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**ORDINANCE NO. 2016-\_\_\_\_\_**

**AN ORDINANCE AMENDING CHAPTER 5 OF TITLE 6 OF THE  
PLANO CITY CODE:  
“EROSION AND SEDIMENTATION CONTROL”**

BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF PLANO,  
KENDALL COUNTY, ILLINOIS, AS FOLLOWS:

Section 1. Chapter 6 of Title 6 of the Plano City Code (EROSION AND  
SEDIMENTATION CONTROL) is amended in its entirety to provide as follows:

SEE ATTACHED EXHIBIT “A” FOR THE TEXT OF AMENDED CHAPTER  
6 OF TITLE 6 OF THE PLANO CITY CODE.

Section 2. This Ordinance shall be in full force and effect from and after its passage,  
approval and publication in pamphlet form as required by law.

Passed at a regular meeting of the City Council of the City of Plano, Kendall County, Illinois, on  
the \_\_\_\_ day of \_\_\_\_\_, 2016.

Signed and approved by the Mayor of the City of Plano, Kendall County, Illinois, on the \_\_\_\_  
day of \_\_\_\_\_, 2016.

\_\_\_\_\_  
Mayor

ATTEST:

\_\_\_\_\_  
City Clerk

Published in pamphlet form by order of the City Council.

STATE OF ILLINOIS     )  
                                  ) SS  
COUNTY OF KENDALL )

**CERTIFICATE OF PUBLICATION IN PAMPHLET FORM**

I, the undersigned, do hereby certify that I am the duly qualified and acting City Clerk of the City of Plano, Kendall County, Illinois (the “City”), and as such official I am the keeper of the official journal of proceedings, books, records, minutes, and files of the City and of the Mayor and City Council (the “Corporate Authorities”) thereof.

I do further certify that on the \_\_\_\_ day of \_\_\_\_\_, 2016, there was published in pamphlet form, by authority of the Corporate Authorities, a true, correct, and complete copy of Ordinance No. 2016-\_\_\_\_ of the City entitled:

**ORDINANCE NO. 2016-\_\_\_\_\_**

**AN ORDINANCE AMENDING CHAPTER 6 OF TITLE 6 OF THE  
PLANO CITY CODE:  
“EROSION AND SEDIMENTATION CONTROL”**

as adopted by the Corporate Authorities on the \_\_\_\_ day of \_\_\_\_\_, 2016, and that said Ordinance as so published was on said date readily available for public inspection and distribution, in sufficient number to meet the needs of the general public, at my office as City Clerk located in the City.

IN WITNESS WHEREOF I have affixed hereto my official signature and the seal of the City this \_\_\_\_ day of \_\_\_\_\_, 2016.

\_\_\_\_\_  
City Clerk

[SEAL]

## Chapter 5

### FLOOD CONTROL

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#### **6-5-1: PURPOSE:**

This chapter is enacted pursuant to the police powers granted to this city by 65 Illinois Compiled Statutes 5/1-2-1, 5/11-12-12, 5/11-30-2, 5/11-30-8, and 5/11-31-2. The purpose of this chapter is to maintain this city's eligibility in the national flood insurance program; to minimize potential losses due to periodic flooding including loss of life, loss of property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare; and to preserve and enhance the quality of surface waters, conserve economic and natural values and provide for the wise utilization of water and related land resources. This chapter is adopted in order to accomplish the following specific purposes:

- A. To meet the requirements of 615 Illinois Compiled Statutes 5/18(g) rivers, lakes and streams act;
- B. To assure that new development does not increase the flood or drainage hazards to others, or create unstable conditions susceptible to erosion;
- C. To protect new buildings and major improvements to buildings from flood damage;
- D. To protect human life and health from the hazards of flooding;
- E. To lessen the burden on the taxpayer for flood control projects, repairs to flood damaged public facilities and utilities, and flood rescue and relief operations;
- F. To make federally subsidized flood insurance available for property in the city by fulfilling the requirements of the national flood insurance program;
- G. To comply with the rules and regulations of the national flood insurance program codified as 44 CFR 59-79, as amended;

- H. To protect, conserve, and promote the orderly development of land and water resources; and
- I. To preserve the natural characteristics and functions of watercourses and floodplains in order to moderate flood and stormwater impacts, improve water quality, reduce soil erosion, protect aquatic and riparian habitat, provide recreational opportunities, provide aesthetic benefits and enhance community and economic development. (Ord. 2009-2, 1-26-2009)

**6-5-2: DEFINITIONS:**

For the purposes of this chapter, the following definitions are adopted:

**ACCESSORY STRUCTURE:** A nonhabitable structure which is on the same parcel of property as the principal structure to be insured and the use of which is incidental to the use of the principal structure.

**ACT:** An act in relation to the regulation of the rivers, lakes and streams of the state of Illinois, 615 Illinois Compiled Statutes 5/5 et seq.

**APPLICANT:** Any person, firm, or governmental agency who executes the necessary forms to procure official approval from City of Plano of a development or permit to carry out construction of a development.

**APPROPRIATE USE:** Only uses of the designated floodway that are permissible and will be considered for permit issuance. The only uses that will be allowed are as specified in subsection 6-5-7B of this chapter.

**BASE FLOOD:** The flood having a one percent (1%) chance of being equaled or exceeded in any given year. The base flood is also known as the 100-year frequency flood event. Application of the base flood elevation at any location is as defined in section 6-5-5 of this chapter.

**BASE FLOOD ELEVATION (BFE):** The elevation in relation to mean sea level of the crest of the base flood expressed in a numeric value relative to North American Vertical Datum of 1988(NAVD 88).

**BASEMENT:** That portion of the building having its floor subgrade (below ground level) on all sides.

**BUILDING:** A walled and roofed structure, including gas or liquid storage tank, that is principally aboveground, including manufactured homes, prefabricated buildings, and gas or liquid storage tanks. The term also includes recreational vehicles and travel trailers installed on a site for more than one hundred eighty (180) days per year.

**CHANNEL:** Any river, stream, creek, brook, branch, natural or artificial depression, ponded area, flowage, slough, ditch, conduit, culvert, gully, ravine, wash, or natural or manmade drainageway, which has a definite bed and banks or shoreline, in or into which surface or ground water flows, either perennially or intermittently.

**CHANNEL MODIFICATION:** Alteration of a channel by changing the physical dimensions or materials of its bed or banks. Channel modification includes damming, riprapping (or other armoring), widening, deepening, straightening, relocating, lining and significant removal of native vegetation from the bottom or banks. Channel modification does not include the clearing of dead or dying vegetation, debris, or trash from the channel.

"Channelization" is a severe form of channel modification involving a significant change in the channel cross section and typically involving relocation of the existing channel (e.g., straightening).

**COMPENSATORY STORAGE:** An artificially excavated, hydraulically equivalent volume of storage within the SFHA used to balance the loss of natural flood storage capacity when artificial fill or structures are placed within the floodplain. The uncompensated loss of natural floodplain storage can increase off site floodwater elevations and flows.

**CONDITIONAL APPROVAL OF A DESIGNATED FLOODWAY MAP CHANGE:** Preconstruction approval by IDNR/OWR and FEMA of a proposed change to the floodway map. This preconstruction approval, pursuant to this chapter, gives assurances to the property owner that once an appropriate use is constructed according to permitted plans, the floodway map can be changed, as previously agreed, upon review and acceptance of as built plans.

**CONDITIONAL LETTER OF MAP REVISION (CLOMR):** A letter which indicates that FEMA will revise base flood elevations, flood insurance rate zones, flood boundaries or floodway as shown on an effective flood hazard boundary map or flood insurance rate map, once the as built plans are submitted and approved.

**CONTROL STRUCTURE:** A structure designed to control the rate of flow that passes through the structure, given a specific upstream and downstream water surface elevation.

**CRITICAL FACILITY:** Any facility which is critical to the health and welfare of the population and, if flooded, would create an added dimension to the disaster. Damage to these critical facilities can impact the delivery of vital services, can cause greater damage to other sectors of the community, or can put special populations at risk. Examples of critical facilities where flood protection should be required include: emergency services facilities (such as fire and police stations), schools, hospitals, retirement homes and senior care facilities, major roads and bridges, critical utility sites (telephone switching stations or electrical transformers), and hazardous material storage facilities (chemicals, petrochemicals, hazardous or toxic substances). Examples of critical facilities where flood protection is recommended include: sewage treatment plants, water treatment plants, and pumping stations.

**DAM:** All obstructions, wall embankments or barriers, together with their abutments and appurtenant works, if any, constructed for the purpose of storing or diverting water or creating a pool. Dams may also include weirs, restrictive culverts or impoundment structures. Underground water storage tanks are not included.

**DESIGNATED FLOODWAY:** The channel, including on stream lakes, and that portion of the floodplain adjacent to a stream or watercourse, generally depicted on the FEMA FIRM, which is needed to store and convey the existing 100-year frequency flood discharge with no more than a 0.1 foot increase in stage due to the loss of flood conveyance or storage, and no more than a ten percent (10%) increase in velocities.

- A. The floodways are designated on the countywide flood insurance rate map of Kendall County, Illinois, prepared by FEMA and dated February 4, 2009. When two (2) floodway maps exist for a waterway, the more restrictive floodway limit shall prevail.
- B. The floodways for those parts of unincorporated Kendall County that are within the extraterritorial jurisdiction of the city that may be annexed into the city are designated for Big Rock Creek, Fox River, Little Rock Creek and the east branch of Little Rock Creek on the countywide flood insurance rate map prepared by FEMA and dated February 4, 2009.

- C. To locate the designated floodway boundary on any site, the designated floodway boundary should be scaled off the designated floodway map and located on a site plan, using reference marks common to both maps. Where interpretation is needed to determine the exact location of the designated floodway boundary, IDNR/OWR should be contacted for the interpretation.

DEVELOPMENT: Any manmade change to real estate, including:

- A. Construction, reconstruction, repair, or placement of a building or any addition to a building.
- B. Installing a manufactured home on a site, preparing a site for a manufactured home, or installing a travel trailer or recreational vehicle on a site for more than one hundred eighty (180) days. If the travel trailer or recreational vehicle is on site for more than one hundred eighty (180) days, it must be fully licensed and ready for highway use.
- C. Drilling, mining, installing utilities, construction of roads, bridges, or similar projects.
- D. Demolition of a structure or redevelopment of a site.
- E. Clearing of land as an adjunct of construction.
- F. Construction or erection of levees, walls, fences, dams, or culverts; channel modification; filling, dredging, grading, excavating, paving, or other nonagricultural alterations of the ground surface; storage of materials; deposit of solid or liquid waste.
- G. Any other activity of man that might change the direction, height, or velocity of flood or surface water, including extensive vegetation removal.
- H. Substantial improvement of an existing building.

Development does not include routine maintenance of existing buildings and facilities such as reroofing or resurfacing of roads when there is no increase in elevation, or gardening, plowing, and similar agricultural practices that do not involve filling, grading, or construction of levees.

ELEVATION CERTIFICATES: A form published by FEMA that is used to certify the elevation to which a building has been elevated.

EROSION: The general process whereby soils are moved by flowing water, wave action, or wind.

EXEMPT ORGANIZATIONS: Organizations which are exempt from this chapter per Illinois Compiled Statutes (ILCS) including state, federal or local units of government.

EXISTING MANUFACTURED HOME PARK OR SUBDIVISION: A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) has been completed before April 1, 1990.

EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION: The preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

FEMA: Federal emergency management agency and its regulations at 44 CFR 59-79, as amended.

FLOOD: A general and temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal waves, or the unusual and rapid accumulation or runoff of surface waters from any source.

FLOOD FREQUENCY: A period of years, based on a statistical analysis, during which a flood of a stated magnitude may be expected to be equaled or exceeded. For example, the 2-year flood frequency has a fifty percent chance of occurring in any given year, the 10-year flood frequency has a ten percent chance of occurring in any given year, and the 100-year flood frequency has a one percent chance of occurring in any given year.

FLOOD FRINGE: That portion of the floodplain outside of the designated floodway. See definition of Designated Floodway.

FLOOD INSURANCE RATE MAP (FIRM): A map prepared by FEMA that depicts the special flood hazard area (SFHA) within a community. This map includes insurance rate zones and floodplains and may or may not depict floodways.

FLOOD INSURANCE STUDY: An examination, evaluation and determination of flood hazards and if appropriate, corresponding water surface elevations.

FLOOD PROTECTION ELEVATION (FPE): The elevation of the base flood or 100-year frequency floods plus two foot (2') of freeboard at any given location in the SFHA.

FLOODPLAIN: That land typically adjacent to a body of water with ground surface elevations at or below the base flood or the 100-year frequency flood elevation. Floodplains may also include detached special flood hazard areas, ponding areas, etc. The floodplain is also known as the special flood hazard area (SFHA).

- A. The floodplains are those lands within the jurisdiction of the city that are subject to inundation by the base flood or 100-year frequency flood. The SFHAs of the city are generally identified as such on panel numbers 0010G, 0015G, 0020G and 0040G of the countywide flood insurance rate map of the city prepared by the federal emergency management agency and dated February 4, 2009.
- B. The SFHAs of those parts of unincorporated Kendall County that are within the extraterritorial jurisdiction of the city or that may be annexed into the city are generally identified as such on panel numbers 0005G, 0100G, and 0125G of the countywide flood insurance rate map prepared for Kendall County by the federal emergency management agency and dated February 4, 2009.

FLOODPROOFING: Any combination of structural and nonstructural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

FLOODPROOFING CERTIFICATE: A form published by FEMA that is used to certify that a building has been designed and constructed to be structurally dry floodproofed to the flood protection elevation.

FLOODWAY: See definition of Designated Floodway.

HISTORIC STRUCTURE: Any structure that is:

- A. Listed individually in the National Register of Historic Places or preliminarily determined by the secretary of the interior as meeting the requirements for individual listing on the national register;
- B. Certified or preliminarily determined by the secretary of the interior as contributing to the historic district or a district preliminarily determined by the secretary to qualify as a registered historic district;
- C. Individually listed on the State Inventory of Historic Places by the Illinois historic preservation agency;
- D. Individually listed on a local inventory of historic places that has been certified by the Illinois historic preservation agency.

**HYDROLOGIC AND HYDRAULIC CALCULATIONS:** Engineering analysis which determines expected flood flows and flood elevations based on land characteristics and rainfall events.

**IDNR/OWR:** Illinois department of natural resources, office of water resources.

**LETTER OF MAP AMENDMENT (LOMA):** Official determination by FEMA that a specific structure is not in a 100-year floodplain; amends the FIRM.

**LETTER OF MAP REVISION (LOMR):** Letter that revises base flood or 100-year frequency flood elevations, floodplains or floodways as shown on an effective FIRM.

**LOWEST FLOOR:** The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure usable solely for parking of vehicles, building access or storage, in an area other than a basement area is not considered a building's lowest floor; provided that such enclosure is not built so as to render the structure in violation of the applicable nonelevation design requirements of this chapter.

**MANUFACTURED HOME:** A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" also includes park trailers, travel trailers and other similar vehicles placed on site for more than one hundred eighty (180) consecutive days. The term "manufactured home" does not include a "recreational vehicle".

**MANUFACTURED HOME PARK OR SUBDIVISION:** A parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for rent or sale.

**MITIGATION:** Includes those measures necessary to minimize the negative effects which floodplain development activities might have on the public health, safety and welfare. Examples of mitigation include: excavation of compensatory storage, soil erosion and sedimentation control, and channel restoration. Mitigation may also include those activities taken to reduce a structure's susceptibility to flooding.

**NAVD 88:** National American vertical datum of 1988. NAVD 88 supersedes the national geodetic vertical datum of 1929 (NGVD).

**NATURAL:** Conditions resulting from physical, chemical, and biological processes without intervention by man. When used in reference to channels, means those channels formed by the existing surface

topography of the earth prior to changes made by man. A natural stream tends to follow a meandering path; its floodplain is not constrained by levees; the area near the bank has not been cleared, mowed or cultivated; the stream flows over soil and geologic materials typical of the area with no substantial alteration of the course or cross section of the stream caused by filling or excavating. A modified channel may regain some natural characteristics over time as the channel meanders and vegetation is reestablished. Similarly, a modified channel may be restored to more natural conditions by man through regrading and revegetation.

**NEW CONSTRUCTION:** Structures for which the start of construction commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

**NEW MANUFACTURED HOME PARK OR SUBDIVISION:** Manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) has been completed on or after April 1, 1990.

**ORDINARY HIGH WATER MARK (OHWM):** The point on the bank or shore up to which the presence and action of surface water is so continuous so as to leave a distinctive mark such as by erosion, destruction or prevention of terrestrial vegetation, predominance of aquatic vegetation or other easily recognized characteristics.

**PUBLIC BODIES OF WATERS:** All open public streams and lakes capable of being navigated by watercraft, in whole or in part, for commercial uses and purposes, and all lakes, rivers, and streams which in their natural condition were capable of being improved and made navigable, or that are connected with or discharge their waters into navigable lakes or rivers within, or upon the borders of the state of Illinois, together with all bayous, sloughs, backwaters, and submerged lands that are open to the main channel or body of water directly accessible thereto.

**PUBLIC FLOOD CONTROL PROJECT:** A flood control project which will be operated and maintained by a public agency to reduce flood damages to existing buildings and structures, including a hydrologic and hydraulic study of the existing and proposed conditions of the watershed. Nothing in this definition shall preclude the design, engineering, construction or financing, in whole or in part, of a flood control project by persons or parties who are not public agencies.

**RECREATIONAL VEHICLE OR TRAVEL TRAILER:** A vehicle which is:

- A. Built on a single chassis;
- B. Four hundred (400) square feet or less when measured at the largest horizontal projection;
- C. Designed to be self-propelled or permanently towable by a light duty truck; and
- D. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

**REDEVELOPMENT:** Development on a parcel upon which the existing condition prior to the effective date of the Ordinance is a non-agricultural land use and includes infrastructure associated with non-agricultural activities. Widening of an existing street by a unit of local government, including but not

limited to the Kendall County Highway Department and Township Road Districts, may be considered redevelopment.

**REGIONAL PERMITS:** Regional permits are offered for preapproved projects which are considered minor projects that are permissible per IDNR/OWR part 3708 rules for northeastern Illinois regulatory floodways. A complete listing of the terms and conditions for specific project types can be obtained from the IDNR/OWR website.

**REGISTERED LAND SURVEYOR:** A land surveyor registered in the state of Illinois, under the Illinois land surveyors act.

**REGISTERED OR LICENSED PROFESSIONAL ENGINEER:** An engineer registered in the state of Illinois, under the Illinois professional engineering practice act.

**REPAIR, REMODELING OR MAINTENANCE:** Development activities which do not result in any increases in the outside dimensions of a building or any changes to the dimensions of a structure.

**REPETITIVE LOSS:** Flood related damages sustained by a structure on two (2) separate occasions during a ten (10) year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds twenty five percent (25%) of the market value of the structure before the damage occurred.

**RETENTION/DETENTION FACILITY:** A retention facility stores stormwater runoff without a gravity release. A detention facility provides for storage of stormwater runoff and controlled release of this runoff during and after a flood or storm.

**RIVERINE SFHA:** Any SFHA subject to flooding from a river, creek, intermittent stream, ditch, on stream lake system or any other identified channel. This term does not include areas subject to flooding from lakes, ponding areas, areas of sheet flow, or other areas not subject to over bank flooding.

**RUNOFF:** The water derived from melting snow or rain falling on the land surface, flowing over the surface of the ground or collected in channels or conduits.

**SEDIMENTATION:** The processes that deposit soils, debris, and other materials either on other ground surfaces or in bodies of water or watercourses.

**SPECIAL FLOOD HAZARD AREA (SFHA):** See definition of Floodplain.

**START OF CONSTRUCTION:** Includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within one hundred eighty (180) days of the permit date. The "actual start" means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or placement of a manufactured home on a foundation.

**STATEWIDE PERMITS:** Statewide permits are offered for preapproved projects that are considered minor projects which are permissible per the IDNR/OWR part 3700 rules. A complete listing of the statewide permits and permit requirements can be obtained from the IDNR/OWR website.

**STRUCTURE:** See definition of Building.

**SUBSTANTIAL DAMAGE:** Damage of any origin sustained by a structure whereby the cumulative percentage of damage subsequent to the adoption of this chapter during a ten (10) year period equals or exceeds fifty percent (50%) of the market value of the structure before the damage occurred regardless of actual repair work performed. Volunteer labor and materials must be included in this determination. The term includes repetitive loss buildings. See definition of Repetitive Loss.

**SUBSTANTIAL IMPROVEMENT:** Any reconstruction, rehabilitation, addition, or improvement of a structure taking place subsequent to the adoption of this chapter during a ten (10) year period in which the cumulative percentage of improvements equals or exceeds fifty percent (50%) of the market value of the structure before the improvement or repair is started.

- A. "Substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the building. This term includes structures which have incurred repetitive loss or substantial damage, regardless of the actual work done.
- B. The term does not, however, include either:
  1. Any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions, or
  2. Any alteration of a "historic structure" listed on the National Register of Historic Places or the Illinois Register of Historic Places, provided that the alteration will not preclude the structure's continued designation as a historic structure.

**TRANSITION SECTION:** Reaches of the stream or floodway where water flows from a narrow cross section to a wide cross section or vice versa.

**VIOLATION:** The failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance is presumed to be in violation until such time as that documentation is provided. (Ord. 2009-2, 1-26-2009)

### **6-5-3: HOW TO USE THIS CHAPTER:**

- A. The city engineer shall be responsible for fulfilling all of the duties listed in section 6-5-4 of this chapter.
- B. To fulfill those duties, the city engineer should first use the criteria listed in section 6-5-5, "Base Flood Elevation", of this chapter to determine whether the development site is located within a floodplain.
- C. Once it has been determined that a site is located within a floodplain, the city engineer must determine whether the development site is within a flood fringe, a designated floodway, or within an SFHA or floodplain for which no floodway has been identified.
  1. If the site is within a flood fringe, the city engineer shall require that the minimum requirements of section 6-5-6 of this chapter be met.

2. If the site is within a floodway, the city engineer shall require that the minimum requirements of section 6-5-7 of this chapter be met.
  3. If the site is located within an SFHA or floodplain for which no detailed study has been completed and approved, the city engineer shall require that the minimum requirements of section 6-5-8 of this chapter be met.
- D. In addition, the general requirements of section 6-5-9 of this chapter shall be met for all developments meeting the requirements of section 6-5-6, 6-5-7, or 6-5-8 of this chapter.
- E. The city engineer shall assure that all subdivision proposals shall meet the requirements of section 6-5-10 of this chapter.
- F. If a variance is to be granted for a proposal, the city engineer shall review the requirements of section 6-5-11 of this chapter to make sure they are met. In addition, the city engineer shall complete all notification requirements.
- G. In order to assure that property owners obtain permits as required in this chapter, the city engineer may take any and all actions as outlined in section 6-5-14 of this chapter. (Ord. 2009-2, 1-26-2009)

#### **6-5-4: DUTIES OF THE CITY ENGINEER:**

##### **A. Determining the Floodplain Designation:**

1. Check all new development sites to determine whether they are in a special flood hazard area (SFHA).
2. If they are in an SFHA, determine whether they are in a floodway, flood fringe or in a floodplain for which a detailed study has not been conducted and which drains more than one square mile.
3. Check whether the development is potentially within an extended SFHA (with a drainage area less than 1 square mile), indicating that the development would have adverse impacts regarding storage, conveyance, or inundation which would be the basis for the applicant being required to delineate the floodplain and floodway and be subject to the remaining sections of this chapter.

##### **B. Professional Engineer Review:**

1. If the development site is within a floodway or in a floodplain for which a detailed study has not been conducted and which drains more than one square mile, the permit shall be referred to a licensed professional engineer under the employ or contract of the city for review to ensure that the development meets section 6-5-7 or 6-5-8 of this chapter.
2. In the case of an appropriate use, the PE shall state in writing that the development meets the requirements of section 6-5-7 of this chapter.

##### **C. Dam Safety Requirements:**

1. Dams are classified as to their size and their hazard/damage potential in the event of failure.
2. The construction or major modification of all class I (high hazard) and class II (moderate hazard) dams require an IDNR/OWR dam safety permit.

3. Some class III (low hazard) dams require an IDNR/OWR dam safety permit, depending on the drainage area to the dam, the height of the dam and the impounding capacity behind the dam. Most off channel detention basins that have an embankment are nonjurisdictional class III dams. It is not required that IDNR/OWR "sign off" on all nonjurisdictional class III dams.
  4. A consulting engineer with dam safety knowledge can estimate a hazard classification and determine if an IDNR/OWR dam safety permit is required.
  5. A permit application submittal must be made to IDNR/OWR for the construction or major modification of jurisdictional dams.
  6. Regulated dams may include weirs, restrictive culverts or impoundment structures.
- D. Other Permit Requirements: Ensure any and all required federal, state and local permits are received prior to the issuance of a floodplain development permit.
- E. Plan Review and Permit Issuance:
1. Ensure that all development activities within the SFHAs of the jurisdiction of the city meet the requirements of this chapter, and
  2. Issue a floodplain development permit in accordance with the provisions of this chapter and other regulations of this community when the development meets the conditions of this chapter.
- F. Inspection Review:
1. Inspect all development projects before, during and after construction to assure proper elevation of the structure and to ensure compliance with the provisions of this chapter; and
  2. Schedule on an annual basis an inspection of the floodplain and document the results of the inspection.
- G. Damage Determinations: Make damage determinations of all damaged buildings in the SFHA after a flood to determine substantially damaged structures which must comply with subsection 6-5-9C3 of this chapter.
- H. Elevation and Floodproofing Certificates: Maintain permit files including:
1. An elevation certificate certifying the elevation of the lowest floor (including basement) of a residential or nonresidential building subject to section 6-5-9 of this chapter, and/or
  2. The elevation to which a nonresidential building has been floodproofed, using a floodproofing certificate, for all buildings subject to section 6-5-9 of this chapter.
- I. Records For Public Inspection: Maintain for public inspection and furnish upon request base flood data, SFHA and designated floodway maps, copies of federal or state permit documents, variance documentation, conditional letter of map revision, letter of map revision, letter of map amendment and "as built" elevation and floodproofing and/or elevation certificates for all buildings constructed subject to this chapter.

- J. State Permits: Ensure that construction authorization has been granted by IDNR/OWR, for all development projects subject to sections 6-5-7 and 6-5-8 of this chapter, unless enforcement responsibility has been delegated to the city.

However, the following review approvals are not delegated to the city and shall require review or permits from IDNR/OWR:

1. Organizations which are exempt from this chapter, as per the Illinois Compiled Statutes;
2. IDNR/OWR projects, dams or impoundment structures as defined in section 6-5-2 of this chapter and all other state, federal or local unit of government projects, including projects of the city and county, except for those projects meeting the requirements of subsection 6-5-7B1 of this chapter;
3. An engineer's determination that an existing bridge or culvert crossing is not a source of flood damage and the analysis indicating the proposed flood profile, per subsection 6-5-7B3e of this chapter;
4. An engineer's analysis of the flood profile due to subsection 6-5-7B3d of this chapter;
5. Alternative transition sections and hydraulically equivalent compensatory storage as indicated in subsections 6-5-7B3a, B3b, B3h of this chapter;
6. Permit issuance of structures within, under, or over publicly navigable rivers, lakes and streams;
7. Any changes in the mapped floodway or published flood profiles.

K. Cooperation with Other Agencies:

1. Cooperate with state and federal floodplain management agencies to improve base flood or 100-year frequency flood and floodway data and to improve the administration of this chapter;
2. Submit data to IDNR/OWR and FEMA for proposed revisions of a regulatory map within six (6) months whenever a modification of the floodplain may change the base flood elevation or result in a change to the floodplain map;
3. Submit reports as required for the national flood insurance program; and
4. Notify FEMA of any proposed amendments to this chapter.

L. Promulgate Regulations: Promulgate rules and regulations as necessary to administer and enforce the provisions of this chapter, subject however to the review and approval of IDNR/OWR and FEMA for any chapter changes. (Ord. 2009-2, 1-26-2009)

**6-5-5: BASE FLOOD ELEVATION:**

A. This chapter's protection standard is based on the flood insurance study for the city.

1. If a base flood elevation or 100-year frequency flood elevation is not available for a particular site, then the protection standard shall be according to the best existing data available from federal, state or other sources.

