

# **CITY OF WILMINGTON**

## **STORM WATER MANAGEMENT AND EROSION CONTROL SPECIFICATIONS**

**Adopted by the City of Wilmington  
Planning Commission 9/23/97**

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## ATTACHMENT A

### STANDARDS AND CRITERIA FOR STORMWATER DRAINAGE AND DETENTION / RETENTION

#### Section 1 STORMWATER MANAGEMENT SYSTEM

##### A. GENERAL REQUIREMENTS

1. Every subdivision and land development shall be provided with a Stormwater Management System which is adequate to serve the area and meets the requirements of this chapter and other criteria of the City.
2. Developers are required to design improvements such that during storm events having recurrence intervals as specified herein, the rate of stormwater runoff leaving the development area at strategic points is not more after development than if the development area had remained undeveloped. If necessary, detention/retention facilities shall be constructed to ensure that this requirement is met.
3. Although the design criteria contained herein are specific, they represent the minimum requirements. The City Engineer may recommend to the Planning Commission a higher degree of protection than specified if the design results do not appear adequate to protect the health, safety, and welfare of the community.
4. Stormwater Management Systems shall be designed for the ultimate use of the land.
5. On any site development, the FEMA Floodway Maps should be consulted for the stormwater effect on the development.

##### B. MINOR AND MAJOR DRAINAGE SYSTEMS

1. The development of a comprehensive Stormwater Management System requires providing two (2) separate and distinct drainage systems, the minor system and the major system.
  - a. The minor drainage system is for collecting and transporting runoff from frequently occurring storms. It includes open channels, street curbs and gutters, underground storm sewers, manholes, catch basins, and culverts. This system's purpose is to lessen or eliminate inconveniences and safety and health hazards associated with frequent storms. Except where indicated otherwise, design criteria and requirements of this chapter are directed to the minor drainage system.

- b. The major storm drainage system is to ensure that stormwater runoff which exceeds the capacity of the minor drainage system has a route to follow to the detention/retention basin. It must be recognized that the major drainage system exists even when it is not planned and whether or not physical facilities are intelligently located with respect to it.

#### C. REDEVELOPED SITES AND EXPANSIONS

1. When an existing site is being partially or totally redeveloped, stormwater detention shall be provided for the total portion of the site affected. When the principal structure(s) on the site are retained, the pre-developed runoff shall be computed based on the actual site conditions existing prior to the redevelopment (i.e., there is no requirements to assume virgin land). When the principal structure(s) on the site are to be razed, the pre-developed runoff shall be computed by considering the affected area to have grass cover.
2. Where an expansion of an existing development is proposed, stormwater detention shall be provided for the total portion of the site affected by the expansion. The pre-developed runoff shall be computed on the actual site conditions existing prior to the expansion.

#### D. REGIONAL / COMMON DETENTION BASINS

The Planning Commission may waive requirements for an individual detention/retention basin if a common or regional detention/retention basin of adequate design is available or if the City is reasonably certain one will be constructed and if the major storm drainage system from the development to the common or regional detention/retention basin is such that the public health, safety, and welfare will not be in jeopardy.

If this option is exercised, the Developer must agree in writing to participate in the cost of the common or regional detention/retention basin whether already constructed or planned. The amount of participation and method of collection will be determined by the City.

The City encourages the planning for and use of such regional or common detention facilities wherever feasible.

#### E. CONTINUED MAINTENANCE

Once a Stormwater Management System has been approved and constructed, it shall be the responsibility of the property owners to maintain the facility as designed and constructed and to ensure its proper operation to meet the intent and requirements of this ordinance at all times.

Any Stormwater Management System within public right-of-way and public easement shall be maintained by the City.

The Service Director shall make regular inspections of the Stormwater Management Systems to ensure compliance with these requirements. Owners of deficient facilities will be required to have such deficiencies corrected within sixty (60) days of written notice by the City. Failure to do so may result in the initiation of appropriate legal action against the Owner of the facility.

## **Section 2 STORM SEWERS**

*Design flowing full to handle estimated runoff for 10-year frequency storm.*

*Estimate runoff by rational method ( $Q = CIA$ )*

*Base design on Manning Formula ( $Q = A \times 1.486 \times R^{2/3} \times S^{1/2}$ )*

MINIMUM SIZE	12"
MINIMUM COVER	2.0' (from top of pipe)
MINIMUM SLOPE (INLET LEADS)	1.00%
MINIMUM MEAN VELOCITY	3.0 fps (desired) 2.5 fps (absolute min.)
MAXIMUM MANHOLE SPACING	400'
MANHOLE PLACEMENT	Intersections; termini of sewers; changes in size and/or slope; changes in alignment; at points where inlet leads are connected.
MAXIMUM INLET SPACING	250'
INLET PLACEMENT (EACH SIDE OF STREET)	All pockets (2 on fill sides); where street grade changes to a flatter one; dead end of descending street; at P.C. and P.T. of all intersection radius curves where gutter grade descends toward radius curve (Locate on property line when possible)
MAXIMUM INLET CAPACITY INLET TYPES	5.0 fps