

## Chapter 16 - STORMWATER AND FLOODPLAIN MANAGEMENT

## ARTICLE 1. - GENERAL AND ADMINISTRATIVE PROCEDURES

## 16.1.01. - Authority and Purpose.

- A. *Authority.* This Ordinance is enacted pursuant to the police powers granted to the City of Country Club Hills by 65 ILCS 5/1-2-1, 5/11-12-12, 5111-30-2, 5111-30-8, and 5/11-31-2.
- B. *Purpose.* The purpose of this Ordinance is to:
1. Protect buildings and other property from damage due to flooding;
  2. Protect the life, health and safety of the residents of the City of Country Club Hills;
  3. Minimize disruption of commerce and governmental services and the impairment of the tax base caused by flooding;
  4. Prevent new development from increasing the flood or drainage hazard to others;
  5. Prevent future public expenditures for repairs and recovery activities following a flood and for drainage improvements and flood protection projects;
  6. Preserve and enhance the quality of surface water;
  7. Preserve the natural characteristics and functions of watercourses and floodplains to moderate flood and stormwater impacts, improve water quality, and preserve aquatic/riparian habitat;
  8. Reduce the sedimentation in the watercourses of the City of Country Club Hills;
  9. Meet the requirements of 615 ILCS 5/188 Rivers, Lakes and Streams Act;
  10. Make federally subsidized flood insurance available for property in the City of Country Club Hills by fulfilling the requirements of the National Flood Insurance Program.

## 16.1.02. - Organization.

To protect people and property from flooding, development of land must be managed both in the watershed (where the water comes from) and in the floodplain (where it accumulates). Therefore, this ordinance has three parts.

- A. *General and Administrative Procedures.* Article 1 of this ordinance includes the definitions, permit procedures and similar administrative matters that apply to all development projects.
- B. *Site Development Requirements.* Article 2 of this ordinance contains the land development requirements that manage the runoff of stormwater that leaves the development site. It includes criteria for the amount of water that can leave a site as well as the measures that must be taken to improve the quality of the water.
- C. *Floodplain Development Requirements.* Article 3 of this ordinance contains requirements for developments that will be located in the floodplain. It includes criteria to protect the new development, to minimize the impact of the development on flooding to other properties, and to protect the flood conveyance channel.
- D. *Overlapping Requirements.*
1. Floodplains are part of the watershed. All floodplain developments must also meet the site development requirements of Article 2, where applicable.
  2. The definitions in Section 16.1.03 and the administrative procedures in Sections 16.1.04—16.1.06 apply to both Articles 2 and 3.

E. *Development*. This ordinance regulates all development as defined in Section 16.1.03, Definitions.

#### 16.1.03. - Definitions.

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

- A. *Applicant*. Any person, firm, corporation or agency which submits an application.
- B. *Base Flood*. The flood having a one percent probability 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 16.3.01.
- C. *Best Management Practice (BMP)*. A measure used to control the adverse impacts of a stormwater discharge on water quality downstream. BMPs include structural devices (e.g. grassed swales, filter strips and detention basins) designed to remove pollutants and reduce runoff volumes and nonstructural measures such as public information on proper disposal and use of pesticides and herbicides.
- D. *Building*. A building that is principally above ground and is enclosed by walls and a roof. The term includes a gas or liquid storage tank, a manufactured home, mobile home or a prefabricated building. This term also includes recreational vehicles and travel trailers to be installed on a site for more than 180 days, unless fully licensed and ready for highway use.
- E. *Buffer*. An area of natural vegetation adjacent to channels, wetlands, lakes, ponds or other surface waters to be left open for the purpose of eliminating or minimizing adverse impacts to such areas.
- F. *By-pass flow*. An approach that routes tributary drainage area runoff around and not through a stormwater control structure.
- G. *Channel*. Any river, stream, creek, brook, branch, natural or artificial depression, ponded area, flowage, slough, ditch, culvert, gully, ravine, wash, or natural or open man-made drainageway, which has a definite bed and banks or shoreline, in or into which surface or groundwater flows, either perennially or intermittently.
- H. *Channel Modification*. Alteration of a channel by changing the physical dimensions or materials of its bed or banks. Channel modification includes damming, rip-rapping (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.
- I. *CLOMR*. Conditional Letter of Map Revision.
- J. *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 buildings are placed within the floodplain. The uncompensated loss of natural floodplain storage can increase off site floodwater elevations and flows.
- K. *Conditional Letter of Map Revision*. A letter which indicates that FEMA will revise base flood elevations, flood boundaries or floodways once the as-built plans are submitted and approved.
- L. *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.
- M. *Designated Floodway*. The channel including on-stream lakes, and that portion of the floodplain adjacent to a stream or watercourse as designed by IDNR/OWR, 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 10 percent (10%) increase in velocities.