2. When a party disagrees with the best available data, they shall submit a detailed engineering study needed to replace existing data with better data and submit it to IDNR/OWR and FEMA for review and consideration prior to any development of the site.
- B. The base flood or 100-year frequency flood elevation for the SFHAs of Big Rock Creek, Fox River, Little Rock Creek and the east branch of Little Rock Creek shall be as delineated on the 100-year flood profiles in the flood insurance study of the county of Kendall prepared by FEMA dated February 4, 2009, and such amendments to such study and maps as may be prepared from time to time.
  - C. The base flood or 100-year frequency flood elevation for the SFHAs of those parts of unincorporated Kendall County that are within the extraterritorial jurisdiction of the city or that may be annexed into the city shall be as delineated on the 100-year flood profiles in the flood insurance study of Kendall County prepared by FEMA and dated February 4, 2009, and such amendments or revisions to such study and maps as may be prepared from time to time.
  - D. The base flood or 100-year frequency flood elevation for each SFHA delineated as an "AH zone" or "AO zone" shall be that elevation (or depth) delineated on the countywide flood insurance rate map of Kendall County, Illinois.
  - E. The base flood or 100-year frequency flood elevation for each of the remaining SFHAs delineated as an "A zone" on the countywide flood insurance rate map of Kendall County shall be according to the best existing data available from federal, state or other sources. Should no other data exist, an engineering study must be financed by the applicant to determine base flood elevations.
    1. When no base flood or 100-year frequency flood elevation exists, the base flood or 100-year frequency flood elevation for a riverine SFHA shall be determined from a backwater model, such as HEC-II, HEC-RAS, or a dynamic model such as HIP.
    2. The flood flows used in the hydraulic models shall be obtained from a hydrologic model, such as HEC-HMS, HEC-1, TR-20, or HIP, or by techniques presented in various publications prepared by the United States geological survey for estimating peak flood discharges.
    3. For a nonriverine SFHA, the base flood elevation shall be the historic flood of record plus three feet (3'), unless calculated by a detailed engineering study.
    4. For an unmapped extended SFHA (with a drainage area less than 1 square mile) which has been identified by the city engineer pursuant to subsection 6-5-4A3 of this chapter, the base flood elevation shall be determined by the applicant utilizing a method as approved in this subsection E. (Ord. 2009-2, 1-26-2009)
  - F. Floodway:
    1. The location of the Regulatory Floodway shall be as delineated on the current effective regulatory maps maintained by the City. The location of the Regulatory Floodway boundary shall be scaled onto the site plan using references common to both the map and the plan (typically the centerlines of adjacent roadways). Where an interpretation is needed to determine the exact location of the Regulatory Floodway boundary, IDNR/OWR should be contacted.

Note: If an area of the site is located in the Regulatory Floodway that is higher than the BFE, that area is subject to the Floodway Standards of Section 404 until such time as a LOMR is received from FEMA with concurrence by IDNR/OWR.

General criteria for analysis of flood elevations in the regulatory floodway are as follows:

- a. The flood profiles, flows, and data in the current effective FIS must be used for analysis of the base conditions. If the study data appears to be in error or conditions have changed, FEMA and IDNR/OWR shall be contacted for approval and concurrence on the appropriate base conditions data to use. The City shall be copied on all related correspondence.
- b. If the BFE at the site of the proposed development is affected by backwater from a downstream receiving stream with a larger drainage area, the proposed development shall be shown to meet the requirements of this section with the receiving stream at both the normal water and BFEs.
- c. If the applicant is informed by IDNR/OWR, local governments, or a private owner that a downstream or upstream restrictive bridge or culvert is scheduled to be removed, reconstructed, modified, or a regional flood control project is scheduled to be built, shall be analyzed and shown to meet the requirements of this section for both the existing conditions and the expected flood profile conditions when the bridge, culvert or flood control project is built, removed or modified as applicable.
- d. IDNR/OWR will review all proposed floodway modifications, including BFE, and issue permits for any work modifying the floodway.

#### **6-5-6: OCCUPATION AND USE OF FLOOD FRINGE AREAS:**

Development in and/or filling of the flood fringe will be permitted if protection is provided against the base flood or 100-year frequency flood by proper elevation, and compensatory storage, and other applicable provisions of this chapter. No use will be permitted which adversely affects the capacity of drainage facilities or systems. Developments located within the flood fringe shall meet the requirements of this section, along with the requirements of section 6-5-9 of this chapter.

##### **A. Development Permit:**

1. No person, firm, corporation, or governmental body not exempted by law shall commence any development in the SFHA without first obtaining a development permit from the city engineer.
2. Application for a development permit shall be made on a form provided by the city engineer.
  - a. The application shall be accompanied by drawings of the site, drawn to scale, showing property line dimensions and legal description for the property and sealed by a licensed engineer, architect or land surveyor; existing grade elevations, using the North American vertical datum of 1988, and all changes in grade resulting from excavation or filling; the location and dimensions of all buildings and additions to buildings.
  - b. For all proposed buildings, the elevation of the lowest floor (including basement) and lowest adjacent grade shall be shown on the submitted plans and the development will be subject to the requirements of section 6-5-9 of this chapter.

3. Upon receipt of a development permit application, the city engineer shall compare the elevation of the site to the base flood or 100-year frequency flood elevation.
  - a. Any development located on land that can be shown to be higher than the base flood elevation of the current flood insurance rate map and which has not been filled after the date of the site's first flood insurance rate map without a permit as required by this chapter is not in the SFHA and, therefore, not subject to the requirements of this chapter.

Conversely, any development located on land shown to be below the base flood elevation and hydraulically connected, but shown on the current flood insurance rate map is subject to the provisions of this chapter.

- b. The city engineer shall maintain documentation of the existing ground elevation at the development site and certification that this ground elevation existed prior to the date of the site's first flood insurance rate map identification.
  4. A soil erosion and sediment control plan for disturbed areas shall be submitted. This plan shall include a description of the sequence of grading activities and the temporary sediment and erosion control measures to be implemented to mitigate their effects. This plan shall also include a description of final stabilization and revegetation measures, and the identification of a responsible party to ensure postconstruction maintenance.
  5. The city engineer shall be responsible for obtaining from the applicant copies of all other federal, state, and local permits, approvals or waivers that may be required for this type of activity. The city engineer shall not issue a permit unless all other federal, state, and local permits have been obtained.
- B. Preventing Increased Damages: No development in the flood fringe shall create a threat to public health and safety.
1. Fill: If fill is being used to elevate the site above the base flood or 100-year frequency flood elevation, the applicant shall submit sufficient data and obtain a letter of map revision (LOMR) from FEMA for the purpose of removing the site from the floodplain.
  2. Compensatory Storage:
    - a. Whenever any portion of a floodplain is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the base flood or 100-year frequency flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the base flood or 100-year frequency flood elevation.
    - b. The excavation volume shall be at least equal to 1.5 times the volume of storage lost due to the fill or structure.
    - c. In the case of streams and watercourses, such excavation shall be made opposite or adjacent to the areas so filled or occupied.
    - d. All floodplain storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All floodplain storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation.

- e. All such excavations shall be constructed to drain freely and openly to the watercourse.
  - f. Compensatory storage volume for development in a non-riverine regulatory floodplain area that is also adjacent to a lake shall be equal to the storage volume displaced.
  - g. Compensatory storage volume requirements for development in a non-riverine Regulatory Floodplain that is not adjacent to a lake shall be replaced in accordance with the requirements for the loss of depressional storage.
  - h. A recorded covenant or easement running with the land is required to maintain the compensatory storage volume in areas modified to provide compensatory storage volume.
- C. Construction of The Lowest Floor Below The Base Flood Elevation (BFE): A person who has obtained a letter of map revision based on fill that removes a site in the flood fringe from the floodplain due to the use of fill to elevate the site above the BFE, may apply for a permit from the city to construct the lowest floor of a residential building below the BFE in the flood fringe. The city engineer shall not issue such a permit unless the applicant has complied with all the criteria set forth in the following subsections:
1. Compensatory storage shall be provided per subsection B2 of this section.
  2. The elevation of the lowest opening in the basement wall (i.e., window wells, accessways) shall be at or above the flood protection elevation (FPE).
  3. The lowest adjacent grade to the foundation shall be at or above the FPE, for a minimum distance of ten feet (10') beyond the outside face of the structure. However, if site conditions are such that this requirement cannot be met, the city engineer may waive the ten foot (10') minimum setback if an Illinois licensed professional engineer certifies that an alternative method to protect the building from damage due to hydrostatic pressures has been met. The certifications shall be in the form of a detailed soils and structural design analysis, which shall be submitted to the city engineer for review. The city engineer may require such additional documentation as necessary to prove that the proposed shorter setback distance will keep the structure reasonably safe. In no case shall the setback distance be less than four feet (4').
  4. The grade around the perimeter of the structure, measured at a distance of twenty feet (20') from the structure, shall be above the BFE. However, if site conditions are such that this requirement cannot be obtained, the city engineer may waive the twenty foot (20') minimum setback distance if an Illinois licensed professional engineer certifies that an alternative method to protect the building from damages due to hydrostatic pressures have been met. A detailed soils analysis and structural design proving that a shorter setback distance will keep the structure reasonably safe from flooding, shall be submitted to the city for review. In no case shall the setback distance be less than four feet (4').
  5. The ground around the building shall be compacted fill that meets all requirements of this subsection and is at least five feet (5') thick under the basement floor slab. Nothing in this subsection shall be interpreted to require the removal or replacement of fill that was placed as part of a LOMR-F, if such fill consists of material, including soils of similar classification and

degree permeability, such as those classified as CH, CL, SC or ML according to ASTM standard D-2487, classification of soils for engineering purposes.

6. The fill material must be homogeneous and isotropic; that is, the soil must be all of one material, and the engineering priorities must be in the same direction.
7. All fill material and compaction shall be designed, certified and inspected by an Illinois licensed professional engineer, as warranted by the site conditions.
8. The basement floor shall be at an elevation that is no more than five feet (5') below the BFE.
9. There shall be a granular drainage layer beneath the floor slab, and minimum of one-fourth (1/4) horsepower sump pump with a backup power supply shall be provided to remove seepage flow. The pump shall be rated at four (4) times the estimated seepage rate and shall discharge above the BFE and away from the building in order to prevent flooding of the basement or uplift of the floor under the effect of the seepage pressure.
10. The drainage system shall be equipped with a positive means of preventing backflow.
11. All foundation elements shall be designed to withstand hydrostatic pressure in accordance with accepted engineering practices.
12. If the applicant is unable to meet all of the requirements set forth in the preceding paragraphs of this subsection, the city engineer may allow the construction of a basement below the BFE only if the applicant demonstrates that the proposed fill and structure meet the guidelines and requirements set forth in FEMA technical bulletin 10-01 and are reasonably safe from flooding. In order to demonstrate that the proposed structure is reasonably safe from flooding, the applicant shall submit a detailed engineering analysis of the proposed fill and foundation wall. The engineered basement study shall be completed in accordance with the latest edition of FEMA technical bulletin 10-01, with the analysis of the fill being prepared by an Illinois licensed professional engineer.
13. In order to provide the required compensatory storage on site, in no case shall the depth of excavation in the front and side yards of the lot exceed eighteen inches (18"), as measured from the previously existing natural grade. The rear yard shall be permitted to have a greater depth of excavation, if necessary. All such excavation shall be constructed to drain freely and openly to the watercourse or storm sewer system. The use of mechanical means to drain the compensatory storage area will not be permitted. (Ord. 2009-2, 1-26-2009)

#### **6-5-7: OCCUPATION AND USE OF DESIGNATED FLOODWAYS:**

This section applies to proposed development, redevelopment, site modification or building modification within a designated floodway. The designated floodway for Big Rock Creek, Fox River, Little Rock Creek and the east branch of Little Rock Creek shall be as delineated on the countywide flood insurance rate map of Kendall County and referenced in the definition of "flood insurance rate map (FIRM)" in section 6-5-2 of this chapter. Only those uses and structures will be permitted which meet the criteria in this section. All floodway modifications shall be the minimum necessary to accomplish the purpose of the project. The development shall also meet the requirements of section 6-5-9 of this chapter.

- A. Development Permit: No person, firm, corporation or governmental body not exempted by state law shall commence any development in a floodway without first obtaining a development permit from the city engineer and IDNR/OWR.
1. Application for a development permit shall be made on a form provided by the city engineer. The application shall include the following information:
    - a. Name and address of applicant;
    - b. Site location (including legal description) of the property, drawn to scale, on the designated floodway map, indicating whether it is proposed to be in an incorporated or unincorporated area;
    - c. Name of stream or body of water affected;
    - d. Description of proposed activity;
    - e. Statement of purpose of proposed activity;
    - f. Anticipated dates of initiation and completion of activity;
    - g. Name and mailing address of the owner of the subject property if different from the applicant;
    - h. Signature of the applicant or the applicant's agent;
    - i. If the applicant is a corporation, the president or other authorized officer shall sign the application form;
    - j. If the applicant is a partnership, each partner shall sign the application form; and
    - k. If the applicant is a land trust, the trust officer shall sign the name of the trustee by him (her) as trust officer. A disclosure affidavit shall be filed with the application, identifying each beneficiary of the trust by name and address and defining the respective interests therein;
    - l. Plans of the proposed activity shall be provided which include as a minimum:
      - (1) A vicinity map showing the site of the activity, name of the waterway, boundary lines, names of roads in the vicinity of the site, graphic or numerical scale, and north arrow;
      - (2) A plan view of the project and engineering study reach showing existing and proposed conditions including principal dimensions of the structure or work, elevations, using the North American vertical datum of 1988, adjacent property lines and ownership, drainage and flood control easements, location of any channels and any existing or future access roads, distance between proposed activity and navigation channel (when the proposed construction is near a commercially navigable body of water), designated floodway limit, floodplain limit, specifications and dimensions of any proposed channel modifications, location and orientation of cross sections, north arrow, and a graphic or numerical scale;

- (3) Cross section views of the project and engineering study reach showing existing and proposed conditions including principal dimensions of the work as shown in plan view, existing and proposed elevations, normal water elevation, 10-year frequency flood elevation, 100-year frequency flood elevation, and graphic or numerical scales (horizontal and vertical);
  - (4) A soil erosion and sediment control plan for disturbed areas. This plan shall include a description of the sequence of grading activities and the temporary sediment and erosion control measures to be implemented to mitigate their effects. This plan shall also include a description of final stabilization and revegetation measures, and the identification of a responsible party to ensure postconstruction maintenance;
  - (5) A copy of the designated floodway map, marked to reflect any proposed change in the designated floodway location;
- m. Any and all other federal, state, and local permits or approval letters that may be required for this type of development;
  - n. Engineering calculations and supporting data shall be submitted showing that the proposed work will meet the permit criteria of subsection B of this section;
  - o. If the designated floodway delineation, base flood or 100-year frequency flood elevation will change due to the proposed project, the application will not be considered complete until IDNR/OWR has indicated conditional approval of the designated floodway map change. No structures may be built until a letter of map revision has been approved by FEMA;
  - p. The application for a structure shall be accompanied by drawings of the site, drawn to scale showing property line dimensions and existing ground elevations and all changes in grade resulting from any proposed excavation or filling, and floodplain and floodway limits; sealed by a licensed professional engineer, licensed architect or licensed land surveyor; the location and dimensions of all buildings and additions to buildings; and the elevation of the lowest floor (including basement) of all proposed buildings subject to the requirements of section 6-5-9 of this chapter;
  - q. If the proposed project involves a channel modification, the applicant shall submit the following information:
    - (1) A discussion of the purpose of and need for the proposed work;
    - (2) A discussion of the feasibility of using alternative locations or methods (see subsection B3i of this section) to accomplish the purpose of the proposed work;
    - (3) An analysis of the extent and permanence of the impacts each feasible alternative identified in subsection B3i of this section would have on the physical and biological conditions of the body of water affected; and
    - (4) An analysis of the impacts of the proposed project, considering cumulative effects on the physical and biological conditions of the body of water affected.

2. The city engineer shall be responsible for obtaining from the applicant copies of all other federal, state, and local permits and approvals that may be required for this type of activity.
    - a. The city engineer shall not issue the development permit unless all required federal and state permits have been obtained.
    - b. A licensed professional engineer, under the employ or contract of the city shall review and approve applications reviewed under this section.
- B. Preventing Increased Damages And A List Of Appropriate Uses:
1. Appropriate Uses: The only development in a floodway which will be allowed are appropriate uses, which will not cause a rise in the base flood elevation, and which will not create a damaging or potentially damaging increase in flood heights or velocity or be a threat to public health and safety and welfare or impair the natural hydrologic and hydraulic functions of the floodway or channel, or permanently impair existing water quality or aquatic habitat. Construction impacts shall be minimized by appropriate mitigation methods as called for in this chapter. Only those appropriate uses listed in 17 Illinois administrative code part 3708 will be allowed. The approved appropriate uses are as follows:
    - a. Flood control structures, dikes, dams and other public works or private improvements relating to the control of drainage, flooding, erosion, or water quality or habitat for fish and wildlife;
    - b. Structures or facilities relating to the use of, or requiring access to, the water or shoreline, such as pumping and treatment facilities, and facilities and improvements related to recreational boating, commercial shipping and other functionally water dependent uses;
    - c. Storm and sanitary sewer relief outfalls;
    - d. Underground and overhead utilities;
    - e. Recreational facilities such as playing fields and trail systems, including any related fencing (at least 50 percent open when viewed from any one direction) built parallel to the direction of flood flows, and including open air pavilions and toilet facilities (4 stall maximum) that will not block flood flows nor reduce floodway storage;
    - f. Detached garages, storage sheds, or other nonhabitable accessory structures that will not block flood flows nor reduce floodway storage;
    - g. Bridges, culverts, roadways, sidewalks, railways, runways and taxiways and any modification thereto;
    - h. Parking lots built at or below existing grade where either:
      - (1) The depth of flooding at the 100-year frequency flood event will not exceed 1.0 foot; or
      - (2) The applicant of a short term recreational use facility parking lot formally agrees to restrict access during over bank flooding events and accepts liability for all damage caused by vehicular access during all over bank flooding events;

- i. Designated floodway regrading, without fill, to create a positive nonerosive slope toward a watercourse;
  - j. Floodproofing activities to protect previously existing lawful structures including the construction of watertight window wells, elevating structures, or construction of floodwalls around residential, commercial or industrial principal structures where the outside toe of the floodwall shall be no more than ten feet (10') away from the exterior wall of the existing structure, and, which are not considered substantial improvements to the structure;
  - k. The replacement, reconstruction, or repair of a damaged building, provided that the outside dimensions are not increased, and if the building was damaged to fifty percent (50%) or more of the market value before the damage occurred, the building will be protected from flooding to the flood protection elevation;
  - l. Modifications to an existing building that would not increase the enclosed floor area of the building below the 100-year frequency flood elevation, and which will not block flood flows including, but not limited to, fireplaces, bay windows, decks, patios, and second-story additions. If the building is improved to fifty percent (50%) or more of the market value before the modification occurred (i.e., a substantial improvement), the building will be protected from flooding to the flood protection elevation.
2. Exclusions: Appropriate uses do not include the construction or placement of any new structures, fill, building additions, buildings on stilts, excavation or channel modifications done to accommodate otherwise nonappropriate uses in the floodway, fencing (including landscaping or planting designed to act as a fence) and storage of materials except as specifically defined above as an appropriate use.
  3. Engineering And Mitigation Requirements: Within the designated floodway, the construction of an appropriate use will be considered permissible provided that the proposed project meets the following engineering and mitigation criteria and is so stated in writing with supporting plans, calculations and data by a licensed professional engineer and provided that any structure meets the protection requirements of section 6-5-9 of this chapter:
    - a. Preservation Of Flood Conveyance So As Not To Increase Flood Stages Upstream: For appropriate uses other than bridge or culvert crossings, on stream structures or dams, all effective designated floodway conveyance lost due to the project will be replaced for all flood events up to and including the 100-year frequency flood. In calculating effective designated floodway conveyance, the following factors shall be taken into consideration:
      - (1) Designated floodway conveyance,  $K = (1.486/n)(AR^{2/3})$  where "n" is Manning's roughness factor, "A" is the effective flow area of the cross section, and "R" is the ratio of the area to the wetted perimeter. (See Ven Te Chow, "Open Channel Hydraulics", [McGraw-Hill, New York, 1959]).
      - (2) The same Manning's "n" value shall be used for both existing and proposed conditions unless a recorded maintenance agreement with a federal, state, or local unit of government can assure the proposed conditions will be maintained or the land cover is changing from a vegetative to a nonvegetative land cover.

- (3) Transition sections shall be provided and used in calculations of effective designated floodway conveyance. The following expansion and contraction ratios shall be used unless an applicant's engineer can prove to IDNR/OWR through engineering calculations or model tests that more abrupt transitions may be used with the same efficiency:
  - (A) When water is flowing from a narrow section to a wider section, the water should be assumed to expand no faster than at a rate of one foot (1') horizontal for every four feet (4') of the flooded stream's length.
  - (B) When water is flowing from a wide section to a narrow section, the water should be assumed to contract no faster than at a rate of one foot (1') horizontal for every one foot (1') of the flooded stream's length.
  - (C) When expanding or contracting flows in a vertical direction, a minimum of one foot (1') vertical transition for every ten feet (10') of stream length shall be used.
  - (D) Transition sections shall be provided between cross sections with rapid expansions and contractions and when meeting the designated floodway delineation on adjacent properties.
  - (E) All cross sections used in the calculations shall be located perpendicular to flood flows.
- b. Preservation Of Floodway Storage So As Not To Increase Downstream Flooding:
  - (1) Compensatory storage shall be provided for any designated floodway storage lost due to the proposed work from the volume of fill or structures placed and the impact of any related flood control projects.
  - (2) Compensatory storage for fill or structures shall be equal to at least 1.5 times the volume of floodplain storage lost.
  - (3) Artificially created storage lost due to a reduction in head loss behind a bridge shall not be required to be replaced.
  - (4) The compensatory designated floodway storage shall be placed between the proposed normal water elevation and the proposed 100-year flood elevation. All designated floodway storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All designated floodway storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation. All such excavations shall be constructed to drain freely and openly to the watercourse.
  - (5) If the compensatory storage will not be placed at the location of the proposed construction, the applicant's engineer shall demonstrate through a determination of flood discharges and water surface elevations that the compensatory storage is hydraulically equivalent.

- (6) There shall be no reduction in floodway surface area as a result of a floodway modification, unless such modification is necessary to reduce flooding at existing structure.
  - (7) A recorded covenant or easement running with the land is required to maintain the compensatory storage volume in areas modified to provide compensatory storage volume.
- c. Preservation of Floodway Velocities so as not to Increase Stream Erosion or Flood Heights:
- (1) For all appropriate uses, except bridges or culverts or on stream structures, the proposed work will not result in an increase in the average channel or designated floodway velocities or stage for all flood events up to and including the 100-year frequency event.
  - (2) In the case of bridges or culverts or on stream structures built for the purpose of backing up water in the stream during normal or flood flows, velocities may be increased at the structure site if scour, erosion and sedimentation will be avoided by the use of riprap or other design measures.
- d. Construction of New Bridges or Culvert Crossings and Roadway Approaches:
- (1) The proposed structure shall not result in an increase of upstream flood stages greater than 0.1 foot when compared to the existing conditions for all flood events up to and including the 100-year frequency event; or the upstream flood stage increases will be contained within the channel banks (or within existing vertical extensions of the channel banks) such as within the design protection grade of existing levees or floodwalls or within recorded flood easements.
  - (2) If the proposed construction will increase upstream flood stages greater than 0.1 foot, the developer must contact IDNR/OWR to obtain a permit for a dam or waiver.
    - (A) The engineering analysis of upstream flood stages must be calculated using the flood study flows, and corresponding flood elevations for tailwater conditions for the flood study specified in section 6-5-5 of this chapter.

Bridges and culverts must be analyzed using any commonly accepted FEMA approved hydraulic models.
    - (B) Lost floodway storage must be compensated for per subsection B3b of this section.
    - (C) Velocity increases must be mitigated per subsection B3c of this section.
    - (D) If the crossing is proposed over a public water that is used for recreational or commercial navigation, an IDNR/OWR permit must be received.
    - (E) The hydraulic analysis for the backwater caused by the bridge showing the existing condition and proposed regulatory profile must be submitted to IDNR/OWR for concurrence that a CLOMR is not required by this subsection B.

(F) All excavations for the construction of the crossing shall be designed per subsection B3h of this section.

e. Reconstruction or Modification of Existing Bridges, Culverts, and Approach Roads:

- (1) The bridge or culvert and roadway approach reconstruction or modification shall be constructed with no more than 0.1 foot increase in backwater over the existing flood profile for all flood frequencies up to and including the 100-year event, if the existing structure is not a source of flood damage.
- (2) If the existing bridge or culvert and roadway approach is a source of flood damage to buildings or structures in the upstream floodplain, the applicant's engineer shall evaluate the feasibility of redesigning the structure to reduce the existing backwater, taking into consideration the effects on flood stages on upstream and downstream properties.
- (3) The determination as to whether or not the existing crossing is a source of flood damage and should be redesigned must be prepared in accordance with 17 Illinois administrative code part 3708 (floodway construction in northeastern Illinois) and submitted to IDNR/OWR for review and concurrence before a permit is issued.

f. On Stream Structures Built for the Purpose of Backing Up Water:

- (1) Any increase in upstream flood stages greater than 0.0 feet when compared to the existing conditions, for all flood events up to and including the 100-year frequency event shall be contained within the channel banks (or within existing vertical extensions of the channel banks) such as within the design protection grade of existing levees or floodwalls or within recorded flood easements.
- (2) A permit or letter indicating a permit is not required must be obtained from IDNR/OWR for any structure built for the purpose of backing up water in the stream during normal or flood flow.
- (3) All dams and impoundment structures as defined in section 6-5-2 of this chapter shall meet the permitting requirements of 17 Illinois administrative code part 3702 (construction and maintenance of dams). If the proposed activity involves a modification of the channel or floodway to accommodate an impoundment, it shall be demonstrated that:
  - (A) The impoundment is determined to be in the public interest by providing flood control, public recreation, or regional stormwater detention;
  - (B) The impoundment will not prevent the migration of indigenous fish species, which require access to upstream areas as part of their life cycle, such as for spawning;
  - (C) The impoundment will not cause or contribute to degraded water quality or habitat conditions. Impoundment design should include gradual bank slopes, appropriate bank stabilization measures and a presedimentation basin;

(D) A nonpoint source control plan has been implemented in the upstream watershed to control the effects of sediment runoff as well as minimize the input of nutrients, oil and grease, metals, and other pollutants. If there is more than one municipality in the upstream watershed, the municipality in which the impoundment is constructed should coordinate with upstream municipalities to ensure comprehensive watershed control;

(E) The project otherwise complies with the requirements of this section.

g. Floodproofing of Existing Habitable, Residential and Commercial Structures:

- (1) If construction is required beyond the outside dimensions of the existing building, the outside perimeter of the floodproofing construction shall be placed no farther than ten feet (10') from the outside of the building.
- (2) Compensation of lost storage and conveyance will not be required for floodproofing activities.

h. Excavation in the Floodway:

- (1) When excavation is proposed in the design of bridges and culvert openings, including the modifications to and replacement of existing bridge and culvert structures, or to compensate for lost conveyance or other appropriate uses, transition sections shall be provided for the excavation.
- (2) The following expansion and contraction ratios shall be used unless an applicant's engineer can prove to IDNR/OWR through engineering calculations or model tests that more abrupt transitions may be used with the same efficiency:
  - (A) When water is flowing from a narrow section to a wider section, the water should be assumed to expand no faster than at a rate of one foot (1') horizontal for every four feet (4') of the flooded stream's length; and
  - (B) When water is flowing from a wide section to a narrow section, the water should be assumed to contract no faster than at a rate of one foot (1') horizontal for every one foot (1') of the flooded stream's length; and
  - (C) When expanding or contracting flows in a vertical direction, a minimum of one foot (1') vertical transition for every ten feet (10') of stream length shall be used; and
  - (D) Erosion/scour protection shall be provided inland upstream and downstream of the transition sections.

i. Channel Modification: If the proposed activity involves a channel modification, it shall be demonstrated that:

- (1) There are no practicable alternatives to the activity which would accomplish its purpose with less impact to the natural conditions of the body of water affected. Possible alternatives include levees, bank stabilization, floodproofing of existing structures, removal of structures from the floodplain, clearing the channel, high flow channel, or

the establishment of a streamside buffer strip or greenbelt. Channel modification is acceptable if the purpose is to restore natural conditions and improve water quality and fish and wildlife habitat;

- (2) Water quality, habitat, and other natural functions would be significantly improved by the modification and no significant habitat area may be destroyed, or the impacts are offset by the replacement of an equivalent degree of natural resource values;
- (3) The activity has been planned and designed and will be constructed in a way which will minimize its adverse impacts on the natural conditions of the body of water affected, consistent with the following criteria:
  - (A) The physical characteristics of the modified channel shall match as closely as possible those of the existing channel in length, cross section, slope and sinuosity. If the existing channel has been previously modified, restoration of more natural physical conditions should be incorporated into channel modification design, where practical.
  - (B) Hydraulically effective transitions shall be provided at both the upstream and downstream ends of the project, designed such that they will prevent erosion.
  - (C) One sided construction of a channel shall be used when feasible. Removal of streamside (riparian) vegetation should be limited to one side of the channel where possible, to preserve the shading and stabilization effects of the vegetation.
  - (D) Clearing of stabilizing vegetation shall be limited to that which is essential for construction of the channel.
  - (E) Channel banks shall be constructed with a side slope no steeper than three to one (3:1) horizontal to vertical, wherever practicable. Native vegetation and gradual side slopes are the preferred methods for bank stabilization.

