitations (and in Tabular Format) as reflected in the US Department of Agriculture (USDA) Soils Survey, latest edition for the county.
  7. Limits of earth disturbance, including the type and amount of impervious area that would be added.
  8. Proposed structures, roads, paved areas, and buildings.
  9. The name of the development, the name and address of the owner of the property, and the name of the individual or firm preparing the plan.
  10. The date of submission.
  11. Location of all open channels, as well as indicating where they are draining after they leave the site (storm sewer, defined

drainage swale, stream channel, Waters of the Commonwealth, etc.).

12. The location of all erosion and sediment control facilities and all post-construction stormwater management facilities, BMPs, systems, etc.
13. A statement, signed by the Applicant, acknowledging that any revision to the approved Post-Construction Stormwater Management Plan must be approved by the Municipality and the Conservation District and/ or PA DEP (if greater than 1 acre of land disturbance), and that a revised erosion and sediment control plan must be submitted to the Conservation District for a determination of adequacy.

C. Stormwater Management Facilities

1. All Post-Construction Stormwater Management (PCSWM) BMPS, facilities must be located on a plan and described in detail. The PCSWM Plan Package should include at a minimum Pre- and Post- Drainage Area Plans, an Overall PCSWM Plan, PCSWM Details Sheets, Landscaping or Conservation Plans, etc.
2. When infiltration measures such as seepage pits, beds, or trenches are used, the locations of existing and proposed septic tank, infiltration areas and wells must be shown. Minimum setback distances should be identified from water supply wells, septic areas, and any adjacent or down-gradient buildings and/or structures with below grade floors or inhabitable space.
3. All calculation assumptions, and criteria used in the design of the stormwater management facilities must be shown.

D. The following items shall be included in the Stormwater Management Application for Large and Small land disturbances, subdivisions, or land developments:

1. General description of the project including those areas described in Section 104.3.1B.
2. General description of proposed permanent stormwater management techniques, including construction specifications of the materials to be used for stormwater management facilities.
3. Complete hydrologic, hydraulic, and structural computations for all stormwater management facilities.
4. An erosion and sediment control plan, including all reviews and letters of adequacy from the Conservation District.
5. The Stormwater Management Application & completed fee schedule form with fee (Ordinance Appendix B-1 & B-2).
6. The Stormwater Management Checklist as applies (Appendix B-3).

- E. Supplemental Information to be Submitted to the Municipality
1. A written description of the following information shall be submitted by the Applicant and shall include:
    - a. Stormwater management techniques to be applied both during and after development.
    - b. Expected project time schedule.
    - c. Development stages or project phases, if so proposed.
    - d. An operations and maintenance plan in accordance with Section 117 of this Ordinance.
  2. A description of the effect of the project (in terms of runoff volumes and peak flows) on adjacent properties and on any existing municipal stormwater collection system that may receive runoff from the project site, where this applies.
  3. A Declaration of Adequacy and Highway Occupancy Permit from the Pennsylvania Department of Transportation (PennDOT) District office when utilization of a PennDOT storm drainage system is proposed.
- F. Proof of application or documentation of required permit(s) or approvals for the programs listed below as they apply, and where they are the responsibility of the applicant to determine which are required:
1. NPDES Permit for Stormwater Discharges from Construction Activities
  2. DEP Joint Permit Application
  3. PennDOT Highway Occupancy Permit
  4. PA Code Title 25, Chapter 105 (Dam Safety & Waterway Management)
  5. PA Code Title 25, Chapter 106 (Floodplain Management)
  6. Any other permit under applicable state or federal regulations
- G. For any of the activities regulated by this Ordinance, the preliminary or final approval of subdivision and/or land development plans, the issuance of any building or occupancy permit, or the commencement of any earth disturbance activity may not proceed until the Property Owner or Applicant or his/her agent has received written approval of a Stormwater Management Plan from the Municipality, obtained an NPDES Permit for Storm Water Discharges Associated with Construction Activities, if greater than (1) Acre of Land Disturbance, from the local Conservation District and/or PA DEP, and an Adequate Erosion and Sediment Control Plan review by the Conservation District.

**Section 104.3.1. Nonstructural Project Design (Sequencing to Minimize Stormwater Impacts)**

- A. The design of all regulated activities shall include the following to minimize storm water impacts.

1. The Applicant shall find practicable alternatives to the surface discharge of storm water, the creation of impervious surfaces, and the degradation of waters of the Commonwealth and must maintain as much as possible the natural hydrologic regime of the site.
  2. An alternative is practicable if it is available and capable of implementation after taking into consideration existing technology and logistics in light of overall project purposes and other municipal requirements.
  3. All practicable alternatives to the discharge of storm water are presumed to have less adverse impact on quantity and quality of waters of the Commonwealth unless otherwise demonstrated.
- B. The Applicant shall demonstrate that the regulated activities were designed in the following sequence. The goal of the sequence is to minimize the increases in stormwater runoff and impacts to water quality resulting from the proposed regulated activity:
1. Prepare an Existing Resource and Site Analysis Map (ERSAM) showing environmentally sensitive areas including, but not limited to, steep slopes, ponds, lakes, streams, wetlands, hydric soils, vernal pools, stream buffers, hydrologic soil groups, wooded areas, and potential infiltration areas. Land development, any existing recharge areas, and other requirements outlined in the municipal comprehensive plan shall also be included.
  2. Establish a stream buffer according to Section 108.B.7.
  3. Prepare a draft project layout avoiding sensitive areas identified in Section 104.3.1.B.1.
  4. Identify site-specific existing conditions drainage areas, discharge points, recharge areas, and hydrologic soil groups A and B (areas conducive to infiltration). Infiltration should still be considered in well draining soils listed as hydrologic soil group C, but additional soils testing should be performed to verify onsite conditions and placement of these BMPs.
  5. Evaluate nonstructural stormwater management alternatives:
    - a. Minimize earth disturbance.
    - b. Minimize impervious surfaces.
    - c. Break up large impervious surfaces.
  6. Determine into what watershed district the site falls (**Ordinance Appendix A**) and conduct an existing conditions runoff analysis.
  7. Prepare final project design to maintain existing conditions drainage areas and discharge points, to minimize earth disturbance and impervious surfaces, and, to the maximum extent possible, to ensure that the remaining site development has no surface or point discharge.
  8. Conduct a proposed conditions runoff analysis based on the final design that meets the management district requirements (**Section 108.C.3**)
  9. Manage any remaining runoff prior to discharge through detention, bio-retention, direct discharge, or other structural control.

**Section 104.4. Stormwater Management Plan Contents- Preliminary Plan Submission:**

- A. **General Format:** The stormwater management plan shall be prepared using the following requirements:
1. **Watershed Mapping:** For the design of the site stormwater management facilities, provide clear mapping that delineates the watershed boundaries for the proposed development site for existing and post construction conditions. Clearly illustrate the Time of Concentration (the time it takes for surface runoff to travel from the hydraulically farthest portion of the watershed to the design point. paths for both existing and post construction conditions). Watershed mapping shall also be provided for the design of storm sewer inlets.
  2. **Floodplain Boundaries:** Identify 100-year floodplains on the development site (as appropriate) based on a historical data, a Municipality Flood-Prone Area Map where available, or a Flood Insurance Rate Map available as available from the US Army Corp of Engineers, or the applicant's consultant's determination of the 100-year floodplain for any watercourse or water body on the development site with a drainage area of 100 acres or more.
  3. **Natural Features:** Show all bodies of water (natural and artificial), water courses (permanent and intermittent), swales, wetlands and other natural drainage courses on the development site or which will be affected by runoff from the development.
  4. **Soils:** Provide an overlay showing soils types and boundaries within development site (consult County, SCS, U.S. Geologic Survey for information).
  5. **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.
  6. **Stormwater Management Controls:** Show any existing stormwater management or drainage controls and/or 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.
- B. **Professional Certification:** The stormwater management plan, including all calculations, must be prepared and sealed by a registered professional engineer qualified to make certification under the laws of Pennsylvania.