1. The floodways are designated for the southwest branch of the Calumet Drainage Ditch and tributaries north the following map Number 17031C and panels 0728F, 0729F, 0736F, and 0737F and dated November 6, 2000 of the countywide Flood Insurance Rate Map for Cook County ("FIRM") prepared by FEMA.
  2. The floodways for those parts of unincorporated Cook County that are within the one and one-half mile extraterritorial jurisdiction of the City that may be annexed into the City are designated for the southwest branch of the Calumet Union Drainage Ditch and tributaries north and south on the following map number 17031C and panels 0707F, 0709F, 0717F, 00719F, 0738F and 0739F and dated November 6, 2000, respectively, of the countywide FIRM of Cook County prepared by FEMA.
  3. 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.
- N. *Detention Basin*. A man-made structure for the temporary storage of stormwater runoff with controlled release during and immediately following a storm.
- O. *Development*.
1. "Development" means any man-made 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 180 days. Parking a travel trailer or recreational vehicle on site for less than 180 days is not considered "development" provided it is fully licensed, not connected to any utilities, and ready for highway use.
    - (c) Drilling, mining, installing utilities, construction of roads, bridges, or similar projects.
    - (d) Demolition of a building 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 non-agricultural alterations of the ground surface; storage of materials; deposit of solid or liquid waste;
    - (g) Subdivision of land, annexation agreements; and finalization of a plat, replat, planned unit development or manufactured home park; and
    - (h) Any other human development project that might change the direction, height, or velocity of flood or surface water, including extensive vegetation removal.
  2. "Development" does not include:
    - (a) Maintenance of existing buildings and facilities such as re-roofing or re-surfacing of roads when there is no increase in the ground or road surface elevation;
    - (b) Gardening, plowing, and similar agricultural practices that do not involve filling, grading, or construction of levees;
    - (c) Erection of a storage shed, accessory building, fence and playground equipment, that: (1) has a footprint of less than 50 square feet, (2) is not located in a floodway or within 10 feet of a property line, and (3) is properly anchored to withstand surface water flows.
- P. *Elevation Certificate*. A form published by FEMA that is used to certify the elevation to which a building has been elevated.