Where high velocities or sharp bends necessitate the use of alternative stabilization measures, soil bioengineering techniques, natural rock or riprap are preferred approaches. Artificial materials such as concrete, gabions, or construction rubble should be avoided unless there are no practicable alternatives.
  - (F) All disturbed areas associated with the modification shall be seeded or otherwise stabilized as soon as possible upon completion of construction. Erosion blanket or an equivalent material shall be required to stabilize disturbed channel banks prior to establishment of the vegetative cover.
  - (G) If the existing channel contains considerable bottom diversity such as deep pools, riffles, and other similar features, such features shall be provided in the new channel. Spawning and nesting areas and flow characteristics compatible with fish habitat shall also be established, where appropriate.
  - (H) A sediment basin shall be installed at the downstream end of the modification to reduce sedimentation and degradation of downstream water quality.

- (I) New or relocated channels should be built in the dry and all items of construction, including vegetation, should be completed prior to diversion of water into the new channel.
- (J) There shall be no increases in stage or velocity as the channel enters or leaves the project site for any frequency flood unless necessitated by a public flood control project or unless such an increase is justified as part of a habitat improvement or erosion control project.
- (K) Unless the modification is for a public flood control project, there shall be no reduction in the volume of floodwater storage outside the floodway as a result of the modification; and

(4) The project otherwise complies with the requirements of this section.

- j. Seeding and Stabilization Plan: For all activities located in a floodway, a seeding and stabilization plan shall be submitted by the applicant.
- k. Soil Erosion and Sedimentation Measures: For all activities in the floodway, including grading, filling, and excavation, in which there is potential for erosion of exposed soil, soil erosion and sedimentation control measures shall be employed consistent with the following criteria:
  - (1) The construction area shall be minimized to preserve the maximum vegetation possible. Construction shall be scheduled to minimize the time soil is exposed and unprotected. In no case shall the existing natural vegetation be destroyed, removed, or disturbed more than fifteen (15) days prior to the initiation of improvements.
  - (2) Temporary and/or permanent soil stabilization shall be applied to denuded areas as soon as possible. As a minimum, soil stabilization shall be provided within fifteen (15) days after final grade is reached on any portion of the site, and within fifteen (15) days to denuded areas which may not be at final grade but will remain undisturbed for longer than sixty (60) days.
  - (3) Sedimentation control measures shall be installed before any significant grading or filling is initiated on the site to prevent the movement of eroded sediments off site or into the channel. Potential sediment control devices include filter fences, straw bale fences, check dams, diversion ditches, and sediment traps and basins.
  - (4) A vegetated buffer strip of at least twenty five feet (25') in width shall be preserved and/or reestablished, where possible, along existing channels (see subsection B3p of this section). Construction vehicle use of channels shall be minimized. Temporary stream crossings shall be constructed, where necessary, to minimize erosion.  
  
Necessary construction in or along channels shall be restabilized immediately.
  - (5) Soil erosion and sedimentation control measures shall be designed and implemented consistent with "Procedures and Standards for Urban Soil Erosion and Sedimentation

Control in Illinois" (1988) also known as the "Green Book" and "The Illinois Urban Manual" (NRCS, 1995).

- I. Public Flood Control Projects: For public flood control projects, the permitting requirements of this section will be considered met if the applicant can demonstrate to IDNR/OWR through hydraulic and hydrologic calculations that the proposed project will not singularly or cumulatively result in increased flood heights outside the project right of way or easements for all flood events up to and including the 100-year frequency event.
  
- m. General Criteria for Analysis of Flood Elevations:
  - (1) The flood profiles, flows and floodway data in the designated floodway study, referenced in section 6-5-5 of this chapter, must be used for analysis of the base conditions. If the study data appears to be in error or conditions have changed, IDNR/OWR shall be contacted for approval and concurrence on the appropriate base conditions data to use.
  - (2) If the 100-year designated floodway elevation at the site of the proposed construction is affected by backwater from a downstream receiving stream with a larger drainage area, the proposed construction shall be shown to meet:
    - (A) The requirements of this section for the 100-year frequency flood elevations of the designated floodway conditions; and
    - (B) Conditions with the receiving stream at normal water elevations.
  - (3) If the applicant learns from IDNR/OWR, local governments, or a private owner that a downstream restrictive bridge or culvert is scheduled to be removed, reconstructed, modified, or a regional flood control project is scheduled to be built, removed, constructed or modified within the next five (5) years, the proposed construction shall be analyzed and shown to meet the requirements of this section for both the existing conditions and the expected flood profile conditions when the bridge, culvert or flood control project is built.
  
- n. Conditional Letter of Map Revision:
  - (1) If the appropriate use would result in a change in the designated floodway location or the 100-year frequency flood elevation, the applicant shall submit to IDNR/OWR and FEMA all information, calculations and documents necessary to be issued a conditional designated floodway map revision and receive from IDNR/OWR a conditional concurrence of the designated floodway change before a permit is issued.
  - (2) The final designated floodway map will not be changed by FEMA until as built plans or record drawings of initial filling, grading, dredging, or excavating activities are submitted and accepted by FEMA and IDNR/OWR.
  - (3) In the case of nongovernment projects, the municipality in incorporated areas and the county in unincorporated areas shall concur with the proposed conditional designated floodway map revision before IDNR/OWR approval can be given.

- (4) No filling, grading, dredging or excavating shall take place until a conditional approval is issued.
  - (5) After initial filling, grading, dredging or excavating, no activities shall take place until a final letter of map revision (LOMR) is issued by FEMA with concurrence from IDNR/OWR.
  - o. Professional Engineer's Supervision: All engineering analyses shall be performed by or under the supervision of a licensed professional engineer.
  - p. Required Criteria for Construction in Floodway: For all activities in the floodway involving construction within twenty five feet (25') of the channel, the following criteria shall be met:
    - (1) A natural vegetation buffer strip shall be preserved within at least twenty five feet (25') of the ordinary high water mark of the channel.
    - (2) Where it is impossible to protect this buffer strip during the construction of an appropriate use, a vegetated buffer strip shall be established upon completion of construction.
  - q. Construction to Proceed with Conditional Approval: After receipt of conditional approval of the designated floodway change and issuance of a permit and a conditional letter of map revision, construction as necessary to change the floodway designation may proceed but no buildings or structures or other construction that is not an appropriate use may be placed in that area until the designated floodway map is changed and a final letter of map revision is received. The designated floodway map will be revised upon acceptance and concurrence by IDNR/OWR and FEMA of the "as built" plans.
4. Development Activities in Delegated Communities Requiring State Review: For those projects listed below located in a designated floodway, the following criteria shall be submitted to IDNR/OWR for their review and concurrence and/or permit prior to the issuance of a permit by a community or county delegated state permitting authority in the floodway.
- a. An engineer's analysis of the flood profile due to a proposed bridge pursuant to subsection B3d of this section.
  - b. An engineer's determination that an existing bridge or culvert crossing is not a source of flood damage and the analysis indicating the proposed flood profile, pursuant to subsection B3e of this section.
  - c. Alternative transition sections and hydraulically equivalent storage pursuant to subsections B3a, B3b, B3h of this section.
  - d. The construction of any IDNR/OWR projects, dams (as defined in section 6-5-2 of this chapter) and all other federal, state, or local units of government projects, including projects of the municipality or county.
  - e. An engineer's determination that a proposed bridge affected by backwater from a downstream receiving stream may be built with a smaller opening.

- f. Projects which revise or establish the floodway and/or flood profiles.
  - g. Projects in public bodies of water.
5. Other Permits:
- a. In addition to the other requirements of this chapter, a development permit for a site located in a floodway shall not be issued unless the applicant first obtains a permit or written documentation that a permit is not required from IDNR/OWR, issued pursuant to 615 Illinois Compiled Statutes 5/5 et seq.
  - b. No correspondence from IDNR/OWR shall be required if the project meets the requirements of regional permit 3.
  - c. No permit from IDNR/OWR shall be required if IDNR/OWR has delegated this responsibility to the city.
6. Permits for Dams:
- a. Any work involving the construction, modification or removal of a "dam" as defined in section 6-5-2 of this chapter per 17 Illinois administrative code part 3702 (rules for construction of dams) shall obtain an IDNR/OWR permit prior to the start of construction of a dam.
  - b. If the city engineer finds a dam that does not have an IDNR/OWR permit, the city engineer shall immediately notify the IDNR/OWR Bartlett office.
  - c. If the city engineer finds a dam which is believed to be in unsafe condition, the city engineer shall immediately notify the owner of the dam, the IDNR/OWR Bartlett office, and the Illinois emergency management agency (IEMA).
7. Activities that do not Require a Licensed Professional Engineer's Review: The following activities may be permitted without a licensed professional engineer's review. Such activities shall still meet the other requirements of this chapter, including the mitigation requirements.
- a. Regional permit 3 which authorizes, for example, underground and overhead utilities, storm and sanitary sewer outfalls, sidewalks, patios, athletic fields, playground equipment and stream bank protection activities. (Ord. 2009-2, 1-26-2009)

**6-5-8: OCCUPATION AND USE OF SFHAs WHERE FLOODWAYS ARE NOT IDENTIFIED:**

In SFHAs or floodplains (including AE, AH, AO and unnumbered A zones) where no floodways have been identified and no base flood or 100-year frequency flood elevations have been established by FEMA, and draining more than a square mile, no development shall be permitted unless the cumulative effect of the proposals, when combined with all other existing and anticipated uses and structures, shall not significantly impede or increase the flow and passage of the floodwaters nor significantly increase the base flood or 100-year frequency flood elevation.

**A. Development Permit:**

1. No person, firm, corporation, or governmental body, not exempted by state law, shall commence any development in an SFHA or floodplain without first obtaining a development permit from the city engineer.
2. Application for a development permit shall be made on a form provided by the city engineer.
  - a. The application shall be accompanied by drawings of the site, drawn to scale showing property line dimensions; and existing grade elevations and all changes in grade resulting from excavation or filling, sealed by a licensed engineer, architect or surveyor; the location and dimensions of all buildings and additions to buildings; and the elevations of the lowest floor (including basement) of all proposed buildings subject to the requirements of section 6-5-9 of this chapter.
  - b. The application for a development permit shall also include the following information:
    - (1) A detailed description of the proposed activity, its purpose, and intended use;
    - (2) Site location (including legal description) of the property, drawn to scale, on the designated floodway maps, indicating whether it is proposed to be in an incorporated or unincorporated area;
    - (3) Anticipated dates of initiation and completion of activity;
    - (4) Plans of the proposed activity shall be provided which include as a minimum:
      - (A) A vicinity map showing the site of the activity, name of the waterway, boundary lines, names of roads in the vicinity of the site, graphic or numerical scale, and north arrow;
      - (B) A plan view of the project and engineering study reach showing existing and proposed conditions including principal dimensions of the structure or work, elevations, using the North American vertical datum of 1988, adjacent property lines and ownership, drainage and flood control easements, distance between proposed activity and navigation channel (when the proposed construction is in or near a commercially navigable body of water), floodplain limit, location and orientation of cross sections, north arrow, and a graphical or numerical scale;
      - (C) Cross section views of the project perpendicular to the flow of floodwater and engineering study reach showing existing and proposed conditions including principal dimensions of the work as shown in plan view, existing and proposed elevations, normal water elevation, 10-year frequency flood elevation, 100-year frequency flood elevation, and graphical or numerical scales (horizontal and vertical); and
      - (D) A soil erosion and sedimentation control plan for disturbed areas. This plan shall include a description of the sequence of grading activities and the temporary sediment and erosion control measures to be implemented to mitigate their effects. This plan shall also include a description of final stabilization and revegetation

measures, and the identification of a responsible party to ensure postconstruction maintenance.

- c. Engineering calculations and supporting data shall be submitted showing that the proposed work will meet the criteria of subsection B of this section.
        - d. Any and all other federal, state, and local permits or approvals that may be required for this type of development.
  3. Based on the best available existing data according to federal, state or other sources, the city engineer shall compare the elevation of the site to the base flood or 100-year frequency flood elevation.
    - a. Should no elevation information exist for the site, the developer's engineer shall calculate the elevation according to subsection 6-5-5E of this chapter.
    - b. Any development located on land that can be shown to have been higher than the base flood elevation of the current flood insurance rate map identification is not in the SFHA and, therefore, not subject to the requirements of this chapter.
    - c. The city engineer shall maintain documentation of the existing ground elevation at the development site and certification that this ground elevation existed prior to the date of the site's first flood insurance rate map identification.
    - d. The city engineer shall be responsible for obtaining from the applicant copies of all other federal, state, and local permits, approvals or waivers that may be required for this type of activity. The city engineer shall not issue the development permit unless all required federal, state, and local permits have been obtained.
- B. Preventing Increased Damages:
1. Floodway Development: No development in the SFHA where a floodway has not been determined shall create a damaging or potentially damaging increase in flood heights or velocity or threat to public health, safety and welfare or impair the natural hydrologic and hydraulic functions of the floodway or channel, or impair existing water quality or aquatic habitat. Construction impacts shall be minimized by appropriate mitigation methods as called for in this chapter.
  2. Floodway Standards: Within all riverine SFHAs where the floodway has not been determined, the following standards shall apply:
    - a. Engineering Requirements: The developer shall have a licensed professional engineer state in writing and show through supporting plans, calculations, and data that the project meets the engineering requirements of subsections 6-5-7B3a through B3i of this chapter for the entire floodplain as calculated under the provisions of subsection 6-5-5E of this chapter.
      - (1) As an alternative, the developer should have an engineering study performed to determine a floodway and submit that engineering study to IDNR/OWR and FEMA for acceptance as a designated floodway.

- (2) Upon acceptance of the floodway by IDNR/OWR and FEMA, the developer shall then demonstrate that the project meets the requirements of section 6-5-7 of this chapter for the designated floodway. The floodway shall be defined according to the definition of "designated floodway" in section 6-5-2 of this chapter.
  - b. IDNR/OWR Permit: A development permit shall not be issued unless the applicant first obtains an IDNR/OWR permit or a determination has been made that an IDNR/OWR permit is not required.
  - c. Permits For Dams:
    - (1) Any work involving the construction, modification or removal of a "dam" as defined in section 6-5-2 of this chapter per 17 Illinois administrative code part 3702 (rules for construction of dams) shall obtain an IDNR/OWR permit prior to the start of construction of a dam.
    - (2) If the city engineer finds a dam that does not have an IDNR/OWR permit, the city engineer shall immediately notify the IDNR/OWR Bartlett office.
    - (3) If the city engineer finds a dam which is believed to be in unsafe condition, the city engineer shall immediately notify the owner of the dam, the IDNR/OWR Bartlett office, and the Illinois emergency management agency (IEMA).
3. Floodway Activities: The following activities may be permitted without a licensed professional engineer's review or calculation of base flood elevation and designated floodway. Such activities shall still meet the other requirements of this chapter.
  - a. Bridge and culvert crossings of streams in rural areas meeting conditions of IDNR/OWR statewide permit no. 2;
  - b. Barge fleeting facilities meeting conditions of IDNR/OWR statewide permit no. 3;
  - c. Aerial utility crossings meeting conditions of IDNR/OWR statewide permit no. 4;
  - d. Minor boat docks meeting conditions of IDNR/OWR statewide permit no. 5;
  - e. Minor, nonobstructive activities meeting conditions of IDNR/OWR statewide permit no. 6; activities (not involving fill or positive change in grade) are covered by this permit;
  - f. Outfall structures and drainage ditch outlets meeting conditions of IDNR/OWR statewide permit no. 7;
  - g. Underground pipeline and utility crossings meeting the conditions of IDNR/OWR statewide permit no. 8;
  - h. Bank stabilization projects meeting the conditions of IDNR/OWR statewide permit no. 9;
  - i. Accessory structures and additions to existing residential buildings meeting the conditions of IDNR/OWR statewide permit no. 10;

- j. Minor maintenance dredging activities meeting conditions of IDNR/OWR statewide permit no. 11;
  - k. Bridge and culvert replacement structures and bridge widenings meeting conditions of IDNR/OWR statewide permit no. 12;
  - l. Temporary construction activities meeting conditions of IDNR/OWR statewide permit no. 13;
  - m. Special uses of public waters meeting conditions of IDNR/OWR statewide permit no. 14; and
  - n. Any development determined by IDNR/OWR to be located entirely within a flood fringe area shall be exempt from state floodway permit requirements.
4. Flood Carrying Capacity: The flood carrying capacity of any altered or relocated watercourse shall be maintained.
5. Compensatory Storage:
- a. Whenever any portion of a floodplain is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the base flood or 100-year frequency flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the base flood or 100-year frequency flood elevation.
  - b. The excavation volume shall be at least equal to 1.5 times the volume of storage lost due to the fill or structure.
  - c. In the case of streams and watercourses, such excavation shall be made opposite or adjacent to the areas so filled or occupied.
  - d. All floodplain storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All floodplain storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation. All such excavations shall be constructed to drain freely and openly to the watercourse. (Ord. 2009-2, 1-26-2009)
  - e. Compensatory storage volume for development in a non-riverine regulatory floodplain area that is also adjacent to a lake shall be equal to the storage volume displaced.
  - f. Compensatory storage volume requirements for development in a non-riverine Regulatory Floodplain that is not adjacent to a lake shall be replaced in accordance with the requirements for the loss of depressional storage.
  - g. A recorded covenant or easement running with the land is required to maintain the compensatory storage volume in areas modified to provide compensatory storage volume.

**6-5-9: PERMITTING REQUIREMENTS APPLICABLE TO ALL FLOODPLAIN AREAS:**

In addition to the requirements found in sections 6-5-6, 6-5-7 and 6-5-8 of this chapter for development in flood fringes, designated floodways, and SFHA or floodplains where no floodways have been identified, the following requirements shall be met:

A. Public Health Standards:

1. No developments in the SFHA shall include locating or storing chemicals, explosives, buoyant materials, animal wastes, fertilizers, flammable liquids, pollutants, or other hazardous or toxic materials below the flood protection elevation (FPE) unless such materials are stored in a floodproofed and anchored storage tank and certified by a professional engineer or floodproofed building constructed according to the requirements of subsection C of this section.
2. Public utilities and facilities such as sewer, gas and electric shall be located and constructed to minimize or eliminate flood damage.
3. Public sanitary sewer systems and water supply systems shall be located and constructed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.
4. New and replacement water supply systems, wells, sanitary sewer lines and on site waste disposal systems may be permitted providing all manholes or other aboveground openings located below the FPE are watertight.
5. All other activities defined as development shall be designed so as not to alter flood flows or increase potential flood damages.

B. Carrying Capacity and Notification:

1. For all projects involving channel modification, fill, or stream maintenance (including levees), the flood carrying capacity of the watercourse shall be maintained.
2. In addition, the city shall notify adjacent communities in writing thirty (30) days prior to the issuance of a permit for the alteration or relocation of the watercourse.

C. Protecting Buildings:

1. All buildings located within a 100-year floodplain, also known as an SFHA, shall be protected from flood damage below the flood protection elevation. This building protection criteria applies to the following situations:
  - a. Construction or placement of a new building or alteration or addition to an existing building valued at more than one thousand dollars (\$1,000.00) or seventy (70) square feet.
  - b. Substantial improvements or structural alterations made to an existing building that increase the floor area by more than twenty percent (20%) or equal or exceed the market value by fifty percent (50%). Alteration shall be figured cumulatively subsequent to the adoption of this chapter during a ten (10) year period. If substantially improved, the existing structure and the addition must meet the flood protection standards of this section.
  - c. Repairs made to a substantially damaged building. These repairs shall be figured cumulatively subsequent to the adoption of this chapter during a ten (10) year period. If substantially damaged, the entire structure must meet the flood protection standards of this section.

- d. Installing a manufactured home on a new site or a new manufactured home on an existing site (the building protection requirements do not apply to returning a manufactured home to the same site it lawfully occupied before it was removed to avoid flood damage).
  - e. Installing a travel trailer or recreational vehicle on a site for more than one hundred eighty (180) days per year; and
  - f. "Repetitive loss" to an existing building as defined in section 6-5-2 of this chapter. This building protection requirement may be met by one of the following methods.
2. A residential or nonresidential building, when allowed, may be constructed on permanent land fill in accordance with the following:
- a. Lowest Floor: The lowest floor (including basement) shall be at or above the flood protection elevation; and
  - b. Fill Requirements:
    - (1) The fill shall be placed in layers no greater than six inches (6") deep before compaction and should extend at least ten feet (10') beyond the foundation of the building before sloping below the flood protection elevation; and
    - (2) The top of the fill shall be above the flood protection elevation. However, the ten foot (10') minimum may be waived if a structural engineer certifies an alternative method to protect the building from damages due to hydrostatic pressures; and
    - (3) The fill shall be protected against erosion and scour during flooding by vegetative cover, riprap or other structural measure; and
    - (4) The fill shall be composed of rock or soil and not incorporate debris or refuse materials; and
    - (5) The fill shall not adversely affect the flow or surface drainage from or onto neighboring properties, and when necessary, stormwater management techniques such as swales or basins shall be incorporated.
3. A residential or nonresidential building may be elevated in accordance with the following:
- a. The building or improvements shall be elevated on crawl space, stilts, piles, walls, or other foundation that is permanently open to floodwaters and not subject to damage by hydrostatic pressures of the base flood or 100-year frequency flood. Designs must either be certified by a licensed professional engineer or architect or the permanent openings, one on each wall, shall be no more than one foot (1') above existing grade, and consist of a minimum of two (2) openings. The openings must have a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding below the base flood elevation; and
  - b. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice and floating debris; and

- c. All areas below the flood protection elevation shall be constructed of materials resistant to flood damage; and
  - (1) The lowest floor (including basement) and all electrical, heating, ventilating, plumbing, and air conditioning equipment and utility meters shall be located at or above the flood protection elevation; and
  - (2) Water and sewer pipes, electrical and telephone lines, submersible pumps, and other waterproofed service facilities may be located below the flood protection elevation provided they are waterproofed; and
- d. The areas below the flood protection elevation may only be used for the parking of vehicles, building access or storage in an area other than a basement and not later modified or occupied as habitable space; and
- e. In lieu of the above criteria, the design methods to comply with these requirements may be certified by a licensed professional engineer or architect.
- f. Manufactured homes, and travel trailers to be installed on a site for more than one hundred eighty (180) days, shall be elevated to or above the flood protection elevation; and, shall be anchored to resist flotation, collapse, or lateral movement by being tied down in accordance with the rules and regulations for the Illinois mobile home tiedown act issued pursuant to 77 Illinois administrative code part 870. In addition, all manufactured homes shall meet the following elevation requirements:
  - (1) In the case of manufactured homes placed or substantially improved: a) outside of a manufactured home park or subdivision, b) in a new manufactured home park or subdivision, c) in an expansion to an existing manufactured home park or subdivision, or d) in an existing manufactured home park or subdivision on which a manufactured home as incurred substantial damage from a flood, the top of the lowest floor shall be elevated to or above the flood protection elevation.
  - (2) In the case of manufactured homes placed or substantially improved in an existing manufactured home park or subdivision, the manufactured home shall be elevated so that either the top of the lowest floor is above the base flood elevation or the chassis is at least thirty six inches (36") in height above grade and supported by reinforced piers or other foundations of equivalent strength, whichever is less.
- g. Recreational vehicles or travel trailers shall be required to meet the elevation and anchoring requirements of subsection C3f of this section unless:
  - (1) They are on site for fewer than one hundred eighty (180) consecutive days; and
  - (2) They are fully licensed, ready for highway use, and used only for recreation, camping, travel or seasonal use rather than as a permanent dwelling. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utility and service devices, and has no permanently attached additions.

- (3) The vehicle's largest horizontal projections must be no larger than four hundred (400) square feet.
4. Only a nonresidential building may be structurally dry floodproofed (in lieu of elevation) provided that:
  - a. A licensed professional engineer or architect shall certify that the building has been structurally dry floodproofed below the flood protection elevation, the structure and attendant utility facilities are watertight and capable of resisting the effects of the base flood or 100-year frequency flood.
  - b. The building design shall take into account flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy, and impacts from debris or ice.
  - c. Floodproofing measures shall be operable without human intervention and without an outside source of electricity (levees, berms, floodwalls and similar works are not considered floodproofing for the purpose of this subsection).
5. A building may be constructed with a crawl space located below the flood protection elevation provided that the following conditions are met:
  - a. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy; and
  - b. Any enclosed area below the flood protection elevation shall have openings that equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. A minimum of one opening on each wall having a total net area of not less than one square inch per one square foot of enclosed area subject to flooding shall be provided. The openings shall be no more than one foot (1') above grade; and
  - c. The interior grade of the crawl space below the flood protection elevation must not be more than two feet (2') below the lowest adjacent exterior grade; and
  - d. The interior height of the crawl space measured from the interior grade of the crawl space to the top of the foundation wall must not exceed four feet (4') at any point; and
  - e. An adequate drainage system must be installed to remove floodwaters from the interior area of the crawl space within a reasonable period of time after a flood event; and
  - f. Portions of the building below the flood protection elevation must be constructed with materials resistant to flood damage; and
  - g. Utility systems within the crawl space must be elevated above the flood protection elevation.
6. Construction of new or substantially improved critical facilities shall be located outside the limits of the floodplain. Construction of new critical facilities shall be permissible within the floodplain if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor (including basement) elevated or structurally dry floodproofed to the 500-

year flood frequency elevation or three feet (3') above the level of the 100-year flood frequency elevation whichever is greater. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities.

7. Toolsheds, detached garages, and other minor accessory structures on an existing single-family platted lot, may be constructed with the lowest floor below the flood protection elevation in accordance with the following:
    - a. The building is not used for human habitation; and
    - b. All areas below the base flood or 100-year frequency flood elevation shall be constructed with waterproof material. Structures located in a designated floodway shall be constructed and placed on a building site so as not to block the flow of floodwaters and shall also meet the appropriate use criteria of section 6-5-7 of this chapter. In addition, all other requirements of sections 6-5-6, 6-5-7 and 6-5-8 of this chapter must be met; and
    - c. The structure shall be anchored to prevent flotation; and
    - d. Service facilities such as electrical and heating equipment shall be elevated or floodproofed to the flood protection elevation; and
    - e. The building shall be valued at less than ten thousand dollars (\$10,000.00) and be less than five hundred (500) square feet in floor size; and
    - f. The building shall be used only for the storage of vehicles or tools and may not contain other rooms, workshops, greenhouses or similar uses and cannot be modified later into another use; and
    - g. The building shall meet the permanent opening criteria of subsection C3a of this section; and
    - h. All flammable or toxic materials (gasoline, paint, insecticides, fertilizers, etc.) shall be stored above the flood protection elevation; and
    - i. The lowest floor elevation should be documented and the owner advised of the flood insurance implications.
  8. Existing buildings located within a designated floodway shall also meet the more restrictive appropriate use standards included in section 6-5-7 of this chapter. Nonconforming structures located in a designated floodway may remain in use and may only be enlarged, replaced or structurally altered in accordance with subsection 6-5-7B of this chapter. A nonconforming structure damaged by flood, fire, wind or other natural or manmade disaster may be restored unless the damage exceeds fifty percent (50%) of its market value before it was damaged, in which case it shall conform to this chapter. (Ord. 2009-2, 1-26-2009)
- D. If the proposed development would result in a change in the BFE and Regulatory Floodplain, the applicant shall obtain a LOMR from FEMA. No buildings may be built in the existing or proposed Regulatory Floodplain until the LOMR receives concurrence from IDNR/OWR and is issued by FEMA

and the building meets all the building protection standards of this ordinance. Proposed changes to the Regulatory Floodway delineation and the BFE must also be submitted to IDNR/OWR for concurrence.