- C. **Runoff Calculations:** Calculations for determining pre- and post-development discharge rates and for designing proposed stormwater control facilities must be submitted with the stormwater management plan. All calculations shall be prepared using the method and data prescribed by Section 108.
- D. **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/sedimentation controls must be shown. The preliminary plan must provide information on the general type, location, sizing, etc. of all proposed facilities and their relationship to the existing watershed drainage system.
- E. **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.
- F. **Other Permits/ 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 PADEP. Anticipated dates of submission/receipt should be included with the preliminary plan submission. The municipality may request copies of the applications if they may be helpful for the stormwater plan review.
- G. **Maintenance Program:** The preliminary application shall contain a proposed maintenance plan for all stormwater control facilities, in accordance with the following:
1. Identify the proposed ownership entity (e.g., municipality, property owner, a homeowner's association, other management entity).
  2. If ownership is to be an entity other than the Municipality, include a maintenance program for all facilities, outlining the type of maintenance activities, probable frequencies, personnel and equipment requirements, and estimated annual maintenance costs. See also Section 105.B.4.
  3. Identify method of financing continuing operation and maintenance if facility is to be owned by other than the Municipality or other governmental agency.

**Section 104.5. Stormwater Plan Management Contents- Final Plan Submittal:**

- A. All information pertaining to stormwater management from the preliminary plan along with any changes.
- B. Final maps showing the exact nature and location of all temporary and permanent stormwater management controls under the design and construction specifications.
- C. A schedule for the installation of all temporary and permanent stormwater control measures and devices.
- D. An accurate survey showing all current and proposed easements and rights-of-ways and copies of all proposed deed restrictions.
- E. 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 per the current Borough Subdivision and Land Development Ordinance.
- F. Financial guarantees, to ensure that all stormwater controls are installed properly and functioning satisfactorily.
- G. Performance Guarantee: The applicant shall provide a financial guarantee to Houston Borough for the timely installation and proper construction of all stormwater management controls as required by the approved stormwater plan and this Ordinance (reference Section 117.2 for fee).

**Section 105. Stormwater Management Plan Procedures:**

- A. **Pre-Application Phase:**
  - 1. During the Pre-Application period, applicants are urged to consult with the Municipality and the Washington County Planning Department on the requirements for safely managing stormwater runoff from the development site in a manner consistent with the Municipality ordinances and the Municipality Stormwater Management Plan. These agencies may be helpful in providing the data that is necessary for preparing the stormwater management plan for the development site.
  - 2. Applicants are encouraged to submit a sketch plan with a narrative description of the proposed stormwater management controls and general hydrologic parameters

for general guidance and discussion with Municipality and County agencies.

3. The pre-application phase is not mandatory, no application or fee is collected for this portion of process, and any review comments provided by the Municipality or County agencies are advisory only and do not constitute any legally binding action on the part of the Municipality or any County agency.

**B. Preliminary and Final Stormwater Plan Reviews:**

1. **Preliminary and Final Plans Required:** Stormwater management plans, in accordance with the requirements of Section 104, will be submitted with the preliminary and final subdivision or land development plan application. The maximum impervious surface area that may be placed on individual lots must be shown on the construction plan as well as the recorded plan. The square foot area shall be shown on the plans in the form of a table.
2. **Plan Review:** Preliminary and final stormwater management plans will be reviewed by the Municipality Engineer. At its discretion, the Municipality may also engage other specialists in hydrology or hydraulics to assist with the stormwater plan review.
3. **Notification of Affected Municipalities:** If during the review of the proposed stormwater management plan, the Municipality determines that properties in adjacent municipalities may be affected by the stormwater runoff and proposed management system for the site, it will notify the affected municipality(s) 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 the Municipality Board of Council.
4. **Municipality Engineer's Review:** The Municipality Engineer shall review and provide the Municipality with a recommendation for acceptance or rejection of the preliminary and final stormwater management plan based on the requirements of the Municipality's ordinances, the standards and criteria of the Municipality Stormwater Management Plan, and good engineering practice. The developer shall submit a written final stormwater management plan, along with supporting

documentation, to the Municipality Planning Commission for its consideration as part of the overall Regulated Activities plan review. In the case that the Municipality will be responsible for the maintenance of the stormwater management facility, the developer's design engineer shall submit tabled recommended maintenance inspections in accordance with the guidelines in the **Appendix I** and PennDOT approvals in accordance with Section 104.1.E. for review and approval by the Municipality Supervisors.

5. **Status of the Engineer's Determination:** The approval /disapproval of the site's stormwater management plan by the Municipality Engineer shall be transmitted with recommendations to the Municipality Planning Commission and the Borough Council, who will have final approval authority. The Planning Commission (or Borough Council) can request modifications or alternative approaches to the stormwater management controls, consistent with the low impact provisions of the Best Management Practices outlined in **Appendix D**, provided these are agreed to by the Municipality Engineer and the applicant's engineer who must certify the plans.
6. **Approval of Stormwater Plan Required for Subdivision / Land Development Approval:** No final approval of a subdivision or land development application or plan shall be granted for a non-exempt Regulated Activity until a stormwater management plan for the site has been approved.
7. **Permits Required from Other Governmental Agencies:** When the subdivision or land development application requires permits from the Pennsylvania DEP, U. S. Army Corps of Engineers, or other regulatory agency, then a non-exempt Regulated Activity plan approval shall be conditional upon receipt of such permits. However, no building permit shall be issued, or construction started, until these permits are received and copies filed with the Municipality for a non-exempt Regulated Activity.

**Section 106. Status of the Stormwater Management Plan after Final Approval:**

- A. Upon providing adequate financial guarantees, as outlined in the Subdivision and Land Development Ordinance, and after the Municipality has issued a Permit, and the "Notice to Proceed", the applicant may commence to install or implement the approved stormwater management controls, subject to the provisions of Section 105.B. 6. as above. If site development or building construction does not

begin within two years of the date of the 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.

**Section 107. Stormwater Plan Modifications:**

**A. Procedures for Approving Plan Modifications:**

Requests for modification in the final approved stormwater management controls shall be submitted to the Municipality, which will request review by the Municipality Engineer as appropriate listed as follows:

1. If request is initiated before construction begins, the stormwater plan must be resubmitted and reviewed according to the procedures in **Section 105** of this Article.
2. If request is initiated after construction is underway, the Municipality Engineer shall have the authority to approve or disapprove the modification, based on field inspection, provided the requested changes in stormwater controls do not result in any modifications to other approved Municipality land use/development requirement (such as required building set backs, yards, etc.). (A plan modification, in accordance with applicable Municipality procedures, shall be necessary if any such requirements are affected). The developer shall maintain a record of all changes approved for the stormwater management controls and shall submit these to the Municipality Supervisors with the final as-built plans for the development, prior to the acceptance of any improvements by the Municipality.
3. Design Modifications during construction: The developer shall submit a written request, along with professional certifications of any modifying calculations, with drawings describing any design modifications, and receive written approval from the Municipality before continuing with the modifications without penalty to the Municipality or Municipality Engineer conducting the review.

**Section 108. Stormwater Management Performance Districts:**

**A. Stormwater Management Districts:**

1. For the purposes of stormwater management, Houston Borough is considered one Stormwater Management District.
2. At the time where the Municipality adopts an Act 167 Study that has provisions for separate standards for release rates, then the prescribed release rates shall be incorporated here to this ordinance by reference at the release rates adopted in the study.

**B. General Performance Standards:**

The following provisions shall be considered the overriding performance standards against which all proposed stormwater control measures shall be evaluated, and they shall apply in all areas of the municipality.