- Q. *Emergency Overflow*. The structure in a detention or retention basin designed to protect the basin in the event of a malfunction of the primary outlet or a storm event greater than the basin design storm.
- R. *Erosion*. The general process whereby soils are moved by flowing water or wave action.
- S. *Excavation*. Any act by which organic matter, earth, sand, gravel rock or any other similar material is cut into, dug, quarried, uncovered, removed, displaced, relocated or bulldozed. The term shall include the conditions resulting therefrom.
- T. *Exceptional Functional Value Wetland*. Any wetland that either (1) meets the Illinois Natural Area Inventory's definition for determining exceptional functional value or (2) is located in an Illinois Natural Area Inventory site.
- U. *Existing Grade*. The vertical location of the existing ground surface prior to excavation or filling.
- V. *FEMA*. The Federal Emergency Management Agency, the agency responsible for administering the National Flood Insurance Program.
- W. *FIRM or Flood Insurance Rate Map*. A map prepared by the Federal Emergency Management Agency that delineates the Special Flood Hazard Area of the City of Country Club Hills. The FIRM includes flood insurance rate zones and may or may not include floodways.
- X. *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.
- Y. *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.
- Z. *Flood Fringe*. That portion of riverine floodplains outside of the designated floodway.
- AA. *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).
1. The flood plains are those lands within the jurisdiction of the City that are subject to inundation by the base flood or 100-year frequency flood. The SFHA's of the City are generally identified as such on the following map number 17031C and panels 0707F, 0709F, 0717F, 0719F, 0738F and 0739F and dated November 6, 2000, respectively, of the countywide Flood Insurance Rate Map for Cook County prepared by FEMA.
  2. The SFHA's for those parts of unincorporated Cook County that are within the one and one-half mile extraterritorial jurisdiction of the City that may be annexed into the City are designated for the southwest branch of the Calumet Union Drainage Ditch and tributaries north and south on the following map number 17031C and panels 0707F, 0709F, 0717F, 0719F, 0738F and 0739F and dated November 6, 2000, respectively, of the countywide FIRM of Cook County prepared by FEMA.
- BB. *Floodproofing*. Any combination of structural and non-structural adjustments to a building that reduces or eliminates flood damage to that building, its contents and supporting utilities. "Dry floodproofing" techniques prevent flood waters from entering a building.
- CC. *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.
- DD. *FPE or Flood Protection Elevation*. The elevation above sea level (NGVD) to which new buildings must be protected from flood damage.
- EE. *Historic Building*. Any building that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
  2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
  3. Individually listed on the State inventory of historic places by the Illinois Historic Preservation Agency;
  4. Individually listed on a local inventory of historic places that has been certified by the Illinois Historic Preservation Agency.
- FF. *IDNR/OWR*. The Illinois Department of Natural Resources. Office of Water Resources, the agency responsible for administering 615 ILCS 5/188, the Rivers, Lakes and Streams Act.
- GG. *Letter of Map Amendment (LOMA)*. Official determination by FEMA that a specific structure is not in a 100-year flood zone; amends the effective Flood Hazard Boundary Map or FIRM.
- HH. *Letter of Map Revision (LOMR)*. Letter that revises base flood or 100-year frequency flood elevation, flood insurance rate zones, flood boundaries or floodways as shown on an effective FIRM.
- II. *Level 1 Development*. A development project that meets any of the following criteria:
1. Is a single family residential development on 10 acres or more,
  2. Is a multi-family or non-residential development on 3 acres or more, or
  3. Disturbs more than 20,000 square feet of land area.
- JJ. *Level 2 Development*. A development project which does not qualify as a Level 1 development but meets any of the following criteria:
1. Has one or more new dwelling units;
  2. Has more than one existing dwelling unit;
  3. Has more than one platted lot;
  4. Will be used for development other than residential, commercial, public purpose; or
  5. Disturbs more than 10,000 square feet of land area or adds an additional 1,000 square feet of new impervious area.
- KK. *Level 3 Development*. A development project that does not meet the criteria for the definition of Level 2 development.
- LL. *Licensed Professional Engineer*. An engineer registered in the State of Illinois, under the Professional Engineer Practice Act of 1989, 225 ILCS 325/1-49.
- MM. *Major Drainage System*. That portion of a drainage system needed to store and convey flows beyond the capacity of the minor drainage system.
- NN. *Manufactured Home*. A building, transportable in one or more sections, which is built on a permanent chassis and is designated for use with or without a permanent foundation when attached to the required utilities. The term manufactured homes also includes park trailers, travel trailers and other similar vehicles placed on site for more than 180 consecutive days. The term "manufactured home" does not include a "recreational vehicle."
- OO. *Minor Drainage System*. That portion of a drainage system designed to safely convey the 10 year runoff event or less. It includes street gutters, storm sewers, small open channels and swales.
- PP. *NGVD*. National Geodetic Vertical Datum of 1929. Reference surface set by the National Geodetic Survey

deduced from a continental adjustment of all existing adjustments in 1929.