- E. For public flood control projects, the floodplain management standards will be considered met if the applicant can demonstrate to IDNR/OWR and the City that each of the following conditions are met:
  - 1. Demonstrate by hydraulic and hydrologic modeling that the proposed project will not singularly or cumulatively result in increased flood heights outside the project site or demonstrate that any increases will be contained in easements for all flood events up to and including the base flood event.
  - 2. Demonstrate that the project will be operated and maintained by a public agency.
  - 3. Demonstrate that the project will reduce flood damage to an existing building or structure.

#### **6-5-10: OTHER DEVELOPMENT REQUIREMENTS:**

The city council of the city of Plano shall take into account flood hazards, to the extent that they are known in all official actions related to land management, use and development.

- A. New subdivisions, manufactured home parks, annexation agreements, and planned unit developments (PUDs) within the SFHA shall be reviewed to assure that the proposed developments are consistent with sections 6-5-6, 6-5-7, 6-5-8 and 6-5-9 of this chapter and the need to minimize flood damage. Plats or plans for new subdivisions, mobile home parks and planned unit developments (PUDs) shall include a signed statement by a licensed professional engineer that the plat or plans account for changes in the drainage of surface waters in accordance with the plat act<sup>3</sup>.
- B. Proposals for new subdivisions, manufactured home parks, travel trailer parks, planned unit developments (PUDs) and additions to manufactured home parks and additions to subdivisions shall include base flood or 100-year frequency flood elevation data and floodway delineations.
  - 1. Where this information is not available from an existing adopted study, the applicant's engineer shall be responsible for calculating the base flood or 100-year frequency flood elevation per subsection 6-5-5E of this chapter and the floodway delineation per the definition of "designated floodway" in section 6-5-2 of this chapter.
- C. Streets, blocks, lots, parks and other public grounds shall be located and laid out in such a manner as to preserve and utilize natural streams and channels. Wherever possible, the floodplains shall be included within parks or other public grounds.
- D. The city council of the city of Plano shall not approve any planned unit development (PUD) or plat of subdivision located outside the corporate limits unless such agreement or plat is in accordance with the provisions of this chapter.
- E. All other activities defined as development shall be designed so as not to alter flood flows or increase potential flood damages. (Ord. 2009-2, 1-26-2009)

#### **6-5-11: VARIANCES:**

- A. PURPOSE AND APPLICATION

1. In order to provide a narrowly circumscribed means by which relief may be granted when strict compliance with the requirements of this Ordinance is impossible or impracticable, variances from the specific provisions of this ordinance may be granted according to the standards set forth in this Section.
2. Where the City Engineer finds that extraordinary hardships may result from the strict compliance with this Ordinance, he may, after written application and documentation by the developer, recommend in writing to the Streets and Utilities Committee variations or exceptions to the regulations.

Recommendation may be subject to specific conditions, so that substantial justice may be done and the public interest secured, provided that such variations or exceptions shall not have the effect of nullifying the intent and purpose of this Ordinance.

3. An application for a variance to this Ordinance, signed by the owner or developer of the development shall be filed with the City. No application for a variance will be accepted for filing unless it relates to a previously or contemporaneously filed application for a permit. Applications for a variance shall be filed in such number of duplicate copies as the City may designate. No action will be taken on an application for a variance unless it, and the corresponding application for a permit to which it relates, are complete as determined by the City.
4. All appeals to the City Engineer's decisions regarding the interpretation of this ordinance shall be heard by the City of Plano Streets and Utilities Committee.
5. From the Streets and Utilities Committee, the recommendations shall be communicated to the City Council in writing with reasons therefore. The City Council may approve the variations, as set forth herein, from these regulations in specific cases, which in their opinion do not affect the general plan or the spirit of the Ordinance.
  - a. Variances to Kendall County Stormwater Management Ordinance requirements or any variance of floodplain and/or flood control regulations require approval by the City, the Kendall County Stormwater Director and the Kendall County Board in accordance with the procedures set forth herein.
  - b. Variances to City requirements which are more stringent than this ordinance do not require approval by the Kendall County Stormwater Director or the Kendall County Board provided they result in full compliance with the Kendall County Stormwater Management Ordinance.
6. The City shall send a copy of the complete application to the Kendall County Stormwater Director with a City determination of compliance related to City and Kendall County Stormwater Ordinance requirements. The City shall also send a copy of the complete application to all other certified communities within the same watershed.
7. Applications for a variance need not be made upon any specific form, but shall contain the information set forth herein.
  - a. The common addresses and legal descriptions of all lands comprising the development;

- b. The names and addresses of all owners of record of the legal title of all lands comprising the development;
  - c. If title to any of the land comprising the development is held in trust, the names and addresses of all beneficiaries of the trust;
  - a. The names and addresses of the developers of the land, if different from the owner;
  - b. The names and addresses of all consultants retained by the developer in connection with the application for a variance;
  - c. The names and addresses of all property owners within 250 feet of the development;
  - d. The specific feature or features of the development that require a variance;
  - e. The specific provision of the City Ordinance from which a variance is sought and the precise extent of the variance there from;
  - f. The specific provision of the Kendall County Stormwater Ordinance from which a variance is sought and the precise extent of the variance there from;
  - g. A statement of the characteristics of the development that prevent compliance with the provisions of this ordinance;
  - h. A statement that the variance requested is the minimum variance necessary to permit the development;
  - i. A statement as to how the variance requested satisfies the standards set forth in Section 6-5-11-B of this ordinance;
8. With the filing of the application for a variance, the applicant shall pay all fees prescribed by the City and Kendall County.
9. When the application is deemed complete and acceptable by City a public hearing on the application before the Streets and Utilities Committee may be scheduled and the Applicant notified. Not more than 30 nor less than 15 days before the hearing, notice of the hearing shall be sent by first class mail, postage prepaid, to the applicant, to the Kendall County Stormwater Director, to all property owners within 250 feet of the development as disclosed in the application, and to each Certified Community within the same watershed as the development and to the Streets and Utilities Committee. Within the same time period, notice of the hearing shall be published at least once in a newspaper published within the City. If no newspaper is published within the City, then the notice shall be published in a newspaper with a general circulation within the City, which is published in the County. The notices given under the section shall set forth the common name, address and legal description of the development and a brief description of the variance is requested.

#### B. GRANTING OF VARIANCES

1. The City Engineer shall not recommend nor shall the City grant a variance for a project from the provisions of the this Ordinance unless the variance is consistent with the purpose of this

Ordinance and meets the following standards based upon substantial evidence submitted with the variance application or at the hearing:

- a. No variance shall be granted for any development in the regulatory floodway, the effect of which would be to create regulation less restrictive than the federal or state minimum standards applicable to development in such areas.
- b. The variance will not increase the probability of flood damage or create an additional threat to the public health, safety or welfare, or injurious to other property or improvements in the locale in which the property is located.
- c. The variance requested is the minimum relief necessary to accomplish the objectives of the development without compromising the objectives of this Ordinance.
- d. The variance will not result in a reduction of water quality benefits as compared to compliance with ordinance requirements.
- e. The variance shall not cause conveyance of stormwater from the project to increase peak discharges beyond design capacity of existing offsite conveyance facilities for any storm event from the 2-year to the 100-year recurrence frequency.
- f. The variance shall seek to preserve valuable environmental and biological resources including but not limited to stands of native trees, existing wetlands and natural floodplain storage.
- g. Because of the particular physical surroundings, shape, or topographic conditions of the specific property involved a particular hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of the regulations was carried out.
- h. The conditions upon which the request for a variation is based are unique to the property for which the variation is sought and are not applicable, generally, to other property, and have not been created by any person having an interest in the property.
- i. The purpose of the variation is not based upon economic feasibility.
- j. The development activity cannot be located outside the SFHA; and
- k. There will be no additional public expense for flood protection, lost environmental stream uses and functions, rescue or relief operations, policing, or repairs to stream beds and banks, roads, utilities, or other public facilities; and The provisions of subsections 6-5-6B and 6-5-8B of this chapter shall still be met; and
- l. The applicant's circumstances are unique and do not establish a pattern inconsistent with the intent of the NFIP; and
- m. The granting of the variance will not alter the essential character of the area involved including existing stream uses; and
- n. All other required state and federal permits or waivers have been obtained.

2. The city engineer shall notify an applicant in writing that a variance from the requirements of this Ordinance that would lessen the degree of protection to a building will:
  - a. Result in increased premium rates for flood insurance up to amounts as high as twenty five dollars (\$25.00) per one hundred dollars (\$100.00) of insurance coverage; and
  - b. Increase the risks to life and property; and
  - c. Require that the applicant proceed with knowledge of these risks and that the applicant will acknowledge in writing the assumption of the risk and liability.
3. Variances requested in connection with restoration of a historic site or "historic structure" as defined in section 6-5-2 of this chapter, may be granted using criteria more permissive than the requirements of subsections A and B of this section subject to the conditions that:
  - a. The repair or rehabilitation is the minimum necessary to preserve the historic character and design of the structure; and
  - b. The repair or rehabilitation will not result in the structure being removed as a certified historic structure. (Ord. 2009-2, 1-26-2009)

#### C. PROCEDURE AND RECOMMENDATIONS

##### 1. LOCAL VARIANCE

The City shall send a copy of the complete application to the Kendall County Stormwater Director with a City determination of compliance with the Kendall County Stormwater Ordinance.

The City shall review the application for a variance and present the recommendations to the Streets and Utilities Committee at the public hearing with a copy to the Kendall County Stormwater Director.

Not more than 45 days after the close of the hearing, the Streets and Utilities Committee shall forward the application with its written recommendations to the City Council and the Kendall County Stormwater Director. The written recommendations of the Streets and Utilities Committee, when forwarded, shall be accompanied by written findings of fact with respect to each of the considerations set forth in this Ordinance with citations to the evidence taken at the public hearing.

The City Council shall grant the variation, grant the variation with modifications or conditions, or deny the variation in writing within 45 days after receipt of the written recommendations of the Streets and Utilities Committee and shall forward its final decision to the Kendall County Stormwater Director. In the event the City Council does not act on the recommendations of the Streets and Utilities Committee then the recommendation from the Streets and Utilities Committee is considered to be endorsed and adopted by the City Council.

##### 2. COUNTY & FLOODPLAIN VARIANCE

The City shall send a copy of the complete application to the Kendall County Stormwater Director with a City determination of non-compliance with the Kendall County Stormwater Ordinance.

The City shall review the application for a variance and present their written recommendations to the Streets and Utilities Committee at the public hearing with a copy to the Kendall County Stormwater Director.

Not more than 45 days after the close of the hearing, the Streets and Utilities Committee shall forward the application with its written recommendations to the City Council.

Not more than 45 days after the close of the hearing, the City Council shall forward the application with its written recommendations to the Kendall County Board and the Kendall County Stormwater Director. The written recommendations of the City, when forwarded, shall be accompanied by written findings of fact with respect to each of the considerations set forth in subsections B of this section with citations to the evidence taken at the public hearing.

The Kendall County Board shall grant the variation, grant the variation with modifications or conditions, or deny the variation in writing within 45 days after receipt of the written recommendations of the City and shall forward its final decision to the Kendall County Stormwater Director. In the event the Kendall County Board does not act on the recommendations of the City then the recommendation from the City is considered to be endorsed and adopted by the City.

#### D. CONDITIONS

1. A variance less than or different from that requested may be granted when the record supports the applicant's right to some relief, but not to the relief requested.
2. In granting a variance, the City of Plano or Kendall County Board may impose such specific conditions and limitations concerning any matter relating to the purposes and objectives of this ordinance on the applicant as may be necessary or appropriate.
3. Whenever any variance is granted subject to any condition or limitation to be met by the applicant, upon meeting such conditions, the applicant shall file evidence to that effect with the City.

#### **6-5-12: SECURITY REQUIREMENTS:**

##### A. GENERAL SECURITY REQUIREMENTS

1. As security to the City for the performance by the applicant to complete the construction of any requirements of this Ordinance, to pay all costs, fees and charges due from the applicant pursuant to the permitting authorities of this Ordinance and to otherwise faithfully perform the applicant's / developer's undertakings pursuant to this Ordinance, the applicant shall post:
  - a. Construction Performance Security as provided in subsection B of this Section prior to issuance of a Permit; and

- b. Sediment and Erosion Control Security as provided in subsection C of this Section, prior to issuance of a Permit if a sediment and erosion control plan is required pursuant this Ordinance.
- c. Maintenance Security as provided in subsection D of this Section prior to acceptance of improvements by any public or private entity.

Nothing contained herein shall prevent the applicant from submitting financial security that combines purposes set forth above so long as that security is for acceptable by the City.

2. The applicant / developer or their agent shall bear the full cost and responsibility of securing and maintaining the securities required by this Section.

#### B. PERFORMANCE SECURITY

1. A Construction Performance Security shall be posted and shall include:
  - a. A schedule, agreed upon by the applicant / developer and the City, for the completion of the construction of any improvements required by the permit; and
  - b. An irrevocable letter of credit, or such other adequate security as the City may approve, in an amount equal to not less than one hundred ten percent (110%) of the estimated probable cost to complete the construction of any improvements required by the Permit, which estimated probable cost shall be prepared by a Registered Professional Engineer and shall be approved by the City; and
  - c. A statement signed by the applicant granting the City the right to draw on the security and the right to enter the development site to complete required work in the event that work is not completed according to the work schedule; and
  - d. A statement signed by the applicant that the applicant shall indemnify the City for any additional costs incurred attributable to the concurrent activities of or conflicts between the applicant's contractor and the City's remedial contractor at the site.
2. The security required by this Section shall be maintained and renewed by the applicant, and shall be held in escrow by the City until the conditions set forth in this Section or other applicable provisions are satisfied.
3. The City may approve periodic reductions in the letter of credit based on progress of construction. However, not more than 90% of the security provided for in this section may be released prior to approval of record drawings and final inspection.

#### C. SEDIMENT AND EROSION CONTROL SECURITY

1. If a sediment and erosion control plan is required pursuant to this Ordinance, then a Sediment and Erosion Control Security shall be required. Such a security shall include:
  - a. An irrevocable letter of credit, or such other adequate security as the City shall approve, in an amount equal to not less than one hundred ten percent (110%) of the estimated

probable cost to install and maintain the sediment and erosion control measures, which estimated probable cost shall be approved by the City; and

- b. A statement signed by the applicant granting the City, as applicable, the right to draw on the security and the right to enter the development site to complete or maintain sediment and erosion control measures in the event that such measures are not installed and/or maintained according to the established schedule.
  - c. A statement signed by the applicant that the applicant shall indemnify the City for any additional costs incurred attributable to the concurrent activities of or conflicts between the applicant's contractor and the City's remedial contractor at the site.
2. The security required by this Section shall be maintained and renewed by the applicant, and shall be held in escrow by the City, as applicable, until the conditions set forth in this Section are satisfied.
  3. The City may approve periodic reductions in the letter of credit based on progress of construction. However, not more than 90% of the security provided for in this section may be released prior to completion of all construction, establishment of vegetation, removal of all sediment from stormwater facilities, and final inspection and approval by the City.

#### D. MAINTENANCE SECURITY

1. Maintenance Security shall be posted and shall include:
  - a. A schedule, agreed upon by the applicant/developer and the City, for the follow up inspection and maintenance repair of any improvements required by the permit. Generally the maintenance period will be a minimum of one year; and
  - b. An irrevocable letter of credit, or such other adequate security as the City may approve, in an amount equal to not less than ten percent (10%) of the estimated probable cost to complete the construction of any improvements required by the Permit, which estimated probable cost shall be prepared by a Registered Professional Engineer and shall be approved by the City; and
  - c. A statement signed by the applicant granting the City the right to draw on the security and the right to enter the development site to complete required work in the event that any improvements require maintenance according to the work schedule; and
  - d. A statement signed by the applicant that the applicant shall indemnify the City for any additional costs incurred attributable to the concurrent activities of or conflicts between the applicant's contractor and the City's remedial contractor at the site.
2. The security required by this Section shall be maintained and renewed by the applicant, and shall be held in escrow by the City until the conditions set forth in this Section or other applicable provisions are satisfied.

#### E. LETTERS OF CREDIT

1. Letters of credit posted pursuant to this Ordinance shall be in a form satisfactory to the City, as applicable.
2. Each letter of credit shall be from a lending institution: (a) acceptable to the City, as applicable; (b) having capital resources of at least ten million dollars (\$10,000,000), or such other amount acceptable to the City; (c) with an office in the City of Plano or Kendall County or an adjacent County or within the Chicago Metropolitan Area; and (d) insured by the Federal Deposit Insurance Corporation.
3. Each letter of credit shall, at a minimum, provide that:
  - a. It shall not be canceled without the prior written consent of the City; and shall not expire without written notification of the City at least 45 days prior to expiration, and
  - b. It shall not require the consent of the developer prior to any draw on it by the City; and
  - c. If at any time it will expire within 45 or any lesser number of days, and if it has not been renewed and the renewal submitted to the City, and if any applicable obligation of the developer for which its security remains uncompleted or is unsatisfactory, then the City may, without notice and without being required to take any further action of any nature whatsoever, call and draw down the letter of credit and thereafter either hold all proceeds as security for the satisfactory completion of all such obligations or employ the proceeds to complete all such obligations and reimburse the City for any and all costs and expenses, including legal fees and administrative costs, incurred by the City, as the City shall determine.
4. If at any time the City determines that the funds remaining in the letter of credit are not, or may not be, sufficient to pay in full the remaining unpaid cost of all improvements or sediment and erosion control measures, then, within ten (10) days following a demand by the City, the developer shall increase the amount of the letter of credit to an amount determined by the City to be sufficient to pay such unpaid costs. Failure to so increase the amount of the security shall be grounds for the City to draw down the entire remaining balance of the letter of credit.
5. If at any time the City determines that the bank issuing the letter of credit is without capital resources of at least ten million dollars (\$10,000,000), is unable to meet any federal or state requirement for reserves, is insolvent, is in danger of becoming any of the foregoing, or is otherwise in danger of being unable to honor such letter of credit at any time during its term, or if the City otherwise reasonably deems the bank to be insecure, then the City shall have the right to demand that the developer provide a replacement letter of credit from a bank satisfactory to the City. Such replacement letter of credit shall be deposited with the City not later than ten (10) days following such demand. Upon such deposit, the City shall surrender the original letter of credit to the developer.
6. If the developer fails or refuses to meet fully any of its obligations under this Ordinance, then the City may, in their discretion, draw on and retain all or any of the funds remaining in the letter of credit. The City thereafter shall have the right to take any action they deem reasonable and appropriate to mitigate the effects of such failure or refusal, and to reimburse the City from the proceeds of the letter of credit for all of its costs and expenses, including legal fees and

administrative expenses, resulting from or incurred as a result of the developer's failure or refusal to fully meet its obligations under this Ordinance. If the funds remaining in the letter of credit are insufficient to repay fully the City for all such costs and expenses, and to maintain a cash reserve equal to the required letter of credit during the entire time such letter of credit should have been maintained by the developer, then the developer shall, upon demand of the City therefore, immediately deposit with the City such additional funds as the City determines are necessary to fully repay such costs and expenses and to establish such cash reserve.

**6-5-13: DISCLAIMER OF LIABILITY:**

- A. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on available information derived from engineering and scientific methods of study.
- B. Larger floods may occur or flood heights may be increased by manmade or natural causes.
- C. This chapter does not imply that development, either inside or outside of the SFHA, will be free from flooding or damage.
- D. This chapter does not create liability on the part of the city or any officer or employee thereof for any flood damage that results from reliance on this chapter or any administrative decision made lawfully thereunder. (Ord. 2009-2, 1-26-2009)

**6-5-14: PENALTY:**

- A. If such owner fails after ten (10) days' notice to correct the violation:
  - 1. The city may make application to the circuit court for an injunction requiring conformance with this chapter or make such other order as the court deems necessary to secure compliance with this chapter.
  - 2. Any person who violates this chapter shall, upon conviction thereof, be fined not less than fifty dollars (\$50.00) nor more than one thousand dollars (\$1,000.00) for each offense.
  - 3. A separate offense shall be deemed committed upon each day during or on which a violation occurs or continues.
  - 4. The city shall record a notice of violation on the title to the property.
- B. The city engineer shall inform the owner that any such violation is considered a willful act to increase flood damages and, therefore, may cause coverage by a standard flood insurance policy to be suspended.
  - 1. The city engineer is authorized to issue an order requiring the suspension of the subject development. The stop work order shall be in writing, shall indicate the reason for the issuance, and shall order the action, if necessary, to resolve the circumstances requiring the stop work order. The stop work order constitutes a suspension of the permit.
  - 2. No site development permit shall be permanently suspended or revoked until a hearing is held by the combined plan commission and zoning board of appeals. Written notice of such hearing shall be served on the permittee and shall state: a) the grounds for complaint or reasons for

suspension or revocation; and b) the time and place of the hearing. At such hearing, the permittee shall be given an opportunity to present evidence on his/her behalf. At the conclusion of the hearing, the combined plan commission and zoning board of appeals shall determine whether the permit shall be suspended or revoked.

- C. Nothing herein shall prevent the city from taking such other lawful action to prevent or remedy any violations. All costs connected therewith shall accrue to the person or persons responsible. (Ord. 2009-2, 1-26-2009)

**6-5-15: ABROGATION AND GREATER RESTRICTIONS:**

- A. This chapter is not intended to repeal, abrogate or impair any existing easements, covenants, or deed restrictions.
- B. Where this chapter and other chapters, easements, covenants, or deed restrictions conflict or overlap, whichever imposes the more stringent restrictions shall prevail.
- C. This chapter is intended to repeal the original chapter or resolution which was adopted to meet the national flood insurance program regulations, but is not intended to repeal the resolution which the city passed in order to establish initial eligibility for the program. (Ord. 2009-2, 1-26-2009)

**Footnotes** - Click any footnote link to go back to its reference.

Footnote 1: 225 ILCS 330/1 et seq.

Footnote 2: 225 ILCS 325/1 et seq.

Footnote 3: 765 ILCS 205/2.

**ORDINANCE NO. 2016-\_\_\_\_\_**

**AN ORDINANCE AMENDING CHAPTER 5 OF TITLE 6 OF THE  
PLANO CITY CODE:  
“FLOOD CONTROL”**

BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF PLANO,  
KENDALL COUNTY, ILLINOIS, AS FOLLOWS:

Section 1. Chapter 5 of Title 6 of the Plano City Code (FLOOD CONTROL) is amended in its entirety to provide as follows:

SEE ATTACHED EXHIBIT “A” FOR THE TEXT OF AMENDED CHAPTER 5 OF TITLE 6 OF THE PLANO CITY CODE.

Section 2. This Ordinance shall be in full force and effect from and after its passage, approval and publication in pamphlet form as required by law.

Passed at a regular meeting of the City Council of the City of Plano, Kendall County, Illinois, on the \_\_\_\_ day of \_\_\_\_\_, 2016.

Signed and approved by the Mayor of the City of Plano, Kendall County, Illinois, on the \_\_\_\_ day of \_\_\_\_\_, 2016.

\_\_\_\_\_  
Mayor

ATTEST:

\_\_\_\_\_  
City Clerk

Published in pamphlet form by order of the City Council.

STATE OF ILLINOIS    )  
                                  ) SS  
COUNTY OF KENDALL )

**CERTIFICATE OF PUBLICATION IN PAMPHLET FORM**

I, the undersigned, do hereby certify that I am the duly qualified and acting City Clerk of the City of Plano, Kendall County, Illinois (the “City”), and as such official I am the keeper of the official journal of proceedings, books, records, minutes, and files of the City and of the Mayor and City Council (the “Corporate Authorities”) thereof.

I do further certify that on the \_\_\_\_ day of \_\_\_\_\_, 2016, there was published in pamphlet form, by authority of the Corporate Authorities, a true, correct, and complete copy of Ordinance No. 2016-\_\_\_\_ of the City entitled:

**ORDINANCE NO. 2016-\_\_\_\_\_**

**AN ORDINANCE AMENDING CHAPTER 5 OF TITLE 6 OF THE  
PLANO CITY CODE:  
“FLOOD CONTROL”**

as adopted by the Corporate Authorities on the \_\_\_\_ day of \_\_\_\_\_, 2016, and that said Ordinance as so published was on said date readily available for public inspection and distribution, in sufficient number to meet the needs of the general public, at my office as City Clerk located in the City.

IN WITNESS WHEREOF I have affixed hereto my official signature and the seal of the City this \_\_\_\_ day of \_\_\_\_\_, 2016.

\_\_\_\_\_  
City Clerk

[SEAL]

## Chapter 6

### EROSION AND SEDIMENTATION CONTROL

6-6-1: PURPOSE:

6-6-2: GENERAL CONTROL STANDARDS:

6-6-3: PERMIT REQUIREMENTS AND REGULATIONS:

6-6-3-1: PERMIT REQUIRED:

6-6-3-2: SAMPLE REQUIREMENTS FOR STANDARDIZATION OF EROSION AND SEDIMENT CONTROL PLANS:

6-6-3-3: DESIGN AND MAINTENANCE

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**6-6-1: PURPOSE:**

The City hereby finds as follows:

- A. That excessive quantities of soil are eroding from areas that are undergoing development for certain nonagricultural uses, including, but not limited to, the construction of dwelling units, commercial buildings and industrial plants, the building of roads and highways, and the creation of recreational facilities;
- B. That the washing, blowing and falling of eroded soil across and upon roadways endangers the health and safety of users thereof by decreasing vision and reducing traction of road vehicles;
- C. That said soil erosion necessitates the costly repairing of gullies, washed-out fills and embankments;
- D. That the sediment from said soil erosion tends to clog sewers and ditches and to pollute and silt the rivers, streams, lakes and reservoirs;
- E. That said sediment limits the use of water and waterways for most beneficial purposes, destroying fish and other aquatic life, and that said sediment is costly and difficult to remove; and
- F. That said sediment reduces the channel capacity of waterways, resulting in greatly increased chances of flooding at grave danger to public health and safety.

The City therefore declares that the purpose of these requirements is to provide minimum standards to safeguard persons, and to protect property and prevent the despoliation of the

environment, and to promote the public welfare, by regulating and controlling the design, construction, quality of materials and use and maintenance of any development or other activity which disturbs or breaks the topsoil or otherwise results in the movement of earth on land situated in the City. (Ord. 1998-23, 8-24-1998)

**6-6-2: GENERAL CONTROL STANDARDS:**

The following general principles shall apply to any movement of earth and any sedimentation and erosion control plan and the granting of a permit for the execution of said plan as hereinafter provided:

- A. The smallest practical area of land shall be exposed at any given time during development.
- B. Erosion and sediment control planning shall be part of the initial site planning process. In planning the erosion and sediment control strategy, preference shall be given to reducing erosion rather than controlling sediment.
- C. Special precautions shall be taken to prevent damages resulting from any necessary development activity within or adjacent to any stream, lake, pond, or wetland. Preventative measures shall reflect the sensitivity of these areas to erosion and sedimentation.
- D. Such minimum area exposure shall be kept to as short a duration of time as is practical.
- E. Temporary vegetation or, where appropriate, mulching or other nonviable cover shall be used to protect areas exposed during development.
- F. Sediment basins or traps, filter barriers, diversions, and any other appropriate sediment or erosion control measures shall be installed prior to or concurrent with site clearing and grading. Measures implemented onsite shall be maintained to prevent erosion and remove sediment from run-off waters from land undergoing development.
- G. Provisions shall be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development.
- H. Permanent, final plant covering or structures shall be installed as soon as possible.
- I. The plan of development shall relate to the topography and soils of the site so that the lowest potential for erosion is created.
- J. The selection of erosion and sediment control measures shall be based on assessment of the probable frequency of climatic and other events likely to contribute to erosion (and at a minimum a rainfall event with a 25 year recurrence frequency).
- K. All construction sites shall provide measures to prevent sediment from being tracked onto public or private roadways.
- L. All development shall comply with the minimum requirements of NPDES regulations for construction activities. This ordinance may provide other requirements but is not intended to relieve NPDES requirements.
- M. Natural plant covering shall be retained and protected so far as is consistent with developing the site. (Ord. 1998-23, 8-24-1998)

### **6-6-3: PERMIT REQUIREMENTS AND REGULATIONS:**

#### **6-6-3-1: PERMIT REQUIRED:**

Before land is cleared, graded, transported or otherwise disturbed by the movement of earth for purposes including, but not limited to, the construction of buildings, the mining of minerals including sand and gravel, the development of golf courses, and the construction of roads and streets by any person, partnership or corporation within the City, a site development permit embodying the proposed earth movement shall be obtained from the City, where development comes under any one or more of the following provisions, unless such development is exempted therefrom by Section 6-6-3-13 of this Chapter.