1. Any landowner and any person engaged in the alteration or development of any 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 such actions as are required:
  - a. To assure that the maximum rate of stormwater runoff leaving the property, as well as at all points of interest downstream of the development within the Municipality boundaries is no greater than eighty percent (80%) of the pre-development rate of discharge after development; or
  - b. To manage the quantity, velocity and direction of resulting stormwater runoff in a manner which otherwise adequately protects health and property from possible injury.
2. The stormwater management plan for the development site must consider all the stormwater runoff flowing over the site.
3. Where the 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.
4. No discharge of toxic materials into any stormwater management system shall be permitted.

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.
6. Where a subdivision or land development is traversed by a natural watercourse, there shall be provided a drainage easement or right-of-way conforming substantially with the line of such watercourse width.
7. The Municipality will assure that all perennial or intermittent streams, not under the jurisdiction of other official agencies, are maintained open and free flowing. Fifty (50) foot easements shall be provided and centered about the centerline of the stream. If a perennial or intermittent stream passes through the site, the Applicant shall create a stream buffer extending a minimum of twenty-five (25) feet to either side of the top-of-bank of the channel. The buffer area shall be maintained with and encouraged to use appropriate native vegetation (refer to Appendix H of the Pennsylvania Handbook of Best Management Practices for Developing Areas for plant lists). If the applicable rear or side yard setback is less than fifty (50) feet or a stream traverses the site, the buffer width may be reduced to twenty-five (25) percent of the setback and/or to a minimum of ten (10) feet. If an existing buffer is legally prescribed (i.e., deed, covenant, easement, etc.) and it exceeds the requirements of this Ordinance, the existing buffer shall be maintained. The requirements of this section do not include lakes or wetlands.

**C. Technical Performance Standards:**

The stormwater performance standards contained in this section are intended to implement the standards and criteria contained in the Houston Borough Stormwater Management Plan. It shall be used as a guide in applying and interpreting all specific ordinance requirements. If there is any discrepancy between the provisions of this chapter and the standards and criteria of the plan, or the Municipality Stormwater Management Plan is subsequently amended, then the standards/criteria of the current plan shall govern. Unless otherwise specified, the following provisions shall apply in all stormwater management districts:

1. **Design Storms:** Stormwater Management facilities on all development sites in all stormwater management districts shall control the peak stormwater discharge for the 2, 10, 25, and 100-year design storms. The SCS 24-

hour, Type II rainfall distribution shall be used for analyzing stormwater runoff in pre- and post-development conditions as well as for designing runoff control facilities (except storm runoff collection and conveyance facilities). The design storms, along with the 24-hour total runoff depths for these return periods, for the watersheds in Houston Borough are:

<u>Design Storm Return Period</u>	<u>24-Hour Rainfall Depth in Inches</u>
2-year	2.6
10-year	3.9
25-year	4.4
100-year	5.2

For additional information or data on other return periods, consult the "Rainfall Duration Frequency Tables for Pennsylvania", produced by PADEP, Office of Resource Management, Bureau of Dams and Waterways Management, Division of Stormwater Management, Harrisburg, February 1983.

2. Calculation Methods

- a) Development Sites: For the purposes of computing peak flow rates 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 (TR55). For development sizes less than three acres, the Rational Method may be utilized. The Municipality Engineer may approve the use of other simulation computer programs for the stormwater analysis and design.
- b) 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 design should be obtained from the current Pennsylvania Department of Transportation rainfall charts.
- c) Predevelopment Conditions: Predevelopment conditions shall be assumed to be those which exist on any site at the time of plan submission. 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 pervious land uses within the respective range for each land use and hydrologic soil group.

3. **Release Rate Percentage:**

- a) **Application:** All subdivisions and land development activities which result in an increase in the post-development peak rate of stormwater runoff from any outfall on the development site shall be subject to the **Release Rate** as defined in the Municipality Stormwater Map or this ordinance, and applied to the Design Storms [2, 10, 25, 100 year events]. In the event an Act 167 Watershed Management Plan is adopted by resolution, then the release rates for sub-sheds or the areas of the Municipality designated in the plan or presented by resolutions shall supersede this value without modification being required to this ordinance.
  
- b) **Definition:** The release rate percentage defines the percentage of the pre-development peak rate of runoff rate that can be discharged from an outfall on the site after development. It applies uniformly to all land developments or alterations within a subarea, and the post-development rate of runoff discharging from each outfall of the development site cannot exceed the release rate percentage for the subarea in which it is located.

4. **Direct Discharge Option (No Harm Option):**
  - a) The Direct Discharge or No Harm Option will not be acceptable. The No Harm Option may not be used where the subjective nature of such an evaluation, would be made without engineering analysis, and without catalog of all related, or sensitive areas, that may be affected by such a judgment.

**Section 109. Design Criteria for Stormwater Management Controls:**

**A. General Design Guidelines:**

1. Applicants may select runoff control techniques, or combinations of techniques, which are most suitable to the level of stormwater runoff control required, the type of development, and the natural features of the site and the effects of increased runoff to downstream areas. Cost of maintenance may be one of the considerations in the designs selected. All controls are subject to the "review and recommendation" of the Municipality Engineer, and subject to Municipality Supervisors approval. The Engineer may request specific information on design and/or operating features of the proposed stormwater controls in order to determine their suitability and adequacy in terms of the standards of this Ordinance.
2. In selecting and designing stormwater management systems, and controls, applicants may be guided by the following references:
  - a) "Urban Hydrology for Small Watersheds, "Technical Release No. 55, available from the USDA, Soil Conservation Service, 1975 (or most recent edition).
  - b) "Soil Erosion and Sedimentation Control Manual", available from the Pennsylvania Department of Environmental Protection, March 1982 (or most recent edition).
  - c) "Standards and Specifications for Soil Erosion and Sediment Control", available from the Maryland Water Resources Administration, 1983 (or most recent edition).
  - d) "Urban Stormwater Management", Special Report No. 49, available from the American

Public Works Administration, 1981 (or most recent edition).

- e) "Water Resources Protection Measures in Land Development - A Handbook", available from the University of Delaware, Water Resources Center, April 1974 (or most recent edition).
  - f) "Design and Construction of Sanitary and Storm Sewers", WPCF Manual of Practice No. 9, available from the Water Pollution Control Federation, 1970 (or most recent edition).
3. The applicant should consider the effect on the proposed stormwater management techniques of any special soils conditions or geological hazards which may exist on the development site. In the event such conditions are identified on the development site, the Municipality may require in-depth studies by a competent geotechnical engineer.

**B. Criteria for Stormwater Detention Facilities:**

- 1. If detention facilities are utilized for the development site, the facility(s) shall be designed such that the post-development peak runoff rates from the developed site are controlled to the Release Rate Percentage or downstream impact evaluation for the 2, 10, 25, and 100-year design storms.
- 2. All detention facilities shall be designed and equipped to safely pass the post-development 100-year storm runoff flows without damaging (i.e., impairing the continued function of) the facilities. (The 24-hour total rainfall for the 100-year storm is 5.2 inches).
- 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.
- 4. Where detention facilities will be utilized, multiple use facilities, such as lakes, ballfields, or similar recreational uses, are encouraged wherever feasible, subject to the approval of the Municipality.