- QQ. *Natural*. When used in reference to channels, means those channels formed by the existing surface topography of the earth prior to changes made by humans.
- RR. *Ordinary Highwater Mark*. The point on the bank or shore at which the presence and movement of surface water are continuous so as to leave a distinctive mark, such as by erosion, destruction or prevention of terrestrial vegetation, predominance of aquatic vegetation or other such recognized characteristics.
- SS. *Overland Flow Path*. An area of land which conveys stormwater for all events up to and including the base flood event. The overland flow path can be determined using topographic information and shall take into account all on-site and off site tributary areas.
- TT. *Public Bodies of Water*. 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.
- UU. *Recreational Vehicle or Travel Trailer*. A vehicle which is:
1. Built on a single chassis;
  2. 400 square feet or less when measured at the largest horizontal projection;
  3. Designed to be self-propelled or permanently towable by a light duty vehicle; and
  4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.
- VV. *Retention Basin*. A facility designed to completely retain a specified amount of stormwater runoff without release except by means of evaporation, infiltration or pumping.
- WW. *Riverine*. Related to a river, creek, intermittent stream, ditch, or any other identified channel. This term does not include areas subject to flooding from lakes, ponding areas, or areas of sheet flow.
- XX. *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.
- YY. *Sedimentation*. The processes that deposit soils, debris. And other materials either on other ground surfaces or in bodies of water or watercourses.
- ZZ. *SFHA or Special Flood Hazard Area*. The area subject to flooding by the base flood and shown on the November 6, 2000, Cook County county-wide Flood Insurance Rate Map as Zone A, A1-30, AE, AO, AH and/or A99.
- AAA. *Substantially Damaged*.
1. A building that has been damaged by any cause (fire, flood, earthquake, etc.) whereby the cost of restoring the building to its before damaged condition would equal or exceed 50% of the market value of the building before the damage occurred.
  2. A building that has been damaged by a flood on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25% of the market value of the building before the damage occurred.
- BBB. *Substantially Improved*.
1. A building that has been remodeled, repaired added to, or otherwise improved whereby the cost of the

project equals or exceeds 50 percent of the market value of the building before the improvement is started. The cost of the project is based on the prevailing costs of labor, equipment and supplies, even if some of these are donated or obtained at reduced rates.

2. For the purposes of this definition 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 regardless of the actual work performed.
3. The term does not include either (1) any project for improvement of a building 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 building," provided that the alteration will not preclude the building's continued designation as a historic building.

CCC. *Watershed*. The land area above a given point on a channel that contributes stormwater to that point.

DDD. *Waters of the United States*. Those waters under the authority of the Corps of Engineers under the Clean Water Act and defined in 33 CFR Part 328, as amended. This includes most lakes, rivers, streams ponds and wetlands.

EEE. *Wetland*. A subset of the Waters of the United States. A wetland is land that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, under normal conditions, a prevalence of vegetation adapted for life in saturated soil conditions (known as hydrophytic vegetation). A wetland is identified based upon three attributes: 1) hydrology, 2) soils and 3) vegetation as mandated by the Federal wetland determination methodology.

FFF. *Wetland Impact*. Any development activity within the boundary of a delineated wetland. Final determination of wetland impact is performed by the U.S. Environmental Protection Agency and the U.S. Corps of Engineers based on 33 CFR Part 230, Section 404(b)(1) and 33 CFR Parts 320 through 330, as amended.

#### 16.1.04. - Permit Procedures.

##### A. *Site Development Permit Required*.

1. No person, firm, corporation or governmental agency shall commence any development regulated by this Ordinance on any lot or parcel of land without first obtaining a Site Development Permit from Building Commissioner.
2. A permit shall be issued if the proposed development meets the requirements of this Ordinance.
3. No development site shall be occupied, no certificate of occupancy shall be issued, and no subdivision or other development shall be accepted by the City Council unless and until all provisions of this Ordinance are met, including the issuance of a final Letter of Map Revision, where appropriate.

##### B. *Grandfathering*.

1. Development projects that have been approved or permitted prior to the effective date of this ordinance are exempt from this ordinance providing the stormwater management facilities and flood protection measures are installed, functioning and in compliance with all applicable stormwater and floodplain regulations in effect at the time of approval or permit.
2. If a previously developed site is redeveloped or modified so that the amount of impervious surface or the amount of stormwater runoff will increase, then the redevelopment or modification project shall comply with the provisions of this ordinance.
3. Improvements, modifications, additions and repairs to an existing building in the Special Flood Hazard Area shall meet the requirements of this Ordinance.

C. *Contiguous Property.*

1. In order to preclude inappropriate phasing of developments to circumvent the intent of this Ordinance, when a proposed development activity will occur on a lot or parcel of land that has contiguous lots or parcels of lands owned by the same property owner, then the criteria as defined in this section will be applied to the total land area compiled from aggregate ownership parcels.
2. The determination of Level 1, 2 or 3 development will be based on the total area of all of the contiguous parcels under the same ownership.