- A. Excavation, fill or any combination thereof, will exceed one hundred (100) cubic yards.
- B. Fill will exceed three feet (3') in vertical depth at its deepest point measured from the natural ground surface.
- C. Excavation will exceed four feet (4') in vertical depth at its deepest point.
- D. Excavation, fill, or any combination thereof will exceed an area of five thousand (5,000) square feet.
- E. Plant cover is to be removed from the area exceeding five thousand (5,000) square feet on any vacant parcel of land or any parcel of land in excess of ten (10) acres. (Ord. 1998-23, 8-24-1998)

#### **6-6-3-2: SAMPLE REQUIREMENTS FOR STANDARDIZATION OF EROSION AND SEDIMENT CONTROL**

##### **PLANS:**

All plans shall be prepared in accordance with the requirements of this ordinance and the standards and specifications contained in the Illinois Urban Manual (current edition) which standards and requirements are hereby incorporated into this ordinance by reference. Erosion and sediment control planning shall be in accordance with the "Procedures and Standards for Urban Soil Erosion and Sedimentation Control in Illinois" (The Green Book, current edition).

- A. Site Development: Information shall include the following:
  - 1. Vicinity sketch, acreage of site, boundary line survey; zoning; type of proposed sewer and water facilities; location of existing utilities, buildings and drains on and within one hundred feet (100') of the site; legend; and scale.
  - 2. A general description of the predominate soil types on the site. Soil survey information is available at the Kendall County Soil and Water Conservation District office.
  - 3. Information on those areas abutting or adjacent to site to show existing drainage patterns and the drainage courses that may affect the site or be affected by the development of the site.
  - 4. The name and address of the developer or owner.
  - 5. The name and address of the consulting firm and the name of the person to contact.

6. Limits of natural flood plain(s). (Based on ultimate development of watershed.)
  7. Location and description, including specifications, of all erosion control measures, including temporary or permanent seeding, mulching, erosion control blanket, and types of non-vegetative stabilization measures.
  8. Acreage of area to be vegetatively stabilized.
  9. Areas to be left undisturbed.
- B. Site Grading: Show existing topography of the site and a one hundred foot (100') adjacent peripheral strip, proposed contours and final grades, and street profiles.
1. Are cuts and fills balanced?
  2. Provided measures to protect cut and fill slopes from surface runoff.
- C. Storm Drainage Plan: Based on the competent storm drainage study. Include a drainage area map and computations. Indicate what conditions now prevail at proposed and natural outlets such as:
1. Is it a bare earth or vegetated drainage course?
  2. Will constructed outlet be in open sun, open shade or dense shade?
  3. Is natural or proposed outlet subject to long term or continuous flow?
  4. Is the existing outlet actively eroding?
  5. Is there evidence of high water table (permanent or seasonal)?
  6. Is the area subject to seepage or spring flood?
  7. Show elevation of normal water level in all proposed and natural outlets.
  8. Profile below outlet for a sufficient distance to indicate the natural gradient of the accepting natural outlet and/or stream channel.
  9. Cross section and profile of existing stream channels where applicable.
- D. Estimated Schedule And Phasing Of Development Of The Site:

Phase I	Stripping or clearing
Phase II	Rough grading and construction
Phase III	Final grading and vegetative establishment
Phase IV	Maintenance

All erosion and sediment control plans submitted to the Kendall County Soil and Water Conservation District for approval shall show all the erosion and sediment control measures needed to provide protection throughout all the phases of construction listed above. These plans shall also include any off-site borrow and spoil areas, sewer lines, utility lines, haul and access roads and the following:

1. Start of clearing.
2. Duration of exposure of disturbed areas.
3. Installation of temporary sediment control measures (vegetative and structural) by phase and date.
4. Installation of storm drainage by phase and date.
5. Paving of streets and parking areas by phase and date.
6. Establishment of permanent vegetative cover, plans will show what will be done to shorten the duration of exposure of disturbed areas by providing for permanent stabilization of these areas as soon after grading as possible. Include seeding mixes and rates, types of sod, seedbed preparation, seeding date, lime and fertilizer application, temporary seedings, if needed, mulching, etc.
7. Include details of all structural sediment control measures.
8. Computations for sediment basins.

E. In addition to the above, the following must also be submitted:

1. Locations of stockpiles and description of stabilization methods.
2. Provisions for construction dewatering, if needed, to address water that is pumped or discharged from the site during construction. Means shall be provided to prevent erosion from a dewatering operation as well as filter or treat water to prevent sediment from discharging offsite.
3. Provisions for maintenance of all required control measures, including type and frequency of maintenance.

F. Professional Engineer's Recommendations: Professional engineer's recommendations for clearing, grubbing, stripping, keying and undercutting for the acceptance to fill, and allowable slope angle for cut and fill slopes, erosion control during both the construction and the life of the facility, location, utilization, and restoration of borrow or spoil areas.

The site development permit application shall be in the following form:

*FOR OFFICE USE ONLY*

*Name*

*Permit No.*

*Date*

*Zoning*

*SITE DEVELOPMENT PERMIT APPLICATION*

*PLANO SUBDIVISION ORDINANCE*

STATE OF ILLINOIS        )  
  )SS

COUNTY OF KENDALL )

, Being duly sworn upon his oath, in application for Site Development Permit from the Subdivision Department, Deposits and Says:

Owner            Address  
Phone            City

Mail Permit To  
Legal Description of Site

Attach a Site Development Plan with required information shown as noted on the check list provided.

Developer        Address  
Phone            City

Consultant        Address  
Phone            City

In consideration of this application and attached site development plan being made a part thereof, and the issuance of a permit:

1. I/We will conform to the regulations set forth in Title 6, Chapter 6 of the Plano City Code, Erosion and Sedimentation Control.
2. I/We also agree that all work performed under said permit will be in accordance with the Plans which accompany this application, except for such changes as may be authored by the City and its Engineer.
3. I/We further state that I/We make this application in order to induce the City of Plano, Illinois to issue its permit for the uses stated herein.

SUBSCRIBED AND SWORN TO BEFORE ME

This            day of            , 20            .

Notary Public Signature of Owner or Authorized Agent

Address

City

Issued by:

Copy: Kendall County Conservation District

(Ord. 1998-23, 8-24-1998)

**6-6-3-3: DESIGN AND MAINTENANCE**

The following division establishes the design features and the design criteria, standards, and methods to be used in developing a Soil Erosion and Sedimentation Control Plan.

A. Site Design Requirements

1. On-site soil erosion and sediment control measures, as specified by the following criteria, shall be constructed and functional prior to initiating clearing, grading, stripping, excavating, or fill activities on the site.
  - a. Disturbed areas draining less than 1 acre shall, at a minimum, provide filter barriers (including silt fences, or equivalent control measures) to control all onsite and off-site runoff as specified in referenced handbooks. Vegetated filter strips, with a minimum width of 25 feet located on the subject property, may be used as an alternative only where runoff in sheet flow is expected.
  - b. Disturbed areas draining more than 1 but less than 5 acres, shall, at a minimum, be protected by a sediment trap or equivalent control measure and such protection shall be constructed at the downslope point of the disturbed area as specified in referenced handbooks.
  - c. Disturbed areas draining more than 5 acres, shall, at a minimum, be protected by a sediment basin with a dewatering device or equivalent control measure and such protection shall be constructed at the downslope point of the disturbed area as specified in referenced handbooks.
  - d. Sediment basin and sediment trap designs shall provide for both detention storage and sediment storage. The detention storage shall be composed of equal volumes of "wet" detention storage and "dry" detention storage and each shall be sized for the 2-year, 24-hour runoff from the site under maximum runoff conditions during construction. The release rate of the basin shall be that rate required to achieve minimum detention times of at least 10 hours. The elevation of the control structure shall be placed such that it only drains the dry detention storage.
  - e. The sediment storage shall be sized to store the estimated sediment load generated from the site over the duration of the construction period with a minimum storage equivalent to the volume of sediment generated in one year. For construction periods exceeding 1 year, a sediment removal schedule shall be provided.
2. Stormwater conveyance channels, including ditches, swales, and diversions, and the outlets of all channels and pipes shall be designed and constructed to withstand the expected flow velocity from the 10-year frequency storm without erosion. All constructed or modified channels shall be stabilized within 48 hours.
3. Soil disturbance shall be conducted in such a manner as to minimize erosion. Areas of the development site that are not to be graded shall be protected from construction traffic or other disturbance until final seeding is performed. Soil stabilization methods shall consider the time of year, site conditions and use of temporary or permanent measures.
4. Properties and channels adjoining development sites shall be protected from erosion and sedimentation. At points where concentrated flow leaves a development site, energy dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity of flow from the drainage outlet to the watercourse.

5. Development in excess of 20 acres shall provide a detailed schedule for earthwork including a timeline in days for stripping, excavating, filling, and establishment of erosion controls. Such schedule shall consider phasing of operations to limit the area of disturbance on site at any one time. The erosion control plan must ensure temporary or permanent soil erosion and sediment control measures can be maintained.
6. Disturbed areas shall be stabilized with temporary or permanent measures within 7 calendar days following the end of active disturbance, or re-disturbance, consistent with the following criteria:
  - a. Appropriate temporary or permanent stabilization measures shall include seeding, mulching, erosion control blanket, sodding, and/or non-vegetative measures in accordance with the Illinois Urban manual.
  - b. Areas having slopes greater than 12 percent shall be stabilized with turf reinforcement mat, or blanket in combination with seeding, or equivalent.
  - c. The seven (7) day stabilization requirement may be precluded by snow cover or when construction activity will resume within fourteen (14) days from when activities have ceased, then stabilization measures do not have to be initiated on that portion of the site by the 7th day after construction activity temporarily ceased given that portion of the site has appropriate soil erosion and sediment controls.
7. Land disturbance activities in stream channels shall be avoided, where possible. If disturbance activities are unavoidable, the following requirements shall be met:
  - a. Construction vehicles shall be kept out of the stream channel to the maximum extent practicable. Where construction crossings are necessary, temporary crossings shall be constructed of non-erosive material, such as riprap or gravel.
  - b. The time and area of disturbance of stream channels shall be kept to a minimum. The stream channel, including bed and banks, shall be restabilized within 48 hours after channel disturbance is completed, interrupted, or stopped.
  - c. Whenever channel relocation is necessary, the new channel shall be constructed dry and fully stabilized before flow is diverted.
8. Storm sewer inlets and culverts shall be protected by an appropriate sediment control measure.
9. Soil storage piles containing more than 10 cubic yards of material shall not be located with a downslope drainage length of less than 25 feet to a roadway or drainage channel. Filter barriers, including filter fence, or equivalent, shall be installed immediately on the downslope side of the piles.
10. If dewatering devices are used, discharge locations shall be protected from erosion. All pumped discharges shall be routed through an effective sediment control measure (e.g. an appropriately designed sediment traps or basins, or equivalent) and monitored for performance and compliance with the approved plan.

11. Each site shall have a stabilized mat of aggregate underlain with filter cloth (or other appropriate measure) of sufficient length and width and stone gradation to prevent sediment or stone from being tracked onto public or private roadways at any point where traffic will be entering or leaving a construction site to or from entrance roads, access drives, and parking areas. Any sediment reaching a public or private road shall be removed by shoveling or street cleaning (not flushing) before the end of each workday and transported to a controlled sediment disposal area.
12. The applicant shall provide adequate receptacles for the deposition of all construction material debris generated during the development process. The applicant shall not cause or permit the dumping, depositing, dropping, throwing, discarding or leaving of construction material debris upon or into any development site, channel, watercourse or water body.
13. All temporary and permanent erosion and sediment control practices must be maintained and repaired as needed to assure effective performance of their intended function.
14. All temporary erosion and sediment control measures shall be maintained until site stabilization is achieved with permanent soil stabilization measures. In the case of bare ground seeding, erosion controls must be maintained until a minimum of 70% density of cover and two inches of growth is established. Trapped sediment and other disturbed soils resulting from the disposition of temporary measures should be permanently stabilized to prevent further erosion and sedimentation.
15. The condition of the construction site for the winter shutdown period shall address proper erosion and sediment control early in the fall growing season so that slopes and other bare earth areas may be stabilized with temporary and/or permanent vegetative cover and other cover types / stabilization methods. All open areas that are to remain idle throughout the winter shall receive temporary erosion control measures prior to the end of the fall growing season. The areas to be worked beyond the end of the growing season must incorporate soil stabilization measures that do not rely on vegetative cover.

B. Maintenance of Erosion Control Measures

1. All soil erosion and sediment control measures necessary to meet the requirements of this ordinance shall be maintained by the applicant or subsequent land owner during the period of land disturbance and development of the site in a satisfactory manner to ensure adequate performance. Soil erosion and sediment control measures shall be inspected in accordance with NPDES requirements or at least weekly and following an equivalent ½ inch rainfall event, and repaired or replaced as necessary.
2. With issuance of the Permit by the City the applicant agrees to maintain the soil erosion and sediment control measures and shall execute a maintenance agreement with future owners of the property to maintain the property's Soil Erosion and Sediment Control Plan and Storm Water Pollution Prevention Plan as applicable.
3. The applicant also specifically authorizes representatives or subcontractors of the permitting authority to enter onto the property for the purpose of inspections and maintenance of the drainage system.

4. If the permitting authority notifies the property owner in writing of maintenance problems that require correction, the property owner shall make such corrections within seven calendar days of such notification.
5. If the corrections are not made within this time period the permitting authority may issue a Stop-Work Order and revoke the permit.

**6-6-3-4 RESTRICTIONS ON PERMIT:**

No site development permit shall be issued for an intended building site unless:

- A. Such permit is accompanied by or combined with a valid building permit issued by the City, or
- B. The proposed earthmoving is coordinated with any overall plan previously approved by the City for the area in which the site is situated. (Ord. 1998-23, 8-24-1998)

**6-6-3-5: SITE DEVELOPMENT PLAN:**

No site development or building permit shall be issued until said developer submits a site development plan, together with other submissions required by this Chapter, and certifies that any land-clearing construction or development involving the movement of earth shall be in accordance with such plan and submissions.

The standards and specifications of "Erosion and Sediment Control Handbook, Kendall County, Illinois", First Edition, as compiled for the Kendall County Soil and Water Conservation District, are hereby incorporated herein and made a part hereof by this reference for the purpose of exemplifying the considerations and factors which should enter into the preparation of a site development plan. (Ord. 1998-23, 8-24-1998)

**6-6-3-6: BONDS:**

The applicant may be required to file with the City Clerk a faithful performance bond or other improvement security satisfactory to the City in the amount deemed sufficient by the City Engineer to cover all the costs of improvements, landscaping, maintenance of landscaping for such periods as specified by the City including engineering, inspection fees and incidental expenses. (Ord. 1998-23, 8-24-1998)

**6-6-3-7: EXPIRATION OF PERMIT:**

Every site development permit shall expire by limitation and become null and void if the work authorized by such permit has not been commenced within one hundred eighty (180) days, or is not completed within one year from date of issue; except, that the City may, if the permit holder presents satisfactory evidence that unusual difficulties have prevented work being started or completed within the specified time limits, grant a reasonable extension of time if written application is made before the expiration date of the permit. (Ord. 1998-23, 8-24-1998)

**6-6-3-8: REVIEW PROCEDURES:**

To further the specific purposes of this Chapter, the following review procedures are established:

- A. Grading Work Under Five Hundred Cubic Yards: Where the aggregate volume of grading on any site or contiguous group of sites is in excess of one hundred (100) cubic yards, but not over five hundred (500) cubic yards, the City Engineer shall review the application for the proposed site development permit. If the City Engineer finds the application for the proposed grading plan in conformance with the provisions of this Chapter, it may issue a permit with such reasonable conditions as may be deemed necessary to secure substantially the objectives of this Chapter; or, in the alternative, refer the application to the Soil and Water Conservation District.
- B. Grading Work In Excess Of Five Hundred (500) Cubic Yards Or Removal Of Vegetation: Where the aggregate volume of grading on any site or contiguous group of sites is in excess of five hundred (500) cubic yards or the proposed cuts and fills exceed five feet (5') at their maximum point, or where approval to remove plant cover is required by this Chapter:
  - 1. The City shall refer the application to the Soil and Water Conservation District and the City Plan Commission for review and recommendations. Such recommendations shall be submitted to the City Council within thirty (30) days.
  - 2. Upon receipt of the recommendations of the City Planning Commission and the Soil and Water Conservation District, and after consideration thereof, the City shall approve, approve with such reasonable conditions as it may deem necessary to secure substantially the objectives of this Chapter, or disapprove the application for the site development.
  - 3. Failure of the City to make a determination upon the approval, conditional approval or disapproval of the application for a site development permit within sixty (60) days after receipt of all necessary information for such action will constitute an approval of the application unless such time is extended with the consent of the applicant. (Ord. 1998-23,8-24-1998)

**6-6-3-9: APPEALS:**

The applicant, as well as any person who has received notice of the filing of the application for site development permit, may appeal the decision of the City. Upon receipt of an appeal, the City shall schedule to hold a public hearing, after giving fifteen (15) days' notice thereof. The City shall render a decision within thirty (30) days of the hearing. Factors to be considered on review shall include, but not be limited to, possible saturation of fill and unsupported cuts by water, both natural and domestic; runoff surface waters that produce erosion and silting of drainage ways; nature and type of soil or rock that, when disturbed by the proposed grading, may create earth movement and produce slopes that cannot be landscaped; and excessive and unnecessary scarring of the natural landscape through grading or removal of vegetation. (Ord. 1998-23, 8-24-1998)

**6-6-3-10: INSPECTIONS:**

- A. The City shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the permittee wherein the same fails to comply with the site development plan.
- B. Where it is found by inspection that conditions are not substantially as stated or shown in the said plan, the City may stop further work until approval is obtained for a revised grading plan conforming to the existing conditions.

- C. Plans for grading work bearing the stamp of approval of the City shall be maintained at the site during progress of the grading.
- D. In order to obtain inspections in accordance with the following schedule, the permittee shall notify the City at least two (2) full working days before the said inspection is to be made:
  - 1. Rough Grading: When all rough grading has been completed; and
  - 2. Final Inspection: When all work, including installation of all drainage and other structures and required planting, has been completed. (Ord. 1998-23, 8-24-1998)

**6-6-3-11: DISCLAIMER OF LIABILITY:**

Failure of the City officials to observe or recognize hazardous or unsightly conditions or to recommend denial of said permit shall not relieve the permittee from responsibility for the conditions or damage resulting therefrom, and shall not result in the City, its officers or agents being responsible for any condition or damage resulting therefrom. (Ord. 1998-23, 8-24-1998)

**6-6-3-12: SUSPENSION OR REVOCATION OF PERMIT:**

A. Authority: In the event any person holding a site development permit pursuant to this Chapter violates the terms of the permit or conducts or carries on said site development in such a manner as to materially or adversely affect the health, welfare or safety of a person residing or working in the neighborhood of the property of the said permittee, or conducts or carries on said site development so that it is materially detrimental to the public welfare or injurious to property or improvements in the neighborhood, the City shall revoke or suspend the site development permit.

B. Hearings:

- 1. No site development permit shall be permanently revoked or suspended until a hearing is held by the Zoning Board of Appeals. Written notice of such hearing shall be served upon the permittee, either personally or by registered mail, and shall state:
  - a. The grounds for complaint or reasons for the revocation or suspension, in clear and concise language.
  - b. The time when, and the place where such hearing is to be held.

Such notice shall be served by registered mail or personal service on the permittee at least five (5) days prior to the date set for the hearing. At any such hearing, the permittee shall be given an opportunity to be heard, and he may call witnesses and present evidence on his behalf. Upon conclusions of such hearing, the Board of Appeals shall determine whether or not the permit shall be suspended or revoked.

- 2. The Zoning Board of Appeals shall hold the hearing to consider recommendations for revocation or suspension of permits which have been temporarily suspended at the next regular scheduled meeting of the Board of Appeals at which all conditions of this subsection can be fulfilled. (Ord. 1998-23, 8-24-1998)

**6-6-3-13: EXEMPTIONS FROM PERMIT:**

A site development permit shall not be required in the following cases:

- A. Excavations below finished grade for septic tanks and drain fields, tanks, vaults, tunnels, equipment basements, swimming pools, cellars or footings of building or structures for which a building permit shall have been issued by the City, unless part of a development which would otherwise require such a permit.
- B. Excavation or removal of vegetation in public utility easements by public utility companies for the purpose of installing underground utilities.
- C. Tilling of the soil for fire protection purposes.
- D. Engaging in the following, if but only if in connection with a farming or other agricultural or conservation enterprise and upon property zoned solely for farming or agricultural purposes and uses:
  - 1. The construction of sod waterways; or
  - 2. The construction of terraces; or
  - 3. The construction of surface water diversions; or
  - 4. The construction of grade stabilization structures; or
  - 5. The tilling of the soil. (Ord. 1998-23, 8-24-1998)

**6-6-4: OPERATION STANDARDS AND REQUIREMENTS:**

- A. Application of Provisions: All earthmoving grading and grading operations not specifically exempted by the provisions of this Chapter shall comply with the applicable standards and requirements set forth in this Section in addition to the other requirements of this Chapter.
- B. County Regulations Adopted: The standards and specifications of "Erosion and Sediment Control Handbooks, Kendall County, Illinois", First Edition, as compiled for the Kendall County Soil and Water Conservation District are hereby incorporated herein and made a part hereof by this reference, three (3) copies of which are on file in the office of the City Clerk, for the purpose of delineating procedures and methods of operation under development plans approved in Section 6-6-3 of this Chapter. In the event of conflict between provisions of the said "Handbook" and other provisions of this Chapter, the said provisions of this Chapter shall govern.
- C. Special Precautions:
  - 1. If at any stage of the grading, the City determines by inspection that the nature of the formation is such that further work as authorized by an existing permit is likely to imperil any property, public way, watercourse or drainage structure, the City may require, as a condition to allowing the work to be done, that such reasonable safety precautions be taken as it considers advisable to avoid the likelihood of such peril. "Special precautions" may include, but shall not be limited to:
    - a. Specifying a more level exposed slope;
    - b. Construction of additional drainage facilities, berms, terracing, compaction or cribbing;

- c. Installation of plant materials for erosion control; and
  - d. Reports of registered soils engineer and/or of a registered engineering geologist whose recommendations may be made requirements for further work.
2. Where it appears that storm damage may result because the grading is not complete, work may be stopped and the permittee required to install temporary planting to control erosion, install temporary structures or take such other measures as may be required to protect adjoining property or the public safety. On large operations or where unusual site conditions prevail, the City may specify the time of starting grading and time of completion or may require that the operations be conducted in specific stages so as to ensure completion of protective measures or devices prior to the advent of seasonal rains. (Ord. 1998-23, 8-24-1998)

**6-6-5: EXCEPTIONS:**

- A. Authority: The Zoning Board of Appeals may authorize exceptions to any of the requirements and regulations set forth in this Chapter.
- B. Application For Exception: Application for any exception shall be made by a verified petition of applicant stating fully the grounds of the application and the facts relied upon by petitioner. Such petition shall be filed with the site development permit application.
- C. Standards For Exceptions: In order for the land referred to in the petition to come within the provisions of this Section, it shall be necessary that the Zoning Board of Appeals find all of the following facts with respect thereto:
  1. That the land is of such shape or size, or is affected by such physical conditions, or is subject to such title limitations or record, that it is impossible or impractical for the subdivider to comply with all of the regulations of this Chapter.
  2. That the exception is necessary for the preservation and enjoyment of a substantial property right of the petitioner.
  3. That the granting of the exception will not be detrimental to the public welfare or injurious to other property in the vicinity of the subject property.
- D. Action on Proposed Exception:
  1. Each proposed exception shall be referred to the officers or agencies involved, and such officers or departments shall transmit to the Zoning Board of Appeals their recommendations, which recommendations shall be reviewed prior to the granting of any exception.
  2. After public hearing thereon, the Zoning Board of Appeals, by resolution, may approve the site development permit application with the exceptions and conditions it deems necessary, or it may disapprove such site development permit application and exception application, or it may take such other action as is appropriate. The decision shall then be forwarded to the City Council for final action. (Ord. 1998-23, 8-24-1998)

**6-6-6: RETENTION OF PLANS:**

Plans, specifications and reports for all site developments shall be retained in original form by the City.  
(Ord. 1998-23, 8-24-1998)

**City of  
Plano**

**Stormwater Management Ordinance**

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**APPENDIX A - PERMIT SUBMITTAL CHECKLIST**

**DIVISION 1**  
**AUTHORITY AND PURPOSE**

**100.0 AUTHORITY AND PURPOSE**

This ordinance is enacted pursuant to the Illinois Municipal Code.

The purpose of this ordinance is to diminish threats to public health, safety and welfare caused by excess stormwater runoff from new development and redevelopment. This ordinance seeks to establish stormwater management practices and promote sustainable planning and design to counter increases in stormwater runoff quantity and rate and the impairment of water quality from development and land improvement.

**101.0 OBJECTIVES**

This ordinance is adopted to accomplish the following objectives:

1. To assure that new development does not increase the drainage or flood hazards to others, or create unstable conditions susceptible to erosion.
2. To protect new buildings and major improvements to buildings from flood damage due to increased stormwater runoff.
3. To protect human life and health from the hazards of increased flooding.
4. To lessen the burden on the taxpayer for flood control projects, repairs to flood damaged public facilities and utilities, correction of channel erosion problems, and flood rescue and relief operations caused by increased stormwater runoff quantities from new development.
5. To protect, conserve, and promote the orderly development of land and water resources.
6. To preserve the natural hydrologic and hydraulic functions of watercourses and floodplains and to protect water quality and aquatic habitats.
7. To preserve the natural characteristics of the land in order to moderate flood and stormwater impacts, improve water quality, reduce soil erosion, protect aquatic and riparian habitat, provide recreational opportunities, provide aesthetic benefits and enhance community and economic development.

**DIVISION 2**  
**DEFINITIONS**

**City of Plano Division 2  
Stormwater Management Ordinance Definitions**

**200.0 DEFINITIONS**

<b>Adverse Impacts</b>	Any deleterious impact on existing drainage characteristics, water resources, or wetlands affecting their capacity, quality, and beneficial uses including recreation, aesthetics, aquatic habitat.
<b>Applicant</b>	Any person, firm, or governmental agency who executes the necessary forms to procure official approval from City of Plano of a development or permit to carry out construction of a development.
<b>Base Flood</b>	The flood having a one percent probability of being equaled or exceeded in a given year.
<b>Base Flood Elevation</b>	The elevation at all locations delineating the level of flooding resulting from the base flood event expressed in a numeric value relative to North American Vertical Datum of 1988(NAVD 88).
<b>Best Management Practice (BMP)</b>	A measure used to control the adverse stormwater-related effects of development. BMPs include structural devices (e.g., swales, filter strips, infiltration trenches, and detention basins) designed to remove pollutants, reduce runoff rates and volumes, recharge groundwater and protect aquatic habitats. BMPs also include non-structural approaches, such as public education efforts to prevent the dumping of household chemicals into storm drains.
<b>Bulletin 71</b>	The document Rainfall Frequency Atlas of the Midwest, by Floyd Huff and James Angel of the Midwest Climate Center, Illinois State Water Survey (1992).
<b>Bypass Flows</b>	Stormwater runoff from upstream properties tributary to a property's drainage system but not under its control.
<b>Channel</b>	Any river, stream, creek, brook, branch, natural or artificial depression, ponded area, flowage, slough, ditch, conduit, culvert, gully, ravine, wash, or natural or manmade drainage way, which has a definite bed and bank or shoreline, in or into which surface or groundwater flows, either perennially or intermittently.
<b>Channel Modification</b>	Alteration of a channel by changing the physical dimensions or materials of its bed or banks. Channel modification includes damming, riprapping (or other armoring), widening, deepening, straightening, relocating, lining and significant removal of native vegetation from the bottom or banks. Channel modification does

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Stormwater Management Ordinance Definitions**

not include the clearing of dead or dying vegetation, debris, or trash from the channel.

"Channelization" is a severe form of channel modification involving a significant change in the channel cross section and typically involving relocation of the existing channel (e.g., straightening).