5. Other considerations which should be incorporated into the design of the detention facilities include:
- a) Inflow and outflow structures should be designed and installed to prevent erosion, and bottoms of impoundment type structures should be protected from soil erosion.
  - b) Control and removal of debris both in the storage structure and in all inlet or outlet devices will be a design consideration.
  - c) Inflow and outflow structures, pumping stations, and other structures should be protected and designed to minimize safety hazards.
  - d) The interior slope of a detention or retention basin shall be no steeper than 3 to 1 (Horizontal to Vertical). Restriction of access (fences, walls, etc.) may be required, depending on location of the facility, and the recommendation of the Municipality Engineer.
  - e) Ponds with a normal 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.
  - f) Landscaping should be provided for the facility which harmonizes with the surrounding area.
  - g) Facility should be located to facilitate maintenance, considering the frequency and type of equipment that will be required.
  - h) All principal spillway inlets in any detention or retention facility must have an appropriate trash rack that facilitates self-cleaning.
  - i) For all underground detention facilities, exclusive of those used for residential small developments, two points of access will be required for maintenance and safety.
  - j) All above ground detention facilities shall have a low flow channel of non-eroding materials, as approved by the Municipality Engineer to prevent erosion during low flow periods.

- k) All interior portions of the basin shall slope toward the outlet or low flow channel at a minimum of one percent (1 %).
6. Control facilities shall be designed to meet, as a minimum, the design standards and specifications of the "Erosion and Sedimentation Control Handbook for Municipalities and Counties".
- a) In areas underlain with limestone geology, ponds shall be limited to the detention (dry) type unless the developer can show a special need for a retention pond, in which case it shall have a lining. Detention ponds shall be prohibited in areas of known sinkholes unless the pond is lined.
  - b) Retention ponds deeper than four (4) feet shall be fenced with a six (6) foot fence high fence subject to the approval of the Borough Council. The fencing requirement may be waived by the Borough Council if it can be demonstrated that fencing is not needed to protect the public health and safety.

**C. Criteria for Collection/Conveyance Facilities:**

- 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:
  - a) All sites shall be graded to provide drainage away from and around the structure in order to prevent any potential flooding damage.
  - b) Lots located on the high side of streets may extend roof and french drains to a properly sized curb line storm sewer (if applicable). Low side lots may 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.
  - c) Collection / conveyance facilities should not be installed parallel and close to the top or bottom of a major embankment to avoid the possibility of failing or causing the embankment to fail.

- d) All collection/conveyance facilities shall be designed to convey the 100-year storm peak flow rate from the contributing drainage area and to carry it to the nearest suitable outlet such as a curbed street, storm sewer, or natural watercourse. Off-site conveyance shall be via public or private easement to an existing storm sewer system or natural watercourse.
  - e) Collection/conveyance facilities shall be designed as a system and shall address which criteria, inlet, outlet, or pipe flow conditions control. No part of the collection /conveyance system shall be designed for pressure flow (greater than atmospheric pressure). **One (1) foot of freeboard shall be maintained in inlets at peak design flows.** Collection/conveyance systems shall be designed to handle the fully developed site.
  - f) Where drainage swales or open channels are used, they shall be suitably lined to prevent erosion and designed to avoid excessive velocities.
2. Wherever storm sewers are proposed, they shall comply with the following criteria:
- a) Where practical, designed to traverse under seeded and planted areas. If constructed within a road or street right of way dedicated to the Municipality, the storm sewer shall be constructed in accordance with the standards required in the Subdivision and Land Development Ordinance.
  - b) Preferably 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 2 feet cover and/or adequate protection during the fill construction.
  - c) Designed: (1) with cradle when traversing fill areas of indeterminate stability, (2) designed with anchors when gradient exceeds twenty (20) percent, and (3) designed with encasement or special backfill requirements when traversing under a paved area.

- d) 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.
- e) Drain pipe, headwalls, end walls, trenching, bedding and backfilling requirements shall conform to the requirements of the Municipality and/or applicable requirements of the Pennsylvania Department of Highways Specifications, Current Form 408.
- f) All piping shall be Smooth flow corrugated polyethylene pipe with soil tight joint systems, such as ADS-N12 or similar. Other pipe may be used upon approval by the Municipality Engineer.
- g) Storm inlets and structures shall be designed to be adequate, safe, self-cleaning and unobtrusive and shall be consistent with the construction standards and specifications of the Municipality.
- h) Appropriate grates shall be designed for all catch basins, stormwater inlets and other entrance appurtenances in accordance with Municipality construction standards and specifications.
- i) 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".
- j) Storm sewer outfalls shall be equipped with energy dissipation to prevent erosion and conform to applicable requirements of the PaDEP for stream encroachments (Chapter 105 of the Department's Rules and Regulations).
- k) All footer drains, and floor drains shall be collected and conveyed to the nearest stormwater management facility.
- l) Street drainage will not be permitted to cross intersections or the crown of the road.
- m) Maximum spacing of street inlets shall not exceed four hundred (400) feet.

3. All springs and sump pump discharges shall be collected so as not to flow in the streets or cause damage to adjacent property.
4. Stormwater roof drains shall be collected and conveyed to the nearest stormwater management facility.

**Section 109.1. Other Requirements**

- A. Any stormwater facility located on state highway rights-of-way shall be subject to approval by PennDOT.
- B. All wet basin designs (basins that will hold water) shall incorporate biologic controls consistent with the West Nile Prevention Guidance from the EPA.
- C. Any stormwater management facility (i.e., detention basin) required or regulated by this Ordinance designed to store runoff and requiring a berm or earthen embankment shall be designed to provide an emergency spillway to handle flow up to and including the 100-year proposed conditions. The height of embankment must provide a minimum 1.0 foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year proposed conditions inflow. Should any stormwater management facility require a dam safety permit under DEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety. Chapter 105 may be required to pass storms larger than the 100-year event.
- D. Any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures) and any work involving wetlands governed by DEP Chapter 105 regulations (as amended or replaced from time to time by DEP) shall be designed in accordance with Chapter 105 and will require a permit from DEP. Any facility that constitutes a dam as defined in DEP Chapter 105 regulations may require a permit under dam safety regulations.
- E. Any drainage conveyance facility that does not fall under Chapter 105 regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the 25-year design storm with a minimum one (1.0) foot of freeboard measured below the lowest point along the top of the roadway. Any facility located within a PennDOT right-of-way must meet PennDOT minimum design standards and permit submission requirements.
- F. Any drainage conveyance facility and/or channel not governed by Chapter 105 regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the 100-year design storm (no freeboard requirement). Conveyance facilities to or exiting from stormwater management facilities (i.e., detention basins) shall be designed to convey the design flow to or from that structure. Roadway crossings located within designated floodplain areas must be able to convey runoff from a 100-year design storm. Any facility located within a PennDOT right-of-way must meet PennDOT minimum design standards and permit submission requirements.
- G. Storm sewers must be able to convey proposed conditions runoff from a 100 year design storm maintaining within the top of the inlet grate.
- H. Adequate erosion protection shall be provided along all open channels and at all points of discharge.

- I. The design of all stormwater management facilities shall incorporate sound engineering principles and practices. The Municipality reserves the right to disapprove any design that would result in construction in or continuation of a stormwater problem area.