D. *Other Permits.*

1. The permit applicant shall be responsible for:
  - (a) Obtaining all other federal, state, and local permits, approvals or permit-not-required letters that may be required for this type of activity; and
  - (b) Providing copies of the permits, approvals and letters to Building Commissioner.
2. The Building Commissioner shall not issue a Site Development Permit unless all other federal, state, and local permits have been obtained.
3. The Building Commissioner is responsible for obtaining and maintaining copies of all other required federal, state, and local permits.

E. *Conditional Approval.*

1. The Building Commissioner may issue a letter of conditional approval of:
  - (a) the regulatory floodplain and regulatory floodway delineation, overland flow path, wetland delineation, runoff volume reduction hierarchy, and/or detention and bypass computations for a development and/or
  - (b) parts of the development project that comply with local requirements. A letter of conditional approval shall not be issued for those parts of the project that are awaiting state or federal approval.
2. A conditional approval to alter the floodway delineation shall not be granted until a CLOMR has been issued by FEMA.
3. A conditional approval will be based on conformance with the performance standards, and the submittal of the appropriate application requirements.
4. The letter of conditional approval will state the conditions placed on the permit applicant. Variation from these conditions is considered a violation of the provisions of this ordinance.
5. Before the issuance of a letter of conditional approval, the permit applicant shall sign a statement that he or she understands that:
  - (a) The project has not been granted a final site development permit;
  - (b) The final site development permit may require changes to the plans; and
  - (c) The applicant proceeds at his or her own risk pending issuance of the final permit.

F. *Timing of Work.*

1. Stormwater management facilities shall be functional before building permits are issued.
2. Foundation only permits may be issued for non-residential developments prior to completion of the stormwater systems.
3. Soil erosion and sediment control measures shall be functional before general construction begins.
4. Where development of a site is to proceed in phases, the timing requirements shall apply to each phase.

G. *Application Review.*



1. The Building Commissioner shall approve, deny or identify what needs to be changed in an application within 60 days of receipt.
2. If an application is incomplete or otherwise needs to be revised, the amended permit applications shall be reviewed within 60 days of receipt.

H. *Permit Termination.* A permit shall be terminated for any of the following causes:

1. Noncompliance with any condition of the permit;
2. The permittee's failure to disclose fully all relevant facts in the application process or the permittee's misrepresentation of any relevant facts at any time; or
3. If the authorized work is not commenced within 180 days after issuance of the permit or, if the authorized work is suspended or abandoned, for a period of 180 days after the time of commencing the work, unless an extension has been granted in writing by the Building Commissioner. The extension should be requested of the Building Commissioner, in writing no sooner than 90 days prior to the termination of the permit.

16.1.05. - Permit Materials.

A. *All Development.* Application for a development permit shall be made on a form provided by the Building Commissioner. All applications for a Site Development Permit shall include the following:

1. Name and address of applicant;
2. Address and legal description of the property
3. Site location of the property, drawn to scale, showing
  - (a) If the project is in the SFHA; and
  - (b) If the project is in an incorporated or unincorporated area;
4. Description of the proposed activity;
5. Statement of purpose of the proposed activity;
6. Anticipated dates of initiation and completion of activity;
7. Name and mailing address of the owner of the subject property if different from the applicant;
8. Plans of the proposed activity, drawn to scale, showing:
  - (a) Graphic or numerical scale;
  - (b) North arrow;
  - (c) Property lines and dimensions;
  - (d) Location and dimensions of easements;
  - (e) Location and names of roads in the vicinity;
  - (f) Location and names of waterways in the vicinity; and
  - (g) Location and dimensions of all buildings.
9. Acknowledgment by the applicant that representatives of any federal, state or local unit of government with regulatory authority over the project are authorized to enter upon the property to inspect the development.
10. Signature of the applicant or the applicant's agent;
  - (a) If the applicant is a corporation, the president or other authorized officer shall sign the application form;
  - (b) If the applicant is a partnership, each partner shall sign the application form; and
  - (c) 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.