<b>Compensatory Storage</b>	An artificially excavated, hydraulically equivalent volume of storage created within the SFHA to balance the loss of existing flood storage capacity.
<b>Conduit</b>	Any channel, pipe, sewer or culvert used for the conveyance or movement of water, whether open or closed.
<b>Control Structure</b>	A structure designed to control the rate of flow that passes through the structure given a specific upstream and downstream water surface elevation.
<b>Critical Duration</b>	The duration of a storm event that results in the greatest peak runoff.
<b>Depressional Storage</b>	The volume contained below a closed contour on a one-foot contour interval topographic map. The upper elevation of depressional storage shall be determined by the high water elevation of a 100-year flood through the site in the pre-developed condition.
<b>Detention Basin</b>	A facility constructed or modified to provide for the temporary storage of storm water runoff and the controlled release by gravity of this runoff at a prescribed rate during and after a flood or storm.
<b>Detention Time</b>	The mean residence time of stormwater in a detention basin.
<b>Development</b>	Any man-made change to real property, including: <ul style="list-style-type: none"><li>(a) Submittal to the City of a final plat of subdivision as of the effective date of this ordinance;</li><li>(b) Construction, reconstruction, or placement of a building or any addition to a building, with the exception of agricultural structures and accessories thereto;</li><li>(c) Installation of a manufactured home on a site, preparing a site for a manufactured home, or installing a travel trailer on a site for more than 180 days;</li></ul>

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Stormwater Management Ordinance Definitions**

- (d) Drilling, mining, installing utilities, construction of roads, bridges, or similar projects;
- (e) Construction or erection of levees, walls, dams, or culverts;
- (f) Channel modification, filling, dredging, grading, clearing, excavating, paving, or other non-agricultural alterations of the ground surface;
- (g) Storage of materials or deposit of solid or liquid waste; and
- (h) Any other activity that will alter the magnitude, frequency, deviation, direction, or velocity of stormwater or flood water flows from a property.

<b>Director</b>	The Kendall Board Chairman or his or her designee by Resolution, charged with performing the duties specified in this Ordinance.
<b>Drainage System</b>	All means, natural or man-made, used for conducting stormwater to, through or from a drainage area to the point of final outlet from a property. The stormwater drainage system includes but is not limited to any of the following: conduits and appurtenance features, canals, channels, ditches, streams, culverts, streets, storm sewers, detention basins, swales and pumping stations.
<b>Dry Basin</b>	A detention basin designed to drain completely after temporary storage of stormwater flows and to normally be dry over the majority of its bottom area.
<b>Dynamic Modeling</b>	Continuous simulation hydraulic modeling that considers gradually varied, unsteady flow hydraulics.
<b>Erosion</b>	The general process whereby earth is removed by the action of water, wind, or other forces of nature.
<b>Excess Stormwater Runoff</b>	The volume and rate of flow of stormwater discharged from a developed area which is or will be in excess of that volume and rate which pertained before development.
<b>Extended Detention</b>	A volume of runoff temporarily detained and released over a long period of time to reflect pre-development hydrology.
<b>Flood Frequency</b>	Normally expressed as a period of years, based on a percent chance of occurrence in any given year from statistical analysis, during which a flood of a stated magnitude may be expected to be equaled or exceeded. For example, the 2-year flood frequency has a fifty percent chance of occurring in any given year, the 10-year flood frequency has a ten percent chance of occurring in any given year,

**City of Plano Division 2  
Stormwater Management Ordinance Definitions**

and the 100-year flood frequency has a one percent chance of occurring in any given year.

<b>Flood Fringe</b>	That portion of the floodplain outside of the regulatory floodway.
<b>Flood Plain</b>	Land adjacent to a body of water with ground surface elevations at or below the base flood or the 100-year frequency flood elevation, including detached ponding areas, etc. The floodplain is also known as the <i>Special Flood Hazard Area (SFHA)</i> .
<b>Floodway</b>	The channel and that portion of the floodplain adjacent to a stream or watercourse which is needed to store and convey the anticipated existing and future 100-year frequency flood discharge with no more than a 0.1 foot increase in flood stage due to any loss of flood conveyance or storage and no more than a ten percent (10%) increase in velocities.
<b>Free board</b>	An increment of height added to the base flood elevation, groundwater table, or 100-year design water surface elevation to provide a factor of safety for uncertainties in calculations, unknown local conditions, wave action, and unpredictable effects.
<b>Hydrograph</b>	A graph showing, for a given location on a stream or conduit, the flow rates with respect to time.
<b>Impervious Surface</b>	That area of property that is covered by materials resulting in a surface highly resistant to water infiltration, such as parking lots, driveways, sidewalks, patios, roofs, roof extensions, and other structures, also including semi-impervious surfaces such as compacted gravel.
<b>Infiltration</b>	Passage or movement of water into the soil surfaces.
<b>Major Drainage System</b>	That portion of a drainage system needed to store and convey flows beyond the capacity of the minor drainage system. Where man made, it is designed to handle the 100-year frequency runoff event.
<b>Minor Drainage System</b>	That portion of a drainage system designed for the convenience of the public. It consists of street gutters, driveway culverts, storm sewers, small open channels, and swales and, where manmade, is designed to handle the 10-year frequency runoff event. It also consists of cross-road culverts which at a minimum shall be designed to handle the 30-year frequency event.
<b>Mitigation</b>	Measures necessary to minimize the negative effects which stormwater drainage and development activities might have on the

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Stormwater Management Ordinance Definitions**

public health, safety and welfare. Examples of mitigation include compensatory storage, soil erosion and sedimentation control, and channel restoration.

**Natural** Conditions resulting from physical, chemical, and biological processes without intervention by man.

**Overland Flow Path** A design feature of the major stormwater system which carries flows in excess of the minor stormwater system design capacity in an open channel or swale, or as sheet flow or weir flow over a feature designed to withstand the particular erosive forces involved.

**Positive Drainage** Provision of overland paths for all areas of a property including depressional areas that may also be drained by storm sewer.

**Peak Flow** The maximum rate of flow of water at a given point in a channel or conduit.

**Previously Developed** For property to be considered as previously developed it must have been:

- (a) Developed prior to 1975 and have no known flooding conditions caused by the lack of a stormwater management plan; or
- (b) Developed after 1975, have on file with the City a building permit or site development permit covering the development, and have no known flooding conditions.

**Property** A parcel or parcels of real estate.

**Redevelopment** Development on a parcel upon which the existing condition prior to the effective date of the Ordinance is a non-agricultural land use and includes infrastructure associated with non-agricultural activities. Widening of an existing street by a unit of local government, including but not limited to the Kendall County Highway Department and Township Road Districts, may be considered redevelopment.

**Regulatory Floodway** The channel, including on-stream lakes, and that portion of the flood plain adjacent to a stream or watercourse as designated by the Illinois Department of Natural Resources, Office of Water Resources (IDNROWR), which is needed to store and convey the existing and anticipated future 100-year frequency flood discharge with no more than a 0.1 foot increase in stage due to the loss of

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Stormwater Management Ordinance Definitions**

flood conveyance or storage, and no more than a 10% increase in velocities. To locate the regulatory floodway boundary on any site, the regulatory floodway boundary should be scaled off the regulatory flood way map and located on a site plan, using reference marks common to both maps. Where interpretation is needed to determine the exact location of the regulatory floodway boundary, the IDNR-OWR should be contacted for the interpretation.

<b>Release Rate</b>	The rate at which stormwater runoff flows from the property.
<b>Retention Basin</b>	A facility designed to completely retain a specified amount of stormwater runoff without release except by means of evaporation, infiltration, or emergency bypass.
<b>Riparian Area</b>	Land that borders a waterway and provides habitat for wildlife or vegetation dependent on the proximity of water.
<b>Seasonal High Groundwater Table</b>	The upper limits of the soil temporarily saturated with water, being usually associated with spring wetness conditions. This may be indicated by soil mottles with a Munsell color of 2 chroma or less.
<b>Sedimentation</b>	The process that deposits soils, debris, and other materials either on other ground surfaces or in bodies of water or storm water drainage systems.
<b>Special Flood Hazard Area (SFHA)</b>	An area having special flood, mudslide or mudflow, or flood related erosion hazards, and which area is shown on an FHBM or FIRM as Zone A, AO, AI-30, AE, A99, AH, VO, VI-30, VE, V, M, or E.
<b>Stormwater Management Plan</b>	A plan, including engineering drawings and supporting calculations, which describes the existing stormwater drainage system, patterns, and environmental features, as well as the drainage system, patterns, and environmental features which are proposed after development of a property.
<b>Stormwater Runoff</b>	The waters derived from snow melt, rain fall, or other precipitation within a tributary drainage basin which are in excess of the infiltration capacity of the soils of that basin.
<b>Storm Sewer</b>	A closed conduit for conveying collected stormwater.

**City of Plano Division 2  
Stormwater Management Ordinance Definitions**

<b>Time of Concentration</b>	Elapsed time for stormwater to flow from the most hydraulically remote point in a drainage basin to a particular point of interest in that watershed.
<b>Urban Runoff Pollutants</b>	Contaminants commonly found in urban runoff which have been shown to adversely affect uses in receiving water bodies. Pollutants of concern include sediment, heavy metals, petroleum-based organic compounds, nutrients, oxygen demanding organics (BOD), pesticides, salt, and pathogens.
<b>Watershed</b>	All of the land surface area drained by or contributing runoff to the same stream, lake, stormwater facility, or given point.
<b>Wet Basin</b>	A detention basin designed to maintain a permanent pool of water after the temporary storage of stormwater runoff.
<b>Wetland</b>	Land area defined in the 1987 Corps of Engineers Wetland Delineation Manual, technical report Y-87-1, U.S. Army engineers Waterways experiment Station, Vicksburg, Mississippi (the "1987" Manual) or other current Federal methodology recognized by the U.S. Army Corps of Engineers for regulatory purposes.
<b>Wetland Basin</b>	A detention basin designed with all or a portion of its bottom area as a wetland.

**DIVISION 3  
APPLICABILITY**

**City of Plano Division 3  
Stormwater Management Ordinance Applicability**

**300.0 APPLICABILITY**

All development applications shall be accompanied by a Site Plan including required drawings, calculations, and supporting data as necessary to ensure that the provisions of this ordinance are met. Content of the Site Plan shall be determined by the criteria listed in Sections 301 and 302.

No site development permit, building permit, or final plat shall be issued or signed until the City has determined that the proposed development, development application, and Stormwater Management Plan meet all applicable requirements of this ordinance.

**301.0 APPLICABILITY FOR STORMWATER RUNOFF DETENTION**

All developments in the City of Plano meeting the following criteria shall provide stormwater runoff storage facilities in accordance with this ordinance.

1. The property being developed or redeveloped is a single-family detached residential development with five or more units and having an average lot size less than or equal to 3 acres; or
2. The property being developed or redeveloped is not a single-family detached residential development or is a non-residential land use, excluding agricultural uses, totals three acres or more in size, and results in 45,000 square feet or more of total development or 32,000 square feet or more of impervious area. The area of development and impervious surface shall be determined on an aggregate basis from the effective date of this ordinance; or
3. The property being developed or redeveloped is not a single-family detached residential development or is a non-residential land use, excluding agricultural uses, totals less than three acres in size, and results in an impervious surface area of 25% or more of the development site. The area of development and impervious surface shall be determined on an aggregate basis from the effective date of this ordinance.
4. Public roadway developments in rights-of-way under the ownership or control of a unit of local governments where the new impervious surface area tributary to any drainage outlet exceeds two acres. New impervious surface includes PCC & asphalt pavement, sidewalks, and paved trails, but does not include previously paved areas.

**302.0 PLAN SUBMITTAL REQUIREMENTS**

1. All development not subject to the criteria of Section 301.0 shall submit a Step 1 Site Plan.
2. Developments subject to the criteria of Section 301.0 and being 20 acres or less in size shall submit a Step 2 Stormwater Management Plan.
3. Developments subject to the criteria of Section 301.0 and being more than 20 acres in size shall submit a Step 3 Stormwater Management Plan.

**City of Plano Division 3  
Stormwater Management Ordinance Applicability**

4. Development proposed in a flood plain, flood fringe, flood way, or SFHA or development on a property having any portion located within a wetland shall submit a Step 3 Stormwater Management Plan.

Submittals shall include sufficient information to evaluate the environmental characteristics of the property, the potential adverse impacts of the development on water resources both on-site and downstream, and the effectiveness of the proposed Stormwater Management Plan in managing stormwater runoff.

Drawings or exhibits shall be dimensioned or shall be at a maximum scale of 1 inch = 100 feet. Exhibits may be on more than one drawing for clarity.

The applicant shall certify on the drawings that all clearing, grading, drainage, and construction shall be accomplished in strict conformance with City of Plano Ordinances and the approved Stormwater Management Plan.

**302.1 Pre-Submittal Meeting**

It is recommended that the petitioner schedule a pre-submittal meeting with the City of Plano to review the proposed project, discuss submittal requirements, and discuss questions the petitioner may have.

Appendix A includes a permit submittal checklist for use with this Division. This ordinance shall take precedence over the checklist.

**302.2 Step 1 Site Plan**

The Step 1 Stormwater Management Plan shall provide the following:

1. A written description of the proposed development and the stormwater management practices being employed.
2. A location map or description providing township, range, and nearest roadways to accurately locate the development site.
3. Acreage and zoning of property area.
4. Property area lines and dimensions including rights-of-way, easements, and setback lines.
5. Existing and proposed site conditions including all buildings, roads, impervious surfaces, and ground elevations where site grading is proposed.
6. Proposed limits and restoration of disturbed areas.
7. Existing and proposed drainage features such as culverts, conduits, swales, streams, ponds, wetlands, etc.
8. Location of subsurface drains and tiles within the development area only.
9. Location of wells, septic systems, water mains, and sanitary sewers.

**City of Plano Division 3  
Stormwater Management Ordinance Applicability**

10. Copies of other permit applications and final permits as required by other jurisdictions and agencies.
11. An Erosion Control and Sedimentation Plan meeting the Erosion and Sedimentation Control Ordinance.

**302.3 Step 2 Stormwater Management Plan**

The Step 2 Stormwater Management Plan shall provide all items from the Step 1 Site Plan in addition to the following:

1. Property topography at one foot contours for the entire property extending to a minimum of one hundred feet beyond the property lines or as necessary to determine off-site impacts of the proposed Stormwater Management Plan.
2. Site contours shall be keyed to a USGS datum and state plane coordinate system.
3. Elevation of all building foundations and indications whether buildings have basements, lookouts, walkouts, or crawl spaces.
4. The property area's location within the major watershed.
5. Sub-watershed boundaries within and across the property area.
6. Soils inventory for the property area.
7. A tile survey within the proposed development area.
8. Delineation of upstream and downstream drainage features and watersheds which affect or are affected by the development including depressional areas and stormwater storage areas.
9. Delineation of proposed stormwater storage facilities, including ponds.
10. Design calculations and plans detailing existing and proposed stormwater runoff, storage, and drainage features.
11. Major and minor drainage system design plans and calculations including delineation of sub drainage areas for all conveyance features.
12. The top of banks and centerline elevations of streams and channels at maximum 100-foot intervals.
13. Cross section data and conveyance calculations for open channel and overland flow paths.
14. Delineation of flood plain, flood way, and base flood elevation and inventory of riparian areas within 100 feet of the property area.
15. Mapping and elevations of historical flooding records as available.

**City of Plano Division 3  
Stormwater Management Ordinance Applicability**

16. Delineation and description of designated conservation areas within 100 feet of the property area.
17. Delineation and inventory of wetlands within 100 feet of the property area.

**302.4 Step 3 Stormwater Management Plan**

The Step 3 Stormwater Management Plan shall provide all items from the Step 1 Site Plan and Step 2 Stormwater Management Plan in addition to the following:

1. Existing base flood elevation and profile for stream reach affected or modified by the proposed development.
2. All proposed floodplain conditions (if modified), including calculations.
3. All floodplain fill and compensatory storage calculations.
4. Detailed environmental mitigation plans for disturbance of wetlands, riparian, or conservation areas.
5. Flow rates and velocities at representative points in the drainage system.
6. A statement by the design engineer concerning the location and capacity of the complete drainage system's provisions for conveying the 100-year storm event runoff.
7. Phasing of project including expected start and completion dates, duration of exposure of disturbed areas, and expected dates for restoration.

**303.0 DETERMINATION OF PROPERTY AREA**

The following criteria shall be considered when determining the total area of property being developed or redeveloped and for "grandfathering" of previously developed property.

1. The City shall review the proposed total area of the property being developed or redeveloped in order to preclude inappropriate phasing of developments to circumvent the intent of this ordinance.
2. If a portion of the property area was previously developed and is not being disturbed, developed or redeveloped, then the previously developed property area may be excluded from the total property area.
3. If a previously developed portion of a site is proposed to be redeveloped, it must be included in the total property area.

**DIVISION 4**  
**STORMWATER MANAGEMENT PLAN**

#### **400.0 STORMWATER MANAGEMENT PLAN**

The following division establishes the design features and the design criteria, standards, and methods to be used in developing a Stormwater Management Plan.

#### **401.0 MINIMIZATION OF INCREASES IN RUNOFF VOLUMES AND RATES**

In the selection of a stormwater management plan for a particular development, the applicant shall evaluate and implement site design features that most closely meet the goal of no change in runoff rate or volume from pre-development conditions.

The applicant's Stormwater Management Plan submittal shall include evaluations of site design features that are consistent with the following hierarchy:

1. Minimize impervious surfaces on the property and establish best management practices consistent with the needs of the project.
2. Preserve, establish, and/or restore native plantings and natural areas to increase and promote infiltration and evaporation.
3. Preserve the natural infiltration characteristics of the site and incorporate designed infiltration devices (e.g., trenches and basins).
4. Preserve natural resource features of the development site, including but not limited to flood plain, wetlands, prairies, and woodlands.
5. Attenuate flows and promote infiltration by use of open vegetated swales and natural depressions.
6. Preserve, enhance, and incorporate existing natural stream channels and quality wetlands, stream channels and drainageways.
7. The restoration of wetlands in locations where natural features (e.g., depressional areas, hydric soils, prior converted wetlands) will support such restoration.
8. Infiltrate runoff on-site.
9. Provide stormwater retention facilities.
10. Provide stormwater detention facilities to slow the rate of runoff and reduce runoff pollutants leaving the site.
11. Construct storm sewers.

#### **402.0 WATER QUALITY AND MULTIPLE USES**

In the selection of a stormwater management plan for a particular development, the following water quality and multiple use aspects shall be employed:

1. The stormwater management system shall be designed to minimize adverse water quality impacts downstream and on the property itself.

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2. Stormwater conveyance and storage areas shall utilize native plantings to increase infiltration and evaporation.
3. Retention and infiltration of stormwater shall be promoted throughout the property's drainage system to reduce the volume of stormwater runoff and to reduce the quantity of runoff pollutants.
4. Stormwater storage areas shall incorporate design features to capture stormwater runoff pollutants.
5. All flows from the development shall be routed through the stormwater storage areas and receive the storm water quality benefits of the facility (i.e., low flows shall not be bypassed).
6. Stormwater storage design shall give preference to wet bottom and wetland designs.
7. The drainage system shall incorporate multiple uses where practicable. Uses considered compatible with stormwater management include open space, aesthetics, aquatic habitat, recreation (boating, trails, playing fields), wetlands and water quality mitigation.
8. The applicant should avoid using portions of the property exclusively for storm water management.

**403.0 RELEASE RATES**

Drainage systems for properties required to provide stormwater runoff storage facilities shall be designed to control the rate of discharge from the property for the two-year and 100-year critical duration events. The peak rate of discharge shall not cause an increase in flooding or channel instability downstream when considered in aggregate with other developed properties and downstream drainage capacities.

Release rates from a property shall be as follows:

1. The peak discharge from events less than or equal to the two-year event shall not be greater than 0.04 cfs per acre of property drained.
2. The peak 100-year discharge shall not be greater than 0.15 cfs per acre of property drained.
3. Stormwater management shall be designed to maximize infiltration on the site so as to minimize the volume of stormwater runoff from the site. The total volume of water released from the site, exclusive of pass-through flows, shall be calculated by an approved hydrograph method listed in Section 408.0 below. The total volume of water leaving the site, calculated as the area under the hydrograph, shall be calculated for the 2-year, 24-hour storm event in both the undeveloped and developed conditions. The volume of runoff is not limited to the 24-hour duration of the storm, but it shall include the entire duration of runoff from the site. The total volume of water leaving the site for a 2-year storm event following development shall be equal to or less than the total volume of

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water leaving the site in the undeveloped condition. This may be accomplished through application of a permanent pool volume, in a basin without, or partially without an impermeable liner, in combination with the infiltration requirements of Section 416.0.

4. In the event the downstream drainage facilities are inadequate to receive the release rate herein above provided, then the allowable release rate shall be reduced to that rate permitted by the receiving downstream sewers, streams, and channels; additional detention shall be required to store that portion of the runoff exceeding the capacity of the downstream facilities.
5. For sites where the undeveloped release rate is less than the maximum release rate in Section 403.0, the developed release rate and corresponding site runoff storage volume requirement shall be based on the existing undeveloped release rate for the development.

**404.0 DETENTION BASIN OUTLET DESIGN**

The capacity of the downstream drainage system shall be evaluated to ensure the detention basin outlet design will not exceed this capacity. Stormwater storage outlets shall not discharge directly into existing storm sewers or drain tiles.

Backwater on the outlet structure from the downstream drainage system shall be evaluated and considered in the design of the outlet.

The outlet design shall not require manual intervention or mechanical means to control flow, except for wet basins for maintenance drawdown. Outlets shall be designed to allow for easy maintenance even during high runoff events.

**405.0 MAXIMUM BOUNCE**

The maximum depth of water from design high water level (open restrictor) to normal water level, or outlet invert shall be four feet (4').

**406.0 DETENTION STORAGE REQUIREMENTS**

Storage facilities shall be designed and constructed with the following characteristics:

1. The site runoff storage facility shall provide 1 (one) foot of freeboard above the design high water elevation.
2. The storage facilities shall be accessible and easily maintained. The top width of berm shall be a minimum of 5' but shall be increased to a minimum of 10' within the access route to the outlet control structure.
3. Storage facilities shall facilitate sedimentation and catchment of floating material. Unless specifically approved by the City, concrete lined low-flow ditches shall not be used in detention basins.
4. Storage facilities shall be designed such that the existing conditions pre-development peak runoff rate from the 100-year, critical duration rainfall will not be exceeded assuming the primary restrictor is blocked.

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5. The design storage to be provided in a detention basin shall be based on the peak runoff from the 100-year storm event determined through a critical duration analysis. Detention storage shall be computed using hydrograph methods as described in this section.
6. The function of existing on-site depressional storage shall be preserved or compensated for at a ratio of 1 to 1 independently of storage required for the development.
7. All site runoff storage volume shall be provided above the seasonal high groundwater table or above the invert of the groundwater control system.
8. Stormwater management basins shall have a maximum drawdown time of 72 hours for a 24-hour duration rainfall event with 100-year recurrence frequency.

**406.1 Inlet and Outlet Orientation**

To the extent feasible, the distance between detention inlets and outlets shall be maximized. If possible, they should be at opposite ends of the basin. There shall be no low flow bypass between the inlet and outlet and paved low flow channels shall not be used unless specifically approved by the City.

Maximizing the distance between inlets and outlets will prevent the short-circuiting of flows through a basin. Short-circuiting is counterproductive to the removal of stormwater pollutants. Short-circuiting can be avoided by designing elongated basins (ideal length: width ratio of at least 3:1), or by the use of baffles or berms in the basin bottom. Because low flows and the "first flush" of storm runoff often contain the most concentrated pollutants, it is critical that all flows be routed through a sedimentation basin to provide opportunities for effective pollutant removal. (See NIPC Model Stormwater Drainage & Detention Ordinance Pages 11 - 24.)

**406.2 Minimum Detention Outlet Size**

Where a single pipe outlet or orifice plate is to be used to control discharge, it shall have a minimum diameter of twelve inches (12"). If this minimum orifice size permits release rates greater than those specified in this section, and regional detention is not a practical alternative, alternative outlet design shall be utilized that incorporates self-cleaning flow restrictors.

**406.3 Detention Area Retaining Walls**

The use of retaining walls as part of any detention system shall be discouraged. However, as a design entrance feature or within commercial areas they may be considered by the City Council subject to the following criteria which must be clearly documented in any request for a detention area retaining wall:

1. Public Safety Provisions
2. Architectural Features
3. Habitat Features
4. Maintenance plan/funding provisions
5. Maximum height of four feet (4') above HWL
6. Any wall shall be designed and sealed by an Illinois Structural Engineer

#### **406.4 Setback from public right of ways**

Detention facilities shall not be located within a distance of ten feet (10') plus one and one-half (1.5) times the depth of the detention facility from any public right-of-way and any earthen berm shall not be constructed such that the toe of such berm will be nearer than ten feet (10') to any public right-of-way in accordance with Public Act 86-616.

#### **407.0 DRAINAGE SYSTEM EVALUATION AND DESIGN**

The following criteria shall be used in evaluating and designing the drainage system. The underlying objective is to provide capacity to pass the 10-year peak flow in the minor drainage system and an overland flow path for flows in excess of the design capacity to at least the 100-year storm event runoff.

##### **407.1 Detention System Design Selection**

Selection of the detention system design shall be based on the following hierarchy:

1. Bio-Infiltration
2. Wetland Detention Basin
3. Wet-Bottom Retention
4. Dry Detention
5. Underground Detention (commercial only)
6. Parking Lot Detention (commercial only)

The applicant shall first thoroughly investigate the first two preferred detention system designs (bio-infiltration followed by wetland detention). If these designs are found to be impractical, the applicant may then investigate the next detention system alternate. Underground and parking lot detention systems will only be considered for commercial uses. All systems shall include an infiltration component in accordance with Section 416.0.

##### **407.2 Design Methodologies**

1. Minor drainage systems may be designed using Rational Method provided that the tributary area is 20 acres or less.
2. For all properties, major drainage systems must be designed using runoff hydrograph methods as described in Section 408.0.
3. All detention basins must be designed using runoff hydrograph methods as described in Section 408.0.

##### **407.3 Drainage System Design and Evaluation**

Storm sewers shall be designed to convey the 10-year storm in a full pipe (non-surcharged) condition at a minimum. Inlets shall have capacity to allow the inflow of the 10-year storm with no more than three (3) inches of ponding with 50% of the opening blocked. Storm sewer in public right-of-way shall be reinforced concrete pipe conforming to ASTM C76 with gasketed

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joints confirming to ASTM C443 with sufficient cover per IDOT specifications. Swales shall be designed to carry the 10-year storm without encroachment onto the shoulder of the road.

**407.4 Positive Drainage**

1. All areas of the property must be provided an overland flow path that will pass the 100-year flow from onsite and offsite tributary area at a stage at least 2 feet below the lowest structure opening of structures hydraulically connected to the flow path.
2. Overland flow routes up to the 100-year flow level shall be placed in exclusive drainage easements.
3. Street ponding and flow depths shall not exceed curb height by more than one inch (1") in the 100-year, plugged inlet condition.
4. Rear yard ponding must not exceed six inches (6") in the 100-year, plugged inlet condition.
5. An exhibit showing the extent of ponding in a 100-year, plugged inlet event shall be provided as part of the storm water design calculations.
6. If the upstream drainage area is less than 20 acres, a storm sewer system and inlets sized for the base flood can be constructed in lieu of providing an overland flow path. Such storm sewer systems shall be considered part of the major stormwater system.
7. When the 100-year flow path is to be contained within a closed conduit system, inlets to that system shall be designed for 50% of the inlet flow area blocked.
8. Overland flow paths internal to the site shall be considered part of the major stormwater system and shall be designed for conveyance of the base flood (critical duration) or at a minimum one (1) cfs per tributary acre, without damage to structures.

**407.5 Runoff Characteristics**

1. In development areas, determination of ground surface runoff characteristics shall utilize soil types and hydrologic soil classifications one category lower (degraded) than those determined by the soils investigations.
2. Storm water runoff from a property must exit the property at the point where it exited prior to development.
3. Diversion or transfer of water between watersheds shall be prohibited.

**408.0 METHODS FOR GENERATING RUNOFF HYDROGRAPHS**

Methods used for generating runoff hydrographs shall be either an appropriate Corps of Engineers HEC model, Soil Conservation Service TR-20, or TR-55 tabular method. The City of Plano must approve alternative methods.