**Section 109.2. Groundwater Recharge**

- A. Maximizing the groundwater recharge capacity of the area being developed is required. Design of the infiltration facilities shall consider groundwater recharge to compensate for the reduction in the recharge that occurs when the ground surface is disturbed or impervious surface is created. It is recommended that roof runoff be directed to infiltration BMPs that may be designed to compensate for the runoff from parking areas. These measures are required to be consistent with Section 109.1 and to take advantage of utilizing any existing recharge areas.
- B. Infiltration may not be feasible on every site due to site-specific limitations such as soil type. If it cannot be physically accomplished, then the design professional shall be responsible to show that this cannot be physically accomplished. Appropriate soils testing and/ or geotechnical evaluation should be included as part of any documentation for Infiltration BMPs. If it can be physically accomplished, then the volume of runoff to be infiltrated shall be determined from Section 109.2.C.2 depending on demonstrated site conditions and shall be the greater of the volumes.
- C. Infiltration BMPs shall meet the following minimum requirements:
  1. Infiltration BMPs intended to receive runoff from developed areas shall be selected based on suitability of soils and site conditions and shall be constructed on soils that have the following characteristics:
    - a. A minimum depth of twenty-four (24) inches, preferably 36 inches, between the bottom of the BMP and the top of the limiting zone (e.g., SHWT (see definition), groundwater, bedrock, etc.).
    - b. An infiltration rate sufficient to accept the additional stormwater load and dewater completely as determined by field tests conducted by the Applicant's design professional.
    - c. The infiltration facility shall be capable of completely infiltrating the retention (infiltration) volume ( $Re_v$ ) within three (3) days (72 hours) or less, where  $Re_v$ , and the process for calculating these elements are defined in further sections.
    - d. Pretreatment shall be provided prior to infiltration.
  2. The size of the infiltration facility shall be based upon the following volume criteria:
    - a. Net Two Year Volume Approach - In 25 Pa. State Code defined High Quality/Exceptional Value (HQ/EV) watersheds, the minimum recharge retention (infiltration) volume ( $Re_v$ ) to be captured and infiltrated shall be the net 2-year volume. The net 2-year volume shall be determined by plotting the 2-year project site post-development hydrograph, drawing a straight line from

- the point-of-inflection of the rising limb of the hydrograph to the pre-development 2-year storm.
- b. One Inch from Impervious Surface - In other portions of the watershed that are not classified as HQ/EV, the retention (infiltration) volume ( $Re_v$ ) will be equal to capturing one (1) inch of rainfall over all proposed impervious surfaces.
  - c. Obtaining the  $Re_v$  volume in Section 109.2 C.2.a (above) may not be feasible on every site due to site-specific limitations such as soil type. If it cannot be physically accomplished, then the design professional shall be responsible for showing that this cannot be physically accomplished. If it cannot be physically accomplished, then the retention (infiltration) volume  $Re_v$  required shall be as much as can be physically accomplished with a minimum of 0.50 inch depending on demonstrated site conditions. It has been determined that capturing and infiltrating 0.50 inch of runoff from the impervious areas will aid in maintaining the hydrologic regime (baseflow) of the watershed. If the goals of Section 405.A.2.a or 405.A.2.b cannot be achieved, then 0.50 inch of rainfall shall be retained and infiltrated from all impervious areas.

The minimum recharge volume ( $Re_v$ ) required would, therefore, be computed as:

The retention volume values derived from the methods in Section 109.2 C.2.a, 109.2 C.2.b, and/or Section 109.2 C 2.c is the minimum volume the Applicant must control through an infiltration BMP facility. However, if a site has areas of soils that can be shown with soils laboratory testing or site percolation testing, to be impermeable, then these requirements will be considered for modification by the Municipality engineer, at request of the applicant's submission of the data.

$$Re_v = I * \text{impervious area (square feet)} \div 12 \text{ (inches)} = \text{cubic feet (cf)}$$

An asterisk (\*) in equations denotes multiplication.

Where:

I = The maximum equivalent infiltration amount (inches) that the site can physically accept or 0.50 inch, whichever is greater.

where additional volume of retention can be achieved, the Applicant is encouraged to infiltrate as much of the stormwater runoff from the site as possible.

If the minimum of 0.50 inch of infiltration requirement cannot be achieved, a waiver from Section 109.2, Groundwater Recharge, would be required from the Municipality.

- B. Soils - A detailed soils evaluation of the project site shall be required to determine the suitability of infiltration facilities. The evaluation shall be performed by a qualified design professional and at a minimum address soil permeability, depth to bedrock, and subgrade stability. The general process for designing the infiltration BMP shall be:
1. Analyze hydrologic soil groups as well as natural and man-made features within the site to determine general areas of suitability for infiltration practices. In areas where development on fill material is under consideration, conduct geotechnical investigations of sub-grade stability; infiltration may not be ruled out without conducting these tests.
  2. Provide field tests such as double ring infiltrometer or hydraulic conductivity tests (at the level of the proposed infiltration surface) to determine the appropriate hydraulic conductivity rate. Percolation tests are not recommended for design purposes.
  3. Design the infiltration structure for the required retention ( $Re_v$ ) volume based on field determined capacity at the level of the proposed infiltration surface.
  4. If on-lot infiltration structures are proposed by the Applicant's design professional, it must be demonstrated to the Municipality that the soils are conducive to infiltrate on the lots identified.
- C. Stormwater Hotspots (see list below) – Below is a list of examples of designated hotspots. If a site is designated as a hotspot, it has important implications for how stormwater is managed. First and foremost, untreated stormwater runoff from hotspots shall not be allowed to recharge into groundwater where it may contaminate water supplies. Therefore, the  $Re_v$  requirement shall NOT be applied to development sites that fit into the hotspot category (the entire amount of infiltrated volume must still be treated). Second, a greater level of stormwater treatment shall be considered at hotspot sites to prevent pollutant wash-off after construction. The Environmental Protection Agency's (EPA) NPDES stormwater program requires some industrial sites to prepare and implement a stormwater pollution prevention plan.

Examples of hotspots:

- Vehicle salvage yards and recycling facilities
- Vehicle fueling stations
- Vehicle service and maintenance facilities
- Vehicle and equipment cleaning facilities
- Fleet storage areas (bus, truck, etc.)
- Industrial sites based on Standard Industrial Codes
- Marinas (service and maintenance)
- Outdoor liquid container storage
- Outdoor loading/unloading facilities
- Public works storage areas

- Facilities that generate or store hazardous materials
- Commercial container nursery
- Other land uses and activities as designated by an appropriate review authority

The following land uses and activities are not normally considered hotspots:

- Residential streets and rural highways
- Residential development
- Institutional development
- Office developments
- Nonindustrial rooftops
- Pervious areas, except golf courses and nurseries (which may need an integrated pest management (IPM) plan).

While large highways (average daily traffic volume (ADT) greater than thirty thousand (30,000)) are not designated as stormwater hotspots, it is important to ensure that highway stormwater management plans adequately protect groundwater.

- D. Extreme caution shall be exercised where infiltration is proposed in Safe Water Protection Areas, (where spills or other water pollution may threaten drinking water sources) as defined by the local Municipality or water authority.
- E. Infiltration facilities shall be used in conjunction with other innovative or traditional BMPs, stormwater control facilities, and nonstructural stormwater management alternatives.
- F. Extreme caution shall be exercised where salt or chloride (municipal salt storage) would be a pollutant since soils do little to filter this pollutant, and it may contaminate the groundwater. The qualified design professional shall evaluate the possibility of groundwater contamination from the proposed infiltration facility and perform a hydro-geologic justification study if necessary. Specific consideration should be given to the particular type of salt or deicing material to be used within this watershed in regards to its potential long-term effects on the soils, especially in areas that contain clay soil.
- G. The infiltration requirement in HQ or EV waters shall be subject to the 25 Pa. Code Chapter 93 Anti-degradation Regulations.

### **109.3 – Water Quality Requirements and Stormwater Best Management Practices**

- A. No regulated earth disturbance activities within the Municipality shall commence until approval by the Municipality of a best management practices (BMPs) operations and maintenance plan, which describes how the permanent (e.g., post-construction stormwater BMPs) will be properly operated and maintained.
- B. The BMPs must be designed to protect and maintain existing uses (e.g., drinking water use; cold water fishery use) and maintain the level of water quality necessary to protect those uses in all streams, and to protect and maintain water quality in “Special Protection” streams, as required by statewide regulations at 25 Pa. Code Chapter 93 (collectively referred to herein as “State Water Quality Requirements”).
- C. To control post-construction stormwater impacts from regulated earth disturbance activities, state water quality requirements can be met by BMPs, including site design, which provide for replication of pre-construction stormwater infiltration and runoff conditions, so that post-construction

stormwater discharges do not degrade the physical, chemical or biological characteristics of the receiving waters. As described in the DEP Comprehensive Stormwater Management Policy (#392-0300-002, September 28, 2002 or as revised), this may be achieved by the following:

1. Infiltration: Replication of pre-construction stormwater infiltration conditions,
  2. Treatment: Use of water quality treatment BMPs to ensure filtering out of chemical and physical pollutants from the stormwater runoff, and
  3. Stream-bank and Streambed Protection: Management of volume and rate of post-construction stormwater discharges to prevent physical degradation of receiving waters (e.g., from scouring and erosion).
- D. DEP has regulations that require municipalities to ensure design, implementation and maintenance of Best Management Practices (BMPs) that control runoff from new development and redevelopment (hereinafter "development") after regulated earth disturbance activities are complete. These requirements include the need to implement post-construction stormwater BMPs with assurance of long-term operations and maintenance of those BMPs.
- E. Evidence of any necessary permit(s) for Regulated Earth Disturbance activities from the appropriate DEP regional office or County Conservation District must be provided to the municipality. The issuance of an NPDES Construction Permit (or permit coverage under the statewide General Permit (PAG-2) satisfies the requirements of Subsection 128.5(1).

**Section 110. Erosion and Sedimentation Controls:**

- A. Erosion and sedimentation controls shall be provided, both during and after construction, in accordance with the provisions of the Municipality Grading Ordinance and any state/county regulations, specifically 25 Pa. Code Chapter 102 Rules and Regulations.
- B. Proposed erosion/sedimentation measures should be submitted with the stormwater management plan as part of the applicant's preliminary plans.

**Section 111. Inspections of Stormwater Management Controls During Construction:**

- A. The Municipality 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 engineer 48 hours in advance of the completion of the following key development phases:
  - 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.
  - 2. At the completion of rough grading, but prior to placing topsoil, permanent drainage, or other site development improvements and ground covers.
  - 3. During construction of the permanent stormwater facilities at such times as specified by the Municipality Engineer.
  - 4. Completion of permanent stormwater management facilities, including established ground covers and plantings.
  - 5. Completion of any final grading, vegetative control measures, or other site restoration work done in accordance with the approved plan and permit.
- B. No work shall commence on any subsequent phase until the preceding one has been inspected and approved. If there are deficiencies in any phase, the Municipality Engineer shall issue a written description of the required corrections and stipulate the time by which they must be made.
- C. If, during construction, the contractor or permittee identifies any site conditions, such as subsurface soil conditions, alterations in surface or subsurface drainage, which could affect the feasibility or approved operating requirements of the approved stormwater facilities, he must notify the Municipality Engineer within 24 hours of the discovery of such condition and request a field inspection. The Municipality Engineer shall determine if the condition requires a stormwater plan modification.
- D. In cases where stormwater facilities are to be installed in areas of landslide-prone soils or other special site conditions exist, the Municipality 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.

**Section 111.1- Inspections**

- A. The Municipality and the municipal Engineer or his designee shall inspect all phases of the installation of the permanent BMPs and/or stormwater management facilities as deemed appropriate by the Municipality and Municipality Engineer.
- B. During any stage of the work, if the Municipality representative, or municipal Engineer or his municipal designee determines that the permanent BMPs and/or stormwater management facilities are not being installed in accordance with the approved stormwater management plan, the Municipality shall revoke any existing permits or other approvals and issue a cease and desist order until a revised drainage plan is submitted and approved, as specified in this Ordinance, and until the deficiencies are corrected.
- C. A final inspection of all BMPs and/or stormwater management facilities shall be conducted by the municipal Engineer or his municipal designee to confirm compliance with the approved drainage plan prior to the issuance of any occupancy permit.

**Section 112 Fees and Expenses**

**Section 112.1. Municipality Plan Review and Inspection Fee**

- A. Fees shall be established by the Municipality to defray administrative costs, and Municipality staff review and inspection costs incurred by the Municipality. These fees are separate from review and inspection fees in the Municipal Subdivision and Land Development Ordinance. All fees shall be paid by the Applicant at the time of the stormwater management plan or drainage plan submission. A review and inspection fee schedule shall be established by resolution of the Municipality based on the size of the regulated activity and based on the Municipality's costs for reviewing drainage plans and conducting inspections pursuant to Section 111. The Municipality shall periodically update the review and inspection fee schedule to ensure that review costs are adequately reimbursed.

**Section 112.2. Expenses Covered by Fees**

The fees required by this Ordinance shall at a minimum cover:

- A. Administrative costs.
- B. The administrative costs related to review of the drainage plans by the Municipality officials and staff.
- C. The administrative costs related to site inspections.
- D. The administrative costs related to inspection by the Municipality of stormwater management facilities and drainage improvements during construction.
- E. The administrative costs related to final inspection upon completion of the stormwater management facilities and drainage improvements presented in the drainage plan.

- F. Any additional work required to enforce any permit provisions regulated by this Ordinance, correct violations, and assure proper completion of stipulated remedial actions.
- G. Public Stormwater Protection Awareness Programs and Compliance Programs for compliance with stormwater regulations, including GIS mapping and maps, newspaper ads, pamphlets, leaflets, etc. deemed as appropriate by the Municipality Supervisors. Public Stormwater Protection Awareness Programs will be as defined by the Municipality Supervisors.

**Section 112.3. Responsibilities for Operations and Maintenance of Stormwater Controls and BMPs**

- A. No regulated earth disturbance activities within the Municipality shall commence until approval by the Municipality of a stormwater control and BMP operations and maintenance plan that describes how the permanent (e.g., post-construction) stormwater controls and BMPs will be properly operated and maintained.
- B. The following items shall be included in the stormwater control and BMP "Operations and Maintenance Plan":
  - 1. Map(s) of the project area, in a form that meets the requirements for recording at the offices of the Recorder of Deeds of Washington County, shall be submitted on 24 x 36 inch sheets. The contents of the maps(s) shall include, but not be limited to:
    - a. Clear identification of the location and nature of permanent stormwater controls and BMPs,
    - b. The location of the project site relative to highways, municipal boundaries, or other identifiable landmarks,
    - c. Existing and final contours at intervals of two (2) feet, or others as appropriate,
    - d. Existing streams, lakes, ponds, or other bodies of water within the project site area,
    - e. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, and areas of natural vegetation to be preserved,
    - f. The locations of all existing and proposed utilities, sanitary sewers, water wells, and water lines within the project parcel and to within fifty (50) feet of property lines of the project site,
    - g. Proposed final changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added,
    - h. Proposed final structures, roads, paved areas, and buildings, and
    - i. A 15-foot wide access easement around all stormwater controls and BMPs that would provide ingress to and egress from a public road right-of-way.
  - 2. A description of how each permanent stormwater control and BMP will be operated and maintained, and the identity and contact information associated with the person(s) responsible for operations and maintenance,
  - 3. The name of the project site, the name and address of the owner of the property, and the name of the individual or firm preparing the plan, and

4. A statement, signed by the landowner, acknowledging that the stormwater controls and BMPs are fixtures that can be altered or removed only after approval by the Municipality.
- C. The stormwater control and BMP operations and maintenance plan for the project site shall establish responsibilities for the continuing operation and maintenance of all permanent stormwater controls and BMPs, as follows:
1. If a plan includes structures or lots which are to be separately owned and in which streets, sewers, and other public improvements are to be dedicated to the Municipality, stormwater controls and BMPs may also be dedicated to and maintained by the Municipality;
  2. If a plan includes operations and maintenance by a single ownership or if sewers and other public improvements are to be privately owned and maintained, then the operation and maintenance of stormwater controls and BMPs shall be the responsibility of the owner or private management entity.
- D. The Municipality shall make the final determination on the continuing operations and maintenance responsibilities. The Municipality reserves the right to accept or reject the operations and maintenance responsibility for any or all of the stormwater controls and BMPs.