Runoff hydrographs shall be developed incorporating the following assumptions of rainfall amounts and antecedent moisture.

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**408.1 Rainfall**

1. Unless a continuous simulation approach to drainage system hydrology is used, all design rainfall events shall be based on the Illinois State Water Survey's Bulletin 71 data and isohyetal or sectional data.
2. The first quartile point rainfall distribution shall be used for the design and analysis of drainage systems with critical durations less than or equal to 12 hours.
3. The third quartile point rainfall distribution shall be used for the design and analysis of detention basins and drainage systems with critical durations greater than 12 and less than or equal to 24 hours.
4. The fourth quartile distribution shall be used in the design and analysis of systems with durations greater than 24 hours.
5. The first, third, and fourth quartile distributions shall be as described by Huff Bulletin 71.
6. The SCS Type II distribution may be used as an alternate to the Huff distributions for use in TR-55 models.

**408.2 Antecedent Moisture**

Computations of runoff hydrographs that do not rely on a continuous accounting of antecedent moisture conditions shall assume an antecedent moisture condition of two.

**409.0 WET DETENTION BASIN DESIGN**

Wet detention basins shall be designed to remove stormwater pollutants, to be safe, to be aesthetically pleasing, and as much as feasible to be available for recreational use. Refer to Section 417.0 for additional requirements. A pre-sedimentation basin, inlet/outlet orientation to avoid short-circuiting, and a planting/safety ledge with shallow wetland vegetation to limit shoreline erosion are required elements.

**409.1 Wet Basin Depths**

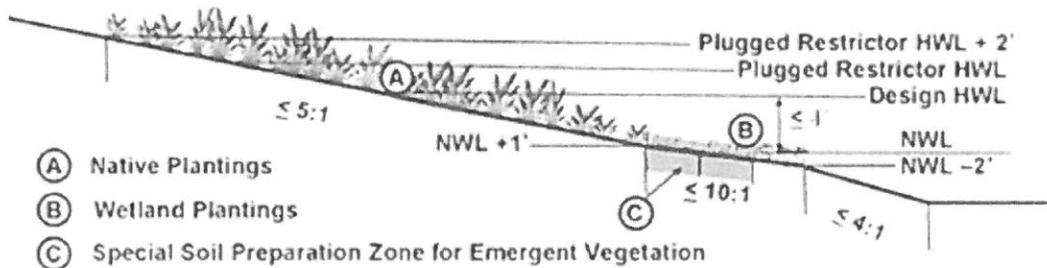
1. Wet basins shall be at least three feet deep, excluding near-shore banks and safety ledges.
2. If fish habitat is to be provided wet basins shall be at least ten feet deep over twenty five percent of the bottom area to prevent winter freeze-out.

**409.2 Wet Basin Shoreline Slopes**

1. Wet basins shall be provided with stabilized shorelines.
2. Upper slopes of detention basins (higher than one foot above normal stage) should be no steeper than 5:1. Slopes flatter than 5:1 are preferred.
3. From one foot above a normal stage to two feet (2') below normal stage the slopes shall be no steeper than 10:1. Below 2' below NWL the slopes shall be no steeper than 4:1.

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4. Appropriate soil conditions shall be provided in the shoreline zone from one foot above the normal pool stage to at least one foot below the normal pool stage.
5. First, compaction of both subsoil and topsoil shall be minimized (i.e., to less than 275 psi). Where subsoil compaction cannot be avoided, it should be disked to a depth of 6-8 inches with a chisel plow before spreading topsoil.
6. Second, suitable, uncompacted topsoil at a minimum thickness of one foot, shall be spread to provide a suitable growth medium for aquatic plants. Coarse soils with minimal clay content and a high organic content are recommended.



**Typical Detention Pond**

**409.3 Shoreline Vegetation**

A planting and maintenance schedule shall be provided to the City for review and approval. Methods for stabilization such as deep-rooted vegetation, natural stone, or manufactured products shall be used as approved by the City. Water tolerant native vegetation shall be used to landscape the shorelines of wet detention facilities. The selected plants and planting methods shall conform to the soils, hydrology, and water quality condition present in such facilities, with plants being tolerant of highly variable hydrologic conditions and degraded water quality (e.g., high turbidity and salinity content). A critical consideration in site preparation is the provision of an adequate growing medium for new plants. Construction of stormwater facilities typically requires excessive grading, causing resultant soils to become highly disturbed and unsuitable for planting. The planning and sequencing of construction activity shall minimize the negative impacts on soils and provide means for restoring soils following construction.

**409.4 Pool Volume and Elevation**

1. The permanent pool volume in a wet basin at normal depth shall be equal to the runoff volume from its watershed for the two-year critical duration storm event.
2. The peak 100-year pool elevation shall be at least two feet below the lowest structure opening of all structures hydraulically connected to the detention basin.

#### **410.0 WETLAND AND DRY DETENTION BASIN DESIGN**

In addition to the other requirements of this ordinance, wetland and dry basins shall be designed to remove stormwater pollutants, to be safe, to be aesthetically pleasing and, as much as feasible, to be available for multiple uses.

##### **410.1 Dry Basin Drainage**

1. Dry basins shall be designed so that the portion of their bottom area that is intended to be dry shall have standing water no longer than seventy-two hours for any runoff event less than or equal to the 100-year event. Underdrains may be used to meet this requirement. Low flow channels are prohibited. Paved low flow channels shall not be used unless specifically approved by the City.
2. Dry bottom ponds shall have a minimum slope of 2% and maximum sides slope of 4:1. However, infiltration trenches, wetland channels with soil stabilization fabric, or other permanent erosion and silt control measures are required.
3. Direct connections of detention basin inlets to basin outlets are prohibited.
4. The dry portion of the basin may be planted with either native, deep-rooted vegetation to promote infiltration or with turf grasses.
5. The peak 100-year detention elevation shall not be greater than 4 feet above the bottom of the outlet. If turf grasses are proposed, the basin depth from outlet to high water level shall not exceed 2 feet.
6. A planting and maintenance schedule shall be provided to the City for review and approval.
7. The peak 100-year detention elevation shall be at least two feet below the lowest structure opening for all structures hydraulically connected to the detention pond.

##### **410.2 Velocity Dissipation**

1. Velocity dissipation measures shall be incorporated into dry basin designs to minimize erosion at inlets and outlets and to minimize the re-suspension of pollutants and sediments.
2. A stilling basin shall be provided at each major inlet.

##### **410.3 Wetland Basin Grading**

1. The side slopes of wetland basins (from one foot above the normal pool stage to at least one foot below the normal pool stage) and the basin bottom shall not be steeper than 10 to 1 (horizontal to vertical). Steeper slopes are permitted in settling basins and open water zones near the basin outlet.

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2. Appropriate soil conditions shall be provided in the shoreline zone and basin bottom. As indicated in the guidance for wet basins, soil preparation is critical in shoreline and shallow water zones.
3. First, compaction of both subsoil and topsoil shall be minimized (i.e., to less than 275 psi). Where subsoil compaction cannot be avoided, it should be disked to a depth of 6-8 inches with a chisel plow before spreading topsoil.
4. Second, suitable uncompacted topsoil at a minimum thickness of one foot (1') shall be spread to provide a suitable growth medium for aquatic plants. Coarse soils with minimal clay content and a high organic content are recommended.
5. Upper slopes of detention basins (higher than one foot (1') above normal stage) should be no steeper than 5:1. Slopes flatter than 5:1 are preferred.

**410.4 Wetland Vegetation**

Water tolerant native vegetation shall be used to landscape the shorelines and bottoms (non-open water areas) of wetland detention facilities. The selected plants and planting methods shall conform to the soils, hydrology, and water quality conditions present in such facilities, with plants being tolerant of highly variable hydrologic conditions and degraded water quality (e.g., high turbidity and salinity content). Plant selection should conform to the guidance in the *Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois* (NRCS et al, 1998), which is hereby adopted by reference.

Native vegetation is required for side slopes (higher than one foot above normal stage) of all wet and wetland detention facilities to a point two vertical feet (2') above the high water level during the plugged restrictor condition.

**410.5 Stilling/Sedimentation Basins**

Wetland detention basins shall be constructed with sediment basins or forebays at all major inlets to the basins. The volume of the basins should be at least 500 cubic feet per acre of impervious surface in the drainage area. Side slopes below one foot (1') of depth should be no steeper than 5 to 1 (horizontal to vertical) and basin depth should be at least three feet (3') and designed to allow access for sediment removal equipment.

**411.0 DETENTION IN FLOODPLAINS**

The placement of detention basins within the floodplain is strongly discouraged because of questions about their reliable operation during flood events. However, the stormwater detention requirements of this ordinance may be fulfilled by providing detention storage within flood fringe areas on the project site provided the following provisions are met.

**411.1 Detention in Flood Fringe Areas**

1. The placement of a detention basin in a flood fringe area shall require compensatory storage for 1.5 times the volume below the base flood elevation occupied by the detention basin including any berms. Along watercourses with known flooding problems, the City

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may, at its discretion, require compensatory storage in excess of 1.5 times the volume occupied.

2. The release from the detention storage provided shall still be controlled consistent with the requirements of this ordinance.
3. The applicant shall demonstrate its operation for all stream flow and floodplain backwater conditions.
4. Excavations for compensatory storage along watercourses shall be opposite or adjacent to the area occupied by detention.
5. All floodplain storage lost below the ten-year flood elevation shall be replaced below the ten-year flood elevation. All floodplain storage lost above the existing ten-year flood elevation shall be replaced above the proposed ten-year flood elevation.
6. All compensatory storage excavations shall be constructed to drain freely and openly to the water course.

**411.2 Detention in Floodways**

Detention in floodways is prohibited.

**411.3 On-Stream Detention:**

On-Stream detention basins are prohibited on any perennial stream unless part of a public flood control project with a net watershed benefit in flood control. Those streams appearing as solid blue on a USGS Quadrangle map shall be assumed perennial unless better data is obtained. All cross-stream flow control structures for the purpose of impounding water to provide site runoff storage in all cases on perennial and intermittent streams must demonstrate that they will not cause short term or long-term stream channel instability.

**412.0 PROTECTION OF WETLANDS AND DEPRESSIONAL STORAGE AREAS**

Wetlands and other depressional storage areas shall be protected from damaging modifications and adverse changes in runoff quality and quantity associated with land developments. The function of existing on-site depressional storage shall be preserved for both on-site and off-site tributary flows in addition to required detention. In addition to the other requirements of this ordinance, the following requirements shall be met for all developments whose drainage flows into wetlands and depressional storage areas:

**412.1 Detention in Wetlands and Depressional Storage Areas**

1. When depressional storage is removed it must be compensated for in the site runoff storage facility at no less than a 1 to 1 ratio. This requirement is in addition to the site runoff storage required in this Ordinance.
2. The City may allow the function of depressional storage to be preserved if the applicant performs detailed pre- and post-project hydrologic and hydraulic modeling to identify the effect of the depressional storage on discharges over a range of rainfall frequencies.

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3. Existing wetlands shall not be modified for the purposes of storm water detention unless it is demonstrated that the existing wetland is low in quality and the proposed modifications will maintain or improve its habitat and ability to perform beneficial functions.
  - a. Low quality wetlands are those that have been substantially disturbed. This disturbance is usually reflected in a low diversity of habitat and the presence of only insensitive and/or invasive plant species (e.g., a monoculture of cattails). Certain modifications of low quality wetlands, such as the limited excavation of open water areas, may actually enhance their value. It is important, however, that the storage functions of wetlands and depressional storage areas be preserved, in addition to meeting the detention requirements of this Ordinance.
4. Existing storage and release rate characteristics of wetlands and other depressional storage areas shall be maintained and the volume of detention storage provided to meet the requirements of this section shall be in addition to this existing storage.

**412.2 Sediment Control**

The existing wetland shall be protected during construction by appropriate soil erosion and sediment control measures and shall not be filled.

**412.3 Alteration of Drainage Patterns**

Site drainage patterns shall not be altered to substantially decrease or increase the existing area tributary to the wetland.

**412.4 Detention/Sedimentation**

All runoff from the development shall be routed through a preliminary detention/sedimentation basin designed to capture the two-year, 24-hour event and hold it for at least twenty-four (24) hours before being discharged to the wetland. This basin shall be constructed before property grading begins. In addition, the following drainage hierarchy should be implemented to minimize runoff volumes and rates being discharged to the wetland.

**412.5 Vegetated Buffer Strip**

A vegetated buffer strip of at least twenty-five feet (25') in width, containing native plant species, shall be maintained or restored around the periphery of existing or constructed wetlands which are not defined as wetland detention areas.

**413.0 SUBSURFACE DRAINAGE (DRAIN TILES)**

The applicant shall submit a subsurface drainage inventory. The inventory shall locate existing farm and storm drainage tiles by means of slit trenching and other appropriate methods performed by a qualified subsurface drainage consultant. All existing drain tile lines damaged during the investigation shall be repaired and functional.

### **413.1 Drain Tile Investigation**

The applicant shall provide a topographical boundary map locating these lines showing:

1. Location of each slit trench and identified to correspond with the tile investigation report and field staked at no less than 50 foot intervals;
2. Location of each drain tile with a flow direction arrow, tile size and any connection to adjoining properties; a summary of the tile investigation report showing trench identification number, tile size, material and quality, percentage of the tile filled with water, percentage of restrictions caused by sitting, depth of ground cover, and soil texture at grade; and
3. Name, address and phone number of person or firm conducting tile location investigation.

### **413.2 Subsurface Drainage Design**

Information collected during the drainage investigation shall be used to design and develop a stormwater management system that will provide drainage that is appropriate for the development and connecting tile lines on adjoining properties.

Stormwater systems shall properly incorporate and be compatible with existing subsurface and surface drainage systems including agricultural systems. Designs shall not cause damage to the existing drainage system(s) or the existing adjacent or tributary land including those with agricultural uses. The following principles and requirements shall be observed in the design:

1. Off-Site Outfall: Existing downstream agricultural subsurface systems shall not be utilized for the outfall of any stormwater system. Existing downstream surface drainage systems shall be evaluated with regard to their capacity and capability to properly convey low flow groundwater and site runoff storage facility release without damage to downstream structures and land use on the adjacent property. If the existing outfall drainage systems prove to be inadequate it will be necessary to modify the existing systems or construct new systems which will not conflict with the existing systems and will not impact the existing agricultural land use.
2. On-Site: Agricultural drainage systems shall be located and evaluated on-site. All existing on-site agricultural drain tile not serving a beneficial use shall be abandoned by trench removal prior to other development and recorded on record plans. If any existing drain tiles continue to upland watersheds the developer must maintain drainage service during construction until new sewers can be installed for a permanent connection.
3. Off-Site Tributary: Existing drainage systems shall be evaluated with regard to existing capabilities and reasonable future expansion capacities. All existing tributary drain tiles shall be incorporated into the new conduits including observation structures located at the property limits, shall provide a free flow discharge and shall not allow surface runoff to enter the system.

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4. New roadway construction shall preserve existing sub-surface systems within the right-of-way. Inspection wells shall be placed at the right-of-way (ROW) and tiles found to not be flowing between inspection wells at the end of the construction shall be replaced.
5. Existing subsurface drains shall be excavated and removed to a point not less than ten feet (10') from any proposed structure within the development prior to the excavation of any foundation, or as a component of mass site grading, whichever is earlier and applicable to the proposed development.

**414.0 EXTENDED DETENTION BASINS**

The requirements of this section will apply only when an existing agricultural land use is downstream of and adjacent to a site runoff storage facility outlet.

**414.1 Extended Detention Requirements**

1. The runoff from not less than a 0.75-inch rainfall event over the hydraulically connected impervious area of the new development shall be stored below the elevation of the primary gravity outlet (extended detention) of the site runoff storage facility.
2. The facility may be designed to allow for evapotranspiration or infiltration of this volume and shall not be conveyed through a direct positive connection to downstream areas.
3. The hydraulically connected impervious area used in the calculation of required extended detention volume may be reduced by the City if the soils are prepared to maximize infiltration and deep rooted grasses or other plants selected for their ability to promote infiltration or water absorption are planted in areas appropriately dedicated.
4. The reduction in hydraulically connected impervious area used in the calculation shall be equal to the area of the development meeting the above soils/native planting requirement.

**414.2 Subsurface Drainage for Extended Detention Basins**

Subsurface drainage systems may be designed as a component of the extended detention portion of the detention basin to assist in infiltration in accordance with the following criteria:

1. The extended detention volume shall be discharged at a rate no greater than that required to empty the calculated extended detention volume within 5 days of the storm event.
2. No subsurface drainage pipe shall be located within ten feet (10') of drainage pipes directly connected to the detention basin.
3. For purposes of meeting the maximum subsurface drainage discharge requirements, flow control orifices and weirs may be used.
4. All design extended detention volume shall be provided above the seasonal high ground water table or the invert elevation of the groundwater control system.
5. Farm field tile shall not be considered a subsurface drainage system.

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6. Design infiltration from extended detention facilities will be counted toward meeting the infiltration requirements for the site.

**415.0 STREET, PARKING LOT, CULVERT, AND PROPERTY DRAINAGE**

This section sets requirements where streets, parking lots, and culverts are proposed to be used for stormwater detention or conveyance.

**415.1 Streets**

1. If streets are to be used as part of the minor drainage system, a maximum 3 feet of spread onto the traveled roadway may be allowed and inlet spacing must be sufficient to collect the entire street runoff based on a 10-year storm event.
2. Street ponding and flow depths shall not exceed curb height by more than one inch (1") in the 100-year, plugged inlet condition.
3. If streets are to be used as part of the major drainage system, (100 year overland flow route), ponding depths shall not exceed curb height by more than one inch (1") in the 100-year condition and shall not remain flooded for more than eight (8) hours for any event less than or equal to the 100-year event.
4. An exhibit showing the extent of ponding in a 100-year, plugged inlet event shall be provided as part of the stormwater design calculations.

**415.2 Parking Lots**

1. The use of parking lots to provide stormwater detention will be limited by the storage volume and detention time requirements of this Ordinance.
2. As parking lot detention provides little or no water quality benefits, it is, therefore, discouraged as a primary source of detention. However, parking lot storage may be useful in providing supplementary storage for a traditional detention basin.
3. The parking lot may be located at a higher elevation than the detention basin bottom and would only store water for more extreme events (e.g., greater than a 10 year recurrence interval).
4. Where allowed, parking lot detention shall be accompanied by measures to promote water quality.
5. Release from parking lot detention systems shall be directed through sedimentation basins, vegetated swales, or buffer strips.
6. An exhibit showing the extent of ponding in a 100-year, plugged inlet event shall be provided as part of the stormwater design calculations.
7. The maximum storm water ponding depth in any parking area shall not exceed six inches (6") in a plugged inlet condition.
8. The maximum duration of ponding in any parking area shall not exceed eight hours

### **415.3 Underground Detention**

Use of underground detention shall be reviewed and approved on a case by case basis. Underground detention systems shall provide for easy access and low maintenance. Design of underground facilities shall include measures to collect sediment and floatable debris, designed with regards to access and maintenance. 50% of the void space in an aggregate base(voids are typically 30-33% of the base volume) shall be allowed as detention volume provided that approved infiltration calculations reveal that the 2 year-24 hour storm will be fully infiltrated with 24 hours. All designs of underground facilities shall be signed and sealed by an Illinois licensed Structural Engineer.

### **415.4 Culvert Road and Driveway Crossings**

1. All culverts, including driveway culverts, shall be sized to convey the minor drainage system using Federal Highway Administration culvert nomographs or more sophisticated backwater models.
2. Sizing of culvert crossings shall consider entrance and exit losses as well as tail water conditions on the culvert.

### **415.5 Property Drainage**

Drainage from a property within a development for which a stormwater management plan exists shall not cross property lines, except under the following conditions and restrictions:

1. The drainage is contained within a drainage easement.
2. The drainage is consistent with the approved overall grading plan of the development.
3. Any downspout or sump pump discharge line must outlet:
  - a. At least two feet from the foundation of the structure being drained,
  - b. At least two feet from any adjacent property line,
  - c. Perpendicular to any adjacent property line and/or along the flow line of the drainage easement.

### **416.0 INFILTRATION PRACTICES**

1. To effectively reduce runoff volumes, infiltration practices should be located on soils in hydrologic soil groups "A" or "B" as designated by the U.S. Soil Conservation Service.
2. Sites should be designed to maximize the use of vegetated filter strips and swales.
3. Wherever practicable, runoff from impervious surfaces should be directed onto filter strips and swales before being routed to a storm sewer or detention basin.
4. Infiltration basins and trenches designed to recharge groundwater shall not be located within seventy-five feet of a water supply well or a building foundation. For well drained sand and gravel soils this separation shall be extended to 100 feet.

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5. A sediment settling basin shall be provided to remove coarse sediment from stormwater flows before they reach infiltration basins or trenches.
6. Stormwater shall not be allowed to stand more than seventy-two hours over eighty percent of a dry basin's bottom area for the maximum design event to be ex-filtrated.
7. The bottom of infiltration facilities shall be a minimum of four feet above seasonally high groundwater and bedrock.
8. Reference the Illinois Urban Drainage Manual for determining feasibility and sizing of infiltration facilities.

**416.1 Applicability**

BMPs shall be designed, installed and maintained to infiltrate runoff to the maximum extent practicable in accordance with the following, except for:

1. Storage and loading areas from industrial properties, although rooftops and parking areas shall be infiltrated.
2. Fueling and vehicle maintenance areas.
3. Areas with less than two feet (2') separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock.
4. Areas with runoff from industrial, commercial and institutional parking lots and roads and residential arterial roads with less than four feet (4') separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock.
5. Areas within four-hundred feet (400') of a community water system well or within one-hundred feet (100') of a private well except for residential infiltration devices capturing less than one (1) acre of tributary acreage.
6. Any area where the soil does not exhibit one of the following characteristics between the bottom of the infiltration system and the seasonal high groundwater and top of bedrock:
  - a. At least a 2-foot soil layer with 20% fines or greater; or
  - b. At least a 4-foot soil layer with 10% fines or greater.

This exclusion does not apply where the soil medium within the infiltration system provides an equivalent level of protection and does not prohibit infiltration of roof runoff.

**416.2 Exemptions**

The following are not required to meet the requirements of this section:

1. Areas where the infiltration rate of the soil is less than 0.4 inches/hour measured at the bottom of the infiltration system.

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2. Parking areas and access roads less than 5,000 square feet for commercial and industrial development.
3. Roads in commercial, industrial and institutional land uses and arterial residential roads.

**416.3 Residential Requirements**

For residential developments one of the following shall be met:

1. Infiltrate sufficient runoff volume so that the post development infiltration volume shall be at least 90% of the predevelopment infiltration volume, based on an average annual rainfall.

However, when designing appropriate infiltration systems to meet this requirement, no more than 1% of the project site is required as an effective infiltration area.

2. Infiltrate 25% of the post development runoff volume from the 2-year, 24-hour design storm with a Type II distribution.
3. Separate curve numbers for pervious and impervious surfaces shall be used to calculate runoff volumes and not composite curve numbers as defined in TR-55. However, when designing appropriate infiltration systems to meet this requirement, no more than 1% of the project site is required as an effective infiltration area.
4. Design infiltration from extended detention facilities will be counted toward meeting the infiltration requirements for the site.

**416.4 Nonresidential Requirements**

For nonresidential development, including commercial, industrial and institutional development, one of the following shall be met:

1. Infiltrate sufficient runoff volume from rooftop and parking areas so that the post development infiltration volume shall be at least 60% of the predevelopment infiltration volume, based on an average annual rainfall over those areas.

However, when designing appropriate infiltration systems to meet this requirement, no more than 2% of the project site is required as an effective infiltration area.

2. Infiltrate 10% of the post development runoff volume from rooftop and parking areas for the 2-year, 24-hour design storm with a Type II distribution.
3. Separate curve numbers for pervious and impervious surfaces shall be used to calculate runoff volumes and not composite curve numbers as defined in TR-55.

However, when designing appropriate infiltration systems to meet this requirement, no more than 2% of the project site is required as an effective infiltration area.

4. Pretreatment: Before infiltrating runoff, pretreatment shall be required for parking lot runoff and for runoff from new road construction in commercial, industrial and

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institutional areas that will enter an infiltration system. The pretreatment shall be designed to protect the infiltration system from clogging prior to scheduled maintenance and to protect groundwater quality. Pretreatment options may include, but are not limited to, oil/grease separation, sedimentation, bio-infiltration, filtration, swales and/or filter strips.

5. Design infiltration from extended detention facilities will be counted toward meeting the infiltration requirements for the site.

**416.5 Soils**

To effectively reduce runoff volumes, infiltration practices including basins, trenches, and porous pavement should be located on soils in hydrologic soil groups "A" or "B" as designated by the U.S. Soil and Water Conservation District when present within the project area. A sediment settling basin shall be provided to remove coarse sediment from stormwater flows before they reach infiltration basins or trenches.

**416.6 Bypass During Construction**

While under construction, and prior to the establishment of permanent soil stabilization practices, an upstream stormwater bypass system shall be constructed and maintained to prevent siltation and plugging of infiltration BMPs. During this period, temporary stormwater controls shall be in place to prevent peak discharges in excess of those permitted of this Ordinance.

**416.7 Vegetated Filter Strips and Swales**

To effectively filter stormwater pollutants and promote infiltration of runoff, sites should be designed to maximize the use of vegetated filter strips and swales. Runoff from impervious surfaces should be directed onto filter strips and swales before being routed to a storm sewer or detention basin. Native vegetation should be used for landscaping of filter strips and swales.

**417.0 SAFETY CONSIDERATIONS**

1. The drainage system components, especially all detention basins, shall be designed to protect the safety of any children or adults coming in contact with the system during runoff events.
2. The use of restrictive fences shall be kept to a minimum and used only as a last resort when no other method is feasible.

**417.1 Side Slopes**

1. The side slopes of detention basins at 100-year capacity shall be as level as practicable to prevent accidental falls into the basin and for stability and ease of maintenance. The side slopes of all detention basins at one hundred year capacity shall be a maximum six to one (horizontal to vertical).
2. Side slopes of detention basins and open channels shall not be steeper than 5:1 (horizontal to vertical) above water, and 4:1 underwater.

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3. At least one foot (1') of freeboard should be provided around the perimeter of the detention area.

**417.2 Safety Ledge**

All wet detention basins shall have a level safety ledge at least eight feet in width a maximum of two feet below the normal water depth.

**417.3 Velocity**

With the exception of existing drainageways being left undisturbed, velocities throughout the surface drainage system shall be controlled to safe levels taking into consideration rates and depths of flow. Velocities shall not exceed the product of velocity, in feet per second, times depth, in feet, equal to four.

**417.4 Overflow Structures**

1. All stormwater detention basins shall be provided with an overflow structure capable of safely passing excess flows at a stage at least 2 feet below the lowest structure opening for all structures hydraulically connected to the detention basin.
2. The design flow rate of the overflow structure shall be designed such that the existing conditions pre-development peak runoff rate from the 100-year, critical duration rainfall will not be exceeded assuming the primary restrictor is blocked.
3. All detention ponds and overflow structures shall comply with IDNR Dam Safety requirements where applicable.

**417.5 Inlet/Outlet Pipe Protection**

The inlet and outlet pipes from all stormwater basins shall be designed to minimize the velocity of flow as it enters and exits the basin. Inlet and outlet pipes shall be supplied with sloped grating per IDOT Standards.

**418.0 MAINTENANCE CONSIDERATIONS**

1. The stormwater drainage system shall be designed to minimize and facilitate maintenance.
2. Outlet control structures shall be designed as simply as possible and shall require little or no attention for proper operation. Moveable restrictors to meet draw down times are prohibited.
3. Turfed side slopes shall be designed to allow lawn mowing equipment to easily negotiate them.
4. Wet basins shall be provided with alternate outflows that can be used to completely drain the pool for sediment removal. (Pumping may be considered if drainage by gravity is not feasible.)

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5. Pre-sedimentation basins shall be included, where feasible, for localizing sediment deposition and removal.
6. Access for heavy equipment shall be provided and located within an ingress and egress or maintenance easement.
7. On detention basin side slopes steeper than 5:1, excelsior blankets or similar erosion devices shall be used during construction to minimize erosion.
8. Long term maintenance also shall include the routine removal of excessive trash or debris and the removal of obstructions from the basin outlet structure.
9. Periodic removal of accumulated sediment (e.g., from swales, forebays, and settling basins) also shall be done to maintain the function and aesthetics of stormwater facilities. At a minimum, sediment shall be removed from forebays and sediment basins whenever one foot (1') or more of sediment has accumulated in the basin bottom.
10. Naturally landscaped areas of detention and drainage facilities may be maintained via controlled burning every one to three years, as needed to control invasive weeds. Where controlled burning is not feasible, a program of mowing and application of selective herbicides shall be performed as needed.
11. Mowing should be performed on all turfed areas on a regular basis to maintain grass height below six inches (6").