**Section 113. Municipal Review of a Stormwater Control and BMP Operations and Maintenance Plan**

- A. The Municipality shall review the stormwater control and BMP operations and maintenance plan for consistency with the purposes and requirements of this Ordinance and any permits issued by DEP.
- B. The Municipality shall notify the Applicant in writing whether or not the stormwater control and BMP operations and maintenance plan is approved.
- C. The Municipality may require a “record drawing” of all stormwater controls and BMPs and an explanation of any discrepancies with the operations and maintenance plan.
- D. In cases where stormwater facilities are to be installed in areas of landslide-prone soils or other special site conditions exist, the Municipality 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.

**Section 114. Adherence to an Approved Stormwater Control and BMP Operations and Maintenance Plan**

- A. It shall be unlawful to alter or remove any permanent stormwater control and BMP required by an approved stormwater control and BMP operations and maintenance plan or to allow the property to remain in a condition which does not conform to an approved stormwater control and BMP operations and maintenance plan.

**Section 115. Operations and Maintenance Agreement for Privately Owned Stormwater Controls and BMPs**

- A. The Applicant shall sign an operations and maintenance agreement with the Municipality covering all stormwater controls and BMPs that are to be privately owned. The maintenance agreement shall be transferred with transfer of ownership. The agreement shall be substantially the same as the agreement in **Appendix F of this Ordinance**.
- B. Other items may be included in the agreement where determined necessary to guarantee the satisfactory operation and maintenance of all permanent stormwater controls and BMPs. The agreement shall be subject to the review and approval of the Municipality.

**Section 116. Stormwater Management Easements**

- A. Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the municipal Engineer.
- B. Stormwater management easements shall be provided by the Applicant or property owner if necessary for access for inspections and maintenance or the preservation of stormwater runoff conveyance, infiltration, and detention areas and other stormwater controls and BMPs by persons other than the property owner. The purpose of the easement shall be specified in any agreement under Section 116.

**Section 117 Administrative Conditions**

**Section 117.1 Record of Maintenance Agreement for Privately Owned Stormwater Facilities**

- A. Prior to final approval of the site's drainage plan, the Applicant shall sign and record the maintenance agreement contained in **Appendix E** which is attached and made part hereof covering all stormwater control facilities that are to be privately owned.
- B. Other items may 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 municipal Solicitor and Governing Body.

**Section 117.2 Performance Guarantee**

- A. For subdivisions and land developments the Applicant shall provide a financial guarantee to the Municipality for the timely installation and proper construction of all stormwater management controls as:
  - 1. Required by the approved stormwater management plan equal to or greater than the full construction cost of the required controls. The construction costs shall be estimated by the developer's consultant or an actual contractor's proposal, and only as approved by the Municipality Engineer. The amount of the security shall provide one-hundred-ten percent (110%) of the construction estimated costs.

**Section 118. Recording of an Approved Stormwater Control and BMP Operations and Maintenance Plan and Related Agreements**

- A. The owner of any land upon which permanent stormwater controls and BMPs will be placed, constructed, or implemented, as described in the stormwater control and BMP operations and maintenance plan, shall record the following documents in the Office of the Recorder of Deeds for Washington County, within fifteen (15) days of approval of the stormwater control and BMP operations and maintenance plan by the Municipality:
  - 1. The operations and maintenance plan, or a summary thereof,
  - 2. Operations and maintenance agreements under Section 117, and
  - 3. Easements under Section 116.
- B. The Municipality may suspend or revoke any approvals granted for the project site upon discovery of failure on the part of the owner to comply with this section.

**Section 119. Municipal Stormwater Maintenance Fund:**

- A. Persons installing stormwater storage facilities shall be required to pay a specified amount to the Municipal Stormwater Maintenance Fund to help defray costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:
  - 1. If the storage facility is to be privately owned and maintained, the deposit shall cover the cost of periodic inspections and maintenance performed by the municipality for a period of five (5) years, as estimated by the Municipality Engineer. After that period of time, inspections will be performed at the expense of the municipality.
  - 2. If the storage facility is to be owned and maintained by the municipality, the deposit shall cover the estimated costs for maintenance and inspections for five (5) years. The Municipality Engineer will establish the estimated costs utilizing information submitted by the applicant.
  - 3. The amount of the deposit to the fund shall be converted to present worth of the annual series values. The Municipality Engineer shall determine the present worth equivalents which shall be subject to the approval of the Municipality Supervisors.
- B. If a storage facility is proposed that also serves as a recreation facility (e.g., ballfield, lake), the Municipality may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purposes.

- C. If 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 not be refunded to the applicant, but remain for use in maintenance of other facilities for stormwater used in the Municipality. If a storage facility (whether publicly or privately owned) is eliminated within five years of acceptance for use, the unused portion shall 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 shall be used for improvements or upgrades to the Municipality's stormwater facilities, but shall not be refunded to the applicant.
  
- D. If the facility is not eliminated after five years, the remaining amount of fees in the fund shall be used for improvements or upgrades to the Municipality's stormwater facilities, or the Municipality stormwater compliance and public awareness program, but shall not be refunded to the applicant. If the Municipality adopts a stormwater utility or user rate in the future, the availability of this fee to be added to the general revenue will be considered by the Municipality Supervisors at that time.

**Section 120. Prohibited Discharges**

*Note: The following language taken from DEP's NPDES program and model NPDES ordinance is required to be incorporated into this Ordinance.*

- A. No person in the Municipality shall allow, or cause to allow, stormwater discharges into the Municipality's separate storm sewer system which are not composed entirely of stormwater, except (1) as provided in subsection B below, and (2) discharges allowed under a state or federal permit.
- B. Discharges that may be allowed based on a finding by the Municipality that the discharge(s) do not significantly contribute to pollution to surface waters of the Commonwealth, are:
  - 1. Discharges from fire fighting activities
  - 2. Uncontaminated water from foundation or from footing drains
  - 3. Potable water sources including de-chlorinated water line and fire hydrant flushing.
  - 4. Flows from riparian habitats and wetlands
  - 5. Lawn watering
  - 6. Irrigation drainage
  - 7. Pavement wash-waters where spills or routine external building wash-down does not use detergents or other compounds
  - 8. Air conditioning condensate where leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used
  - 9. Water from individual residential car washing
  - 10. Dechlorinated swimming pool discharges
  - 11. Spring water from crawl space pumps

12. Uncontaminated groundwater

- C. In the event that the Municipality determines that any of the discharges identified in Section 120.B significantly contribute to pollution of waters of the Commonwealth, or is so notified by DEP, the Municipality will notify the responsible person to cease the discharge.
- D. Upon notice provided by the Municipality under Section 120.C, the discharger will have a reasonable time, as determined by the Municipality, to cease the discharge consistent with the degree of pollution caused by the discharge.
- E. Nothing in this section shall affect a discharger's responsibilities under state law.

**Section 121. Prohibited Connections**

- A. The following connections are prohibited, except as provided in Section 120.B above:
  - 1. Any drain or conveyance, whether on the surface or subsurface, which allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter the separate storm sewer system and any connections to the storm drain system from indoor drains and sinks; and
  - 2. Any drain or conveyance connected from a commercial or industrial land use to the separate storm sewer system which has not been documented in plans, maps, or equivalent records and approved by the Municipality.

**Section 122. Roof Drains**

- A. Development is encouraged to avoid roof drains connected to streets, sanitary or storm sewers, or roadside ditches in order to promote overland flow with infiltration/percolation of stormwater where advantageous to do so.
- B. When it is more advantageous to connect directly to streets or storm sewers, connections of roof drains to streets or roadside ditches may be permitted on a case by case basis as determined by the Municipality, as based on the review and recommendations of the Municipality Engineer, after review of the initial plan.
- C. Roof drains shall discharge to infiltration areas or vegetative BMPs to the maximum extent practicable.

**Section 123. Alteration of BMPs**

- A. No person shall modify, remove, fill, landscape, or alter any existing stormwater control or BMP unless it is part of an approved maintenance program without the written approval of the Municipality.
- B. No person shall place any structure, fill, landscaping, or vegetation into a stormwater control or BMP or within a drainage easement which would limit or alter the functioning of the stormwater control or BMP without the written approval of the Municipality.

**Section 124. Enforcement and Penalties**

**Section 124.1. Right-of-Entry**

- A. Upon presentation of proper credentials, duly authorized representatives of the Municipality may enter at reasonable times upon any property within the Municipality to inspect the implementation, condition, or operation and maintenance of the stormwater controls or BMPs in regard to any aspect governed by this Ordinance.
- B. Stormwater control and BMP owners and operators shall allow persons working on behalf of the Municipality ready access to all parts of the premises for the purposes of determining compliance with this Ordinance.
- C. Persons working on behalf of the Municipality shall have the right to temporarily locate on any stormwater control or BMP in the Municipality such devices as are necessary to conduct monitoring and/or sampling of the discharges from such stormwater control or BMP.
- D. Unreasonable delays in allowing the Municipality access to a stormwater control or BMP is a violation of this Article.

**Section 124.2. Public Nuisance**

- A. The violation of any provision of this Ordinance is hereby deemed a public nuisance.
- B. Each day that a violation continues shall constitute a separate violation.

**Section 124.3. Enforcement Generally**

- A. Whenever the Municipality finds that a person has violated a prohibition or failed to meet a requirement of this Ordinance, the Municipality may order compliance by written notice to the responsible person. Such notice may, without limitation, require the following remedies:
  - 1. Performance of monitoring, analyses, and reporting;
  - 2. Elimination of prohibited connections or discharges;
  - 3. Cessation of any violating discharges, practices, or operations;
  - 4. Abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
  - 5. Payment of a fine to cover administrative and remediation costs;
  - 6. Implementation of stormwater controls and BMPs; and
  - 7. Operation and maintenance of stormwater controls and BMPs.
- B. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violations(s). Said notice may further advise that, if applicable, should the violator fail to take the required action within the established deadline, the work will be done by the Municipality or designee, and the expense thereof shall be charged to the violator.
- C. Failure to comply within the time specified shall also subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative and shall not prevent the Municipality from pursuing any and all other remedies available in law or equity.

**Section 124.4. Suspension and Revocation of Permits and Approvals**

- A. Any building, land development, or other permit or approval issued by the Municipality may be suspended or revoked by the Municipality for:
  - 1. Noncompliance with or failure to implement any provision of the permit;
  - 2. A violation of any provision of this Ordinance; or
  - 3. The creation of any condition or the commission of any act during construction or development which constitutes or creates a hazard or nuisance, pollution, or which endangers the life, health, or property of others.
- B. A suspended permit or approval shall be reinstated by the Municipality when:
  - 1. The Municipality Engineer or designee has inspected and approved the corrections to the stormwater controls and BMPs or the elimination of the hazard or nuisance, and/or
  - 2. The Municipality is satisfied that the violation of the Ordinance, law, or rule and regulation has been corrected.
- C. A permit or approval that has been revoked by the Municipality cannot be reinstated. The Applicant may apply for a new permit under the procedures outlined in this Ordinance.

**Section 124.5. Penalties**

- A. Any person violating the provisions of this ordinance shall be subject to a fine of not less than \$ 100 nor more than \$ 1000 for each violation, recoverable with costs. Each day that the violation continues shall constitute a separate offense and the applicable fines are cumulative.
- B. In addition, the Municipality, through its Solicitor, may institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus, or other appropriate forms of remedy or relief.

**Section 124.6. Notification**

In the event that a person fails to comply with the requirements of this Ordinance or fails to conform to the requirements of any permit issued hereunder, the Municipality shall provide written notification of the violation. Such notification shall state the nature of the violation(s) and establish a time limit for correction of these violation(s). Failure to comply within the time specified shall subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative and shall not prevent the Municipality from pursuing any and all remedies. It shall be the responsibility of the owner of the real property on which any regulated activity is proposed to occur, is occurring, or has occurred to comply with the terms and conditions of this Ordinance.

**Section 124.7. Enforcement**

The Houston Borough Council is hereby authorized and directed to enforce all of the provisions of this Ordinance. All inspections regarding compliance with the Stormwater Management Plan shall be the responsibility of the municipal Engineer or other qualified persons designated by the Municipality.

- A. A set of design plans approved by the Municipality shall be on file at the site throughout the duration of the construction activity. Periodic inspections may be made by the Municipality or designee during construction.
- B. It shall be unlawful for any person, firm, or corporation to undertake any regulated activity under **Section 104** on any property except as provided for in the approved drainage plan and pursuant to the requirements of this Ordinance. It shall be unlawful to alter or remove any control structure required by the drainage plan pursuant to this Ordinance or to allow the property to remain in a condition which does not conform to the approved drainage plan.
- C. The performance guarantee will be provided to the applicant at the completion of the project and after completion of the following elements:
  - 1. Applicant shall provide a certification of completion from an engineer, architect, surveyor, or other qualified person verifying that all permanent facilities have been constructed according to the plans and specifications and approved revisions thereto.
  - 2. Provide a set of as-built (record) drawings.
- D. After receipt of the certification by the Municipality, a final inspection shall be conducted by the Municipality Engineer or designated representative to certify compliance with this Ordinance.
- E. Prior to revocation or suspension of a permit and at the request of the Applicant, the Governing Body will schedule a hearing to discuss the noncompliance if there is no immediate danger to life, public health, or property. The expense of a hearing shall be the Applicant's responsibility.
- F. **Occupancy Permit:** An occupancy permit shall not be issued unless the certification of completion pursuant has been secured. The occupancy permit shall be required for each lot owner and/or Applicant for all subdivisions and land developments in the Municipality.

**Section 124.8. Appeals**

- A. Any person aggrieved by action of Houston Borough or its designee may appeal to the Houston Borough Council within thirty (30) days of that action.
- B. Any person aggrieved by any decision of the Houston Borough Council may appeal to the County Court of Common Pleas in the County where the activity has taken place within thirty (30) days of the municipal decision.

**Section 125. Municipal Liability Disclaimer:**

- A. Neither the granting of any approval under the stormwater management provisions of this Part, nor the compliance with the provisions of this Part, or with any condition imposed by a Municipality official hereunder, shall relieve any person from any responsibility for damage to persons or property resulting there from, or as otherwise imposed by law nor impose any liability upon the Municipality for damages to persons or property.
- B. The granting of a permit which includes any stormwater management facilities shall not constitute a representation, guarantee or warranty of any kind by the Municipality, 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.

**Section 126. Repealer:**

- A. All ordinances or parts of Ordinances insofar as they conflict with this Ordinance are hereby repealed.

**Section 127. Severability:**

- A. The provisions of this Ordinance are severable, and if any of its provisions or any part of any provision shall be held unconstitutional, the decision of the Court shall not affect or impair any of the remaining provisions. It is hereby declared to be the intent of the Municipality Supervisors that this Ordinance would have been enacted had such unconstitutional provisions or parts thereof not been included herein.

Houston Borough Stormwater Ordinance

ORDAINED AND ENACTED INTO LAW this 10<sup>th</sup> day of September, 2014.

ATTEST:

COUNCIL OF THE  
BOROUGH OF HOUSTON

  
\_\_\_\_\_

Ms. Denise Foley  
Borough of Houston Secretary

By:   
\_\_\_\_\_

Charles W. Fife  
Council President