**419.0 NATURAL CONDITION, SOILS**

The recommendations of the Kendall County Soil Manual must be followed with respect to the land plan and construction details of proposed subdivisions. Soil borings must be made to confirm the soils map information included in the USDA, NRCS Soil Survey of Kendall County, Illinois. Representative soil borings must be taken to a depth at least five feet (5') below the lowest proposed foundation, two feet (2') below the lowest proposed sewer, or the point of refusal. At least one boring must be made per ten acres (10) or more if necessary to confirm the Soil Survey.

**420.0 RECORD DRAWINGS**

The developer is required to submit record drawings of all permitted stormwater management facilities including but not limited to storm sewers, culverts, overland flow paths and stormwater management basins. The record drawings shall include the following:

- a. The Record Drawings shall be in the same format and include the same sheet count as the approved permitted engineering plans. Supplemental topographic plans may be added to better detail stormwater management basins or overland flow paths. Submittal of Record drawings shall be on such media and in such format as the Certified Community determines.
- b. All storm sewers and culverts shall depict actual location and elevation of all pipe inverts

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at all manholes and end sections. Rim elevation of all storm sewer frames and grates shall be noted. Pipe material and size shall be noted. All sump pump locations and connections shall be noted.

- c. All pipe slopes shall be calculated based on constructed elevations and lengths. The approved slope shall be crossed out and the record slope noted adjacent to the approved slope.
- d. All design cross sections shall be surveyed and record elevation and widths noted. Overland flow path slopes shall be surveyed and record elevation and locations noted. Design water surface elevations shall be calculated where cross section area or slope is less than the approved plan.
- e. Stormwater management basins and floodplain compensatory storage shall be surveyed and a one foot topographic map provided. The flow control structure shall indicate type, size and elevation of the control device. Overflow measures such as control weirs, etc, shall be surveyed noting material, location, width and elevation. The record drawings shall include calculations verifying that the volumes of detention and compensatory storage required in the permit have been provided. The calculations shall compare proposed to actual volumes at one foot elevation intervals.
- f. The plans shall be signed and sealed by a Professional Engineer who shall state that the project is constructed and will function in substantially conformance and with the approved and permitted plans and calculations.
- g. The plans shall identify the entity with current maintenance responsibility and the entity with future maintenance responsibility for stormwater management facilities including but not limited to:
  - 1. Stormwater Management Basins
  - 2. Storm Sewers
  - 3. Drainage Ditches
  - 4. Overland Flood Routes
  - 5. Wetlands and Natural Areas

The plans shall identify a schedule for transfer of maintenance responsibility and the status of funding for maintenance activities.

**DIVISION 5**  
**FLOWS FROM UPSTREAM TRIBUTARY AREAS**

**500.0 FLOWS FROM UPSTREAM TRIBUTARY AREAS**

Stormwater runoff from areas tributary to the property shall be considered in the design of the property's drainage system. Whenever practicable, flows from upstream areas that are not to be detained should be routed around the basin being provided for the site being developed.

**501.0 UPSTREAM AREAS NOT MEETING ORDINANCE REQUIREMENTS**

When upstream property tributary to the applicant's property does not meet the stormwater runoff storage and release requirements of this ordinance, regionalized detention on the applicant's property shall be explored by the applicant. The following steps shall be followed.

1. The applicant shall compute the storage volume needed for his property based on the applicant's property area and the release rates and procedures described in Division 4.
2. Areas tributary to the applicant's property, not meeting the storage and release rate requirements of this ordinance, shall be identified.
3. The applicant shall compute the storage volume needed for the areas determined in 501.2 above plus the applicant's property area based on the combined properties and the release rates and procedures described in Division 4.
4. If the tributary areas are not currently developed, a reasonable fully developed land cover, based on anticipated zoning, shall be assumed for the purposes of computing storage.
5. Once the necessary combined storage is computed, the City may choose to pay for increasing the size of the applicant's detention basin to accommodate the regional flows. The applicant's responsibility will then be limited to the storage for his property as computed in 501.1 above.
6. If regional storage is selected by the City then the design produced in 501.3 above shall be implemented.
7. If regional storage is rejected by the City the applicant shall bypass all tributary area flows around the applicant's basin whenever practicable as determined by the City.
8. If the City determines that the applicant may route upstream flows through his basin, the applicant must comply with the requirements of 502.3 and 502.4.
9. If the upstream areas being routed through the applicant's basin are conveyed by drainageways identified on USGS mapping, the applicant must meet the provisions of Section 411.3 for on-stream basins.

**502.0 UPSTREAM AREAS MEETING ORDINANCE REQUIREMENTS**

When upstream property tributary to the applicant's property meets the storage and release requirements of this ordinance, the upstream flows shall be handled in the following hierarchy:

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**Stormwater Management Ordinance Flows From Upstream Tributary Areas**

1. Upstream flows shall be bypassed around the applicant's detention basin, unless the applicant justifies to the City that bypassing of flows is not feasible.
2. Upstream flows shall be routed through the applicant's detention basin if the City determines that this is the only feasible alternative.
3. Storage needed for the applicant's property shall be computed as described in 501.1. However, if the City decides to route tributary area flows through an applicant's basin, the final design storm water releases shall be based on the combined total of the applicant's property plus tributary areas.

**DIVISION 6  
ADMINISTRATION**

## **600.0 ADMINISTRATION**

This division details the administration aspects of this ordinance, including scheduling and maintenance.

### **600.1 GENERAL SECURITY REQUIREMENTS**

1. As security to the City for the performance by the applicant to complete the construction of any and all stormwater facilities required by the Ordinance, to pay all costs, fees and charges due from the applicant pursuant to the permitting authorities of this Ordinance and to otherwise faithfully perform the applicant's/developer's undertakings pursuant to this Ordinance, the applicant shall post:
  - a. Construction Performance Security as provided in Section 600.2 of this Ordinance prior to issuance of a Permit; and
  - b. Sediment and Erosion Control Security as provided in Section 600.3 of this Ordinance, prior to issuance of a Permit if a sediment and erosion control plan is required pursuant this Ordinance.
  - c. Maintenance Security as provided in Section 600.4 of this Ordinance prior to acceptance of stormwater management facilities by any public or private entity.

Nothing contained herein shall prevent the applicant from submitting financial security that combines purposes set forth above so long as that security is for acceptable by the City.

2. The applicant/developer or their agent shall bear the full cost and responsibility of securing and maintaining the securities required by this Section.

### **600.2 PERFORMANCE SECURITY**

1. A Construction Performance Security shall be posted and shall include:
  - a. A schedule, agreed upon by the applicant/developer and the City, for the completion of the construction of any stormwater facilities required by the permit; and
  - b. An irrevocable letter of credit, or such other adequate security as the City may approve, in an amount equal to not less than one hundred ten percent (110%) of the estimated probable cost to complete the construction of any stormwater facilities required by the Permit, which estimated probable cost shall be prepared by a Registered Professional Engineer and shall be approved by the City; and
  - c. A statement signed by the applicant granting the City the right to draw on the security and the right to enter the development site to complete required work in the event that work is not completed according to the work schedule; and

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- d. A statement signed by the applicant that the applicant shall indemnify the City for any additional costs incurred attributable to the concurrent activities of or conflicts between the applicant's contractor and the City's remedial contractor at the site.
2. The security required by this Section shall be maintained and renewed by the applicant, and shall be held in escrow by the City until the conditions set forth in this Section or other applicable provisions are satisfied.
3. The City may approve periodic reductions in the letter of credit based on progress of construction. However, not more than 90% of the security provided for in this section may be released prior to approval of record drawings and final inspection.

**600.3 SEDIMENT AND EROSION CONTROL SECURITY**

1. If a sediment and erosion control plan is required pursuant to this Ordinance, then a Sediment and Erosion Control Security shall be required. Such a security shall include:
  - a. An irrevocable letter of credit, or such other adequate security as the City shall approve, in an amount equal to not less than one hundred ten percent (110%) of the estimated probable cost to install and maintain the sediment and erosion control measures, which estimated probable cost shall be approved by the City; and
  - b. A statement signed by the applicant granting the City, as applicable, the right to draw on the security and the right to enter the development site to complete or maintain sediment and erosion control measures in the event that such measures are not installed and/or maintained according to the established schedule.
  - c. A statement signed by the applicant that the applicant shall indemnify the City for any additional costs incurred attributable to the concurrent activities of or conflicts between the applicant's contractor and the City's remedial contractor at the site.
2. The security required by this Section shall be maintained and renewed by the applicant, and shall be held in escrow by the City, as applicable, until the conditions set forth in this Section are satisfied.
3. The City may approve periodic reductions in the letter of credit based on progress of construction. However, not more than 90% of the security provided for in this section may be released prior to completion of all construction, establishment of vegetation, removal of all sediment from stormwater facilities, and final inspection and approval by the City.

**600.4 MAINTENANCE SECURITY**

1. Maintenance Security shall be posted and shall include:

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- a. A schedule, agreed upon by the applicant/developer and the City, for the follow up inspection and maintenance repair of any stormwater facilities required by the permit. Generally the maintenance period will be a minimum of one year; and
  - b. An irrevocable letter of credit, or such other adequate security as the City may approve, in an amount equal to not less than ten percent (10%) of the estimated probable cost to complete the construction of any stormwater facilities required by the Permit, which estimated probable cost shall be prepared by a Registered Professional Engineer and shall be approved by the City; and
  - c. A statement signed by the applicant granting the City the right to draw on the security and the right to enter the development site to complete required work in the event that stormwater facilities require maintenance according to the work schedule; and
  - d. A statement signed by the applicant that the applicant shall indemnify the City for any additional costs incurred attributable to the concurrent activities of or conflicts between the applicant's contractor and the City's remedial contractor at the site.
2. The security required by this Section shall be maintained and renewed by the applicant, and shall be held in escrow by the City until the conditions set forth in this Section or other applicable provisions are satisfied.

**600.5 LETTERS OF CREDIT**

1. Letters of credit posted pursuant to this Ordinance shall be in a form satisfactory to the City, as applicable.
2. Each letter of credit shall be from a lending institution: (a) acceptable to the City, as applicable; (b) having capital resources of at least ten million dollars (\$10,000,000), or such other amount acceptable to the City; (c) with an office in the City of Plano or Kendall County or an adjacent County or within the Chicago Metropolitan Area; and (d) insured by the Federal Deposit Insurance Corporation.
3. Each letter of credit shall, at a minimum, provide that:
  - a. It shall not be canceled without the prior written consent of the City; and shall not expire without written notification of the City at least 45 days prior to expiration, and
  - b. It shall not require the consent of the developer prior to any draw on it by the City; and
  - c. If at any time it will expire within 45 or any lesser number of days, and if it has not been renewed and the renewal submitted to the City, and if any applicable obligation of the developer for which its security remains uncompleted or is

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unsatisfactory, then the City may, without notice and without being required to take any further action of any nature whatsoever, call and draw down the letter of credit and thereafter either hold all proceeds as security for the satisfactory completion of all such obligations or employ the proceeds to complete all such obligations and reimburse the City for any and all costs and expenses, including legal fees and administrative costs, incurred by the City, as the City shall determine.

4. If at any time the City determines that the funds remaining in the letter of credit are not, or may not be, sufficient to pay in full the remaining unpaid cost of all stormwater facility construction or sediment and erosion control measures, then, within ten (10) days following a demand by the City, the developer shall increase the amount of the letter of credit to an amount determined by the City to be sufficient to pay such unpaid costs. Failure to so increase the amount of the security shall be grounds for the City to draw down the entire remaining balance of the letter of credit.
5. If at any time the City determines that the bank issuing the letter of credit is without capital resources of at least ten million dollars (\$10,000,000), is unable to meet any federal or state requirement for reserves, is insolvent, is in danger of becoming any of the foregoing, or is otherwise in danger of being unable to honor such letter of credit at any time during its term, or if the City otherwise reasonably deems the bank to be insecure, then the City shall have the right to demand that the developer provide a replacement letter of credit from a bank satisfactory to the City. Such replacement letter of credit shall be deposited with the City not later than ten (10) days following such demand. Upon such deposit, the City shall surrender the original letter of credit to the developer.
6. If the developer fails or refuses to meet fully any of its obligations under this Ordinance, then the City may, in their discretion, draw on and retain all or any of the funds remaining in the letter of credit. The City thereafter shall have the right to take any action they deem reasonable and appropriate to mitigate the effects of such failure or refusal, and to reimburse the City from the proceeds of the letter of credit for all of its costs and expenses, including legal fees and administrative expenses, resulting from or incurred as a result of the developer's failure or refusal to fully meet its obligations under this Ordinance. If the funds remaining in the letter of credit are insufficient to repay fully the City for all such costs and expenses, and to maintain a cash reserve equal to the required letter of credit during the entire time such letter of credit should have been maintained by the developer, then the developer shall, upon demand of the City therefore, immediately deposit with the City such additional funds as the City determines are necessary to fully repay such costs and expenses and to establish such cash reserve.

**601.0 EARLY COMPLETION OF DETENTION FACILITIES**

Soil erosion and sedimentation controls shall be established concurrent with the start of earthwork. Where detention, retention, or other storage areas are to be used as part of the

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drainage system for a property, they shall be constructed as the first element concurrent with the initial earthwork program.

Stormwater facilities shall be functional before building permits are issued.

Any eroded sediment captured in these facilities shall be removed by the applicant before project completion in order to maintain the design volume of the facilities.

**602.0 MAINTENANCE RESPONSIBILITY**

1. Maintenance of stormwater drainage facilities located on private property shall be the responsibility of the owner of that property.
2. Before a site development permit, building permit, or final plat is issued or signed by the City the applicant shall execute a maintenance agreement with City of Plano guaranteeing that the applicant and all future owners of the property will maintain the property's stormwater drainage system.
3. The maintenance agreement shall also specifically authorize representatives or subcontractors of City of Plano to enter onto the property for the purpose of inspections and maintenance of the drainage system.
4. The maintenance agreement shall include a schedule for regular maintenance of each aspect of the property's stormwater drainage system and shall provide for access to the system for inspection by authorized personnel of City of Plano.
5. The maintenance agreement shall stipulate that if the City of Plano ~~Planning, Building, and Zoning Department~~ notifies the property owner in writing of maintenance problems that require correction, the property owner shall make such corrections within thirty calendar days of such notification.
6. If the corrections are not made within this time period the City may have the necessary work completed and assess the cost to the property owner.
7. Such maintenance agreement shall be recorded with the Recorder of Deeds of Kendall County.
8. City of Plano has the option of requiring a bond to be filed by the property owner for maintenance of the storm water drainage system.
9. All permit submittals where stormwater facilities are proposed shall include a maintenance plan. The entities (public or private) responsible for maintenance of all elements of stormwater facilities shall be identified in the maintenance Plan as part of the permit application. All stormwater elements, including but not limited to, stormwater basins, storm sewers, swales, natural areas and wetlands shall be included.

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All entities and their respective maintenance responsibilities shall be listed. Maintenance responsibilities proposed shall be approved by the City.

The maintenance plan shall include the following elements as appropriate and as determined by the designer and approved permitting agency:

1. Emergency Procedure and Contact List
  1. Emergency Condition Procedure
  2. Call List & protocol
  
2. Subdivision Information
  1. Subdivision Plat & Easements
  2. Engineering Plans (Record Drawings – hard copy and electronic format)
  3. Stormwater Management Permit and calculations
  4. Covenants and By Laws
  5. HOA Official Contact List (after established)
  6. Management Company Contact List & Tennant contact list
  
3. Inspections & Record Keeping
  1. Routine Inspections
  2. Post Rainfall Inspection
  3. Incident Inspection
  4. Annual reporting format
  5. Inspector qualifications
  6. Inspection checklists
  
4. Annual Maintenance Guidelines& Schedule
  1. Flushing, cleaning and sediment removal
  2. Vegetation management
  3. Stormwater Management Basin
  4. Televising, lamping
  5. Operations budget
  
5. Maintenance & Expense Log
  
6. Inspection / Report Log
  
7. Appendix
  1. Guideline Copy and Revision Log
  2. Applicability
  3. Definitions
  4. Additional contacts and resources
  5. Quick Guide / Education Resources

## 8. Capital Budget

### 602.1 Funding for Long Term Maintenance of Stormwater Facilities

As a condition of approval of any application for a Stormwater Management Permit, unless the maintenance responsibility for the stormwater facilities in connection therewith has been accepted by a public entity, the City shall require the establishment of a special service area pursuant to 35 ILCS 200/27-5, et seq, as a backup means of providing for the long term maintenance of the facilities in the event the entity designated by the applicant as having primary maintenance responsibility fails to adequately carry out its duties.

If the establishment of a special service area is required, the City shall require a good faith estimate by the applicant of the funding levels required to support the maintenance activities identified in the maintenance plan and the tax rate and tax to be levied upon all taxable property within the area benefitted by stormwater facilities. The City shall incorporate the approved rate into its ordinances necessary for enactment and establishment of the tax to support long term maintenance of the stormwater facilities.

### 603.0 INSPECTIONS

#### 603.1 Inspections During Construction

1. A City of Plano ~~Engineering Department~~ representative shall conduct periodic inspections and surveys of the work in progress to be certain that the drainage system is being built as designed.
2. If any violations of the provisions or requirements of this ordinance are noted during such inspections, the City of Plano ~~Planning, Building, and Zoning Department~~ shall notify the property owner in writing of the items needing correction.
3. The property owner shall have ten calendar days to make such corrections unless given a specific extension of time in writing by the City of Plano ~~Planning, Building, and Zoning Department~~.
4. Failure to complete such corrections within the specified time period shall constitute a violation of this ordinance.

#### 603.2 Final Inspection

1. Upon notification by the applicant that the drainage system is completed, a City of Plano ~~Planning, Building, and Zoning Department~~ representative shall conduct a final inspection.
2. If the drainage system is found to contain deficiencies which require correction the City of Plano ~~Planning, Building, and Zoning Department~~ representative shall notify the property owner of the necessary corrections.

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3. The property owner shall correct such deficiencies within ten calendar days unless given a specific extension of time in writing by the City of Plano ~~Planning, Building, and Zoning Department~~.
4. Failure to make necessary corrections within the specified time shall constitute a violation of this ordinance.
5. Upon completion of the drainage system and all noted deficiencies, the petitioner shall perform a site survey and submit as built plans and revised stormwater management calculations to the City. A Registered Professional Engineer shall certify the as-built plans and calculations.
6. The project Letter of Credit for storm water related facilities shall not be reduced until the as-built plans and calculations have been reviewed and approved by the City.
7. Upon finding that the drainage system and as-builts meets the provisions and requirements of this ordinance the City of Plano ~~Planning, Building, and Zoning Department~~ shall issue in writing a notice of drainage system completion to the property owner.

**603.3 Routine Inspections**

1. All privately owned drainage systems may be inspected by representatives of the City of Plano ~~Planning, Building, and Zoning Department~~.
2. A written report shall be filed of the results of any inspection and a copy sent to the property owner detailing any problems that need correction.

**604.0 ENFORCEMENT**

The administration and enforcement of this ordinance shall be the responsibility of the City of Plano ~~Building Department~~.

**605.0 VARIANCES AND APPEALS**

**605.1 PURPOSE AND APPLICATION**

1. In order to provide a narrowly circumscribed means by which relief may be granted when strict compliance with the requirements of this Ordinance is impossible or impracticable, variances from the specific provisions of this ordinance may be granted according to the standards set forth in this Section.
2. Where the City Engineer finds that extraordinary hardships may result from the strict compliance with this Ordinance, he may, after written application and documentation by the developer, recommend in writing to the Streets and Utilities Committee variations or exceptions to the regulations.

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Recommendation may be subject to specific conditions, so that substantial justice may be done and the public interest secured, provided that such variations or exceptions shall not have the effect of nullifying the intent and purpose of this Ordinance.

3. An application for a variance to this Ordinance, signed by the owner or developer of the development shall be filed with the City. No application for a variance will be accepted for filing unless it relates to a previously or contemporaneously filed application for a permit. Applications for a variance shall be filed in such number of duplicate copies as the City may designate. No action will be taken on an application for a variance unless it, and the corresponding application for a permit to which it relates, are complete as determined by the City.
4. All appeals to the City Engineer's decisions regarding the interpretation of this ordinance shall be heard by the City of Plano Streets and Utilities Committee.
5. From the Streets and Utilities Committee, the recommendations shall be communicated to the City Council in writing with reasons therefore. The City Council may approve the variations, as set forth herein, from these regulations in specific cases, which in their opinion do not affect the general plan or the spirit of the Ordinance.
  - a. Variances to Kendall County Stormwater Management Ordinance requirements or any variance of floodplain and/or flood control regulations require approval by the City, the Kendall County Stormwater Director and the Kendall County Board in accordance with the procedures set forth herein.
  - b. Variances to City requirements which are more stringent than this ordinance do not require approval by the Kendall County Stormwater Director or the Kendall County Board provided they result in full compliance with the Kendall County Stormwater Management Ordinance.
6. The City shall send a copy of the complete application to the Kendall County Stormwater Director with a City determination of compliance related to City and Kendall County Stormwater Ordinance requirements. The City shall also send a copy of the complete application to all other certified communities within the same watershed.
7. Applications for a variance need not be made upon any specific form, but shall contain the information set forth herein.
  - a. The common addresses and legal descriptions of all lands comprising the development;
  - b. The names and addresses of all owners of record of the legal title of all lands comprising the development;
  - c. If title to any of the land comprising the development is held in trust, the names and addresses of all beneficiaries of the trust;

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- d. The names and addresses of the developers of the land, if different from the owner;
  - e. The names and addresses of all consultants retained by the developer in connection with the application for a variance;
  - f. The names and addresses of all property owners within 250 feet of the development;
  - g. The specific feature or features of the development that require a variance;
  - h. The specific provision of the City Ordinance from which a variance is sought and the precise extent of the variance there from;
  - i. The specific provision of the Kendall County Stormwater Ordinance from which a variance is sought and the precise extent of the variance there from;
  - j. A statement of the characteristics of the development that prevent compliance with the provisions of this ordinance;
  - k. A statement that the variance requested is the minimum variance necessary to permit the development;
  - l. A statement as to how the variance requested satisfies the standards set forth in Section 605.2 of this ordinance;
8. With the filing of the application for a variance, the applicant shall pay all fees prescribed by the City and Kendall County.
  9. When the application is deemed complete and acceptable by City a public hearing on the application before the Streets and Utilities Committee may be scheduled and the Applicant notified. Not more than 30 nor less than 15 days before the hearing, notice of the hearing shall be sent by first class mail, postage prepaid, to the applicant, to the Kendall County Stormwater Director, to all property owners within 250 feet of the development as disclosed in the application, and to each Certified Community within the same watershed as the development and to the Streets and Utilities Committee. Within the same time period, notice of the hearing shall be published at least once in a newspaper published within the City. If no newspaper is published within the City, then the notice shall be published in a newspaper with a general circulation within the City, which is published in the County. The notices given under the section shall set forth the common name, address and legal description of the development and a brief description of the variance is requested.

**605.2 GRANTING OF VARIANCES**

1. The City Engineer shall not recommend nor shall the City grant a variance for a project from the provisions of the this Ordinance unless the variance is consistent with the

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purpose of this Ordinance and meets the following standards based upon substantial evidence submitted with the variance application or at the hearing:

- a. The variance will not increase the probability of flood damage or create an additional threat to the public health, safety or welfare, or injurious to other property or improvements in the locale in which the property is located.
  - b. The variance requested is the minimum relief necessary to accomplish the objectives of the development without compromising the objectives of this Ordinance.
  - c. The variance will not result in a reduction of water quality benefits as compared to compliance with ordinance requirements.
  - d. The variance is not requested solely for the purpose of reducing site runoff storage requirements.
  - e. The variance shall not cause conveyance of stormwater from the project to increase peak discharges beyond design capacity of existing offsite conveyance facilities for any storm event from the 2-year to the 100-year recurrence frequency.
  - f. The variance shall seek to preserve valuable environmental and biological resources including but not limited to stands of native trees, existing wetlands and natural floodplain storage.
  - g. Because of the particular physical surroundings, shape, or topographic conditions of the specific property involved a particular hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of the regulations was carried out.
  - h. The conditions upon which the request for a variation is based are unique to the property for which the variation is sought and are not applicable, generally, to other property, and have not been created by any person having an interest in the property.
  - i. The purpose of the variation is not based upon economic feasibility.
2. No variance shall be granted for any development in the regulatory floodway, the effect of which would be to create regulation less restrictive than the federal or state minimum standards applicable to development in such areas.

**605.3 PROCEDURE AND RECOMMENDATIONS**

**1. LOCAL VARIANCE**

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The City shall send a copy of the complete application to the Kendall County Stormwater Director with a City determination of compliance with the Kendall County Stormwater Ordinance.

The City shall review the application for a variance and present the recommendations to the Streets and Utilities Committee at the public hearing with a copy to the Kendall County Stormwater Director.

Not more than 45 days after the close of the hearing, the Streets and Utilities Committee shall forward the application with its written recommendations to the City Council and the Kendall County Stormwater Director. The written recommendations of the Streets and Utilities, when forwarded, shall be accompanied by written findings of fact with respect to each of the considerations set forth in this Ordinance with citations to the evidence taken at the public hearing.

The City Council shall grant the variation, grant the variation with modifications or conditions, or deny the variation in writing within 45 days after receipt of the written recommendations of the Streets and Utilities Committee and shall forward its final decision to the Kendall County Stormwater Director. In the event the City Council does not act on the recommendations of the Streets and Utilities Committee then the recommendation from the Streets and Utilities Committee is considered to be endorsed and adopted by the City Council.

**2. COUNTY & FLOODPLAIN VARIANCE**

The City shall send a copy of the complete application to the Kendall County Stormwater Director with a City determination of non-compliance with the Kendall County Stormwater Ordinance.

The City shall review the application for a variance and present their written recommendations to the Streets and Utilities Committee at the public hearing with a copy to the Kendall County Stormwater Director.

Not more than 45 days after the close of the hearing, the Streets and Utilities Committee shall forward the application with its written recommendations to the City Council.

Not more than 45 days after the close of the hearing, the City Council shall forward the application with its written recommendations to the Kendall County Board and the Kendall County Stormwater Director. The written recommendations of the City, when forwarded, shall be accompanied by written findings of fact with respect to each of the considerations set forth in Section 605.2 with citations to the evidence taken at the public hearing.

The Kendall County Board shall grant the variation, grant the variation with modifications or conditions, or deny the variation in writing within 45 days after receipt of the written recommendations of the City and shall forward its final decision to the

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Kendall County Stormwater Director. In the event the Kendall County Board does not act on the recommendations of the City then the recommendation from the City is considered to be endorsed and adopted by the City.

**605.4 CONDITIONS**

1. A variance less than or different from that requested may be granted when the record supports the applicant's right to some relief, but not to the relief requested.
2. In granting a variance, the City of Plano or Kendall County Board may impose such specific conditions and limitations concerning any matter relating to the purposes and objectives of this ordinance on the applicant as may be necessary or appropriate.
3. Whenever any variance is granted subject to any condition or limitation to be met by the applicant, upon meeting such conditions, the applicant shall file evidence to that effect with the City.

**606.0 SEVERABILITY**

If any section, clause, provision or portion of this ordinance is judged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this ordinance shall remain in force and not be affected by such judgment.

**607.0 PENALTIES**

Any person determined to be guilty of violating any of the provisions or requirements of this ordinance shall be guilty of an ordinance violation and shall be subject to a fine of not more than One Thousand Dollars (\$1,000.00). Each day the violation continues shall be considered a separate offense (amended 8/17/2004 per Ordinance 2004-29).

**608.0 EFFECTIVE DATE**

This ordinance shall be in full force and effect from and after its passage and approval and publication, as required by law.

Passed by the City Council of City of Plano, Illinois, this \_\_\_\_\_ day of \_\_\_\_\_, 2015.

\_\_\_\_\_  
Clerk

APPROVED by me this \_\_\_\_\_ day of \_\_\_\_\_, 2015.  
\_\_\_\_\_

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City of Plano Council Mayor

ATTESTED and FILED in my office this \_\_\_\_\_ day of \_\_\_\_\_, 2015.

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Clerk