- B. *Level 2 Development Application Materials.* In addition to the materials required under Section 16.1.05(A), an application for a Level 2 development project shall also include:
1. A topographic survey of the property at one foot contour intervals keyed to the National Geodetic Vertical Datum 1929, adjusted. The survey shall show:
    - (a) Existing terrain;
    - (b) Proposed conditions; and
    - (c) Adjacent areas necessary to determine off-site impacts to the proposed drainage plan.
    - (d) If the development project does not involve regrading the site, then the elevations of the top of foundation, the corners of the lot and representative spots on the lot lines and within the lot may be submitted in lieu of a topographic survey.
  2. A narrative describing the existing and proposed stormwater management system, including all discharge points, collection, conveyance and stormwater storage facilities.
  3. A drainage system map including, but not limited to the following:
    - (a) Sub-watershed boundaries and the property's location within the larger watershed;
    - (b) Location of all existing drainage features, such as streams, lakes, wetlands and field tiles;
    - (c) Proposed drainage system including but not limited to storm sewers, overland flow paths, detention facilities and roads;
    - (d) Proposed post-development terrain at one foot contour intervals;
    - (e) Soil classifications; and
    - (f) Proposed buffer areas.
  4. Copy of all stormwater calculations, sealed by a Licensed Professional Engineer, including but not limited to, detention basin sizing, storm sewer sizing and overland flow path design.
  5. Copy of the proposed plat or deed restrictions for all stormwater management features.
  6. Copy of the draft operation and maintenance procedures for all stormwater management features.
  7. Copy of any wetland submittal to the U.S. Army Corps of Engineers, a letter from the Corps stating a permit is not required, or a letter from a qualified person stating no Corps of Engineers permits are required.
  8. Subdivisions, annexation agreements, plats, re-plats, manufactured home parks and PT Ds shall include a signed statement by a Licensed Professional Engineer that accounts for changes in the drainage of surface waters in accordance with the Plat Act (765 ILCS 205/2).
  9. Copy of the erosion and sediment control plan (see Section 16.2.04).
- C. *Level 1 Development Application Materials.* In addition to the materials required under Sections 16.1.05(A) and (B) for Level 2 development applications, an application for a Level 1 development project shall also include:
1. Calculations and a plan defining the flood levels and flow areas through the development for the runoff from the 100-year storm;
  2. Cross-section data for open channel flow paths and designated overland flow paths;
  3. Flow rates and velocities at representative points in the drainage system;
  4. A statement by the design engineer of the drainage system's provisions for handling events greater than the 100-year runoff.
- D. *Level 3 Development Application Materials.* An application for a Level 3 development project shall include a plan of the parcel showing pre-development and post-development surface drainage flows.

- E. *Floodplain Development Application Materials.* In addition to the site development application materials of Sections 16.1.05(A)–(C), a permit application for a development project in the SFHA shall include:
1. A copy of the designated floodway map, showing:
    - (a) The location of the project and property, lines in relation to the floodplain and floodway boundaries;
    - (b) Any proposed change in the designated floodway location.
  2. For all proposed buildings, the elevation of the lowest floor (including basement) and lowest adjacent grade shall be shown on the submitted plans.
  3. Additional base flood elevation and floodway calculations and data that may be needed as identified in other sections of this Ordinance.
- F. *Plats.* Plats or plans for new subdivisions, mobile home parks and Planned Unit Developments (PUDs) shall include:
1. 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 765 ILCS 205/2.
  2. The delineation of all SFHAs which appear on the plat, signed and sealed by an Illinois Registered Land Surveyor as per the requirements of Public Act 85-267.
- G. *Records.*
1. The Building Commissioner shall maintain all permit and inspection records, including copies of elevation and floodproofing certificates. Such records shall be made readily available for a period of up to three years after the project is completed.
  2. All stormwater management facilities shall be located and described within a deed or a plat restriction.
  3. All stormwater management facilities shall be located within easements or rights-of-way that explicitly provide for public access for maintenance of such facilities.
  4. Perpetual operation and maintenance responsibility and emergency access shall be designated on the plat or deed. Stormwater management facilities that service a single parcel (or two parcels) of property may be excused from this requirement upon approval of the Building Commissioner.

16.1.06. - General Provisions.

- A. *Duties of the Enforcement Official(s).* The Building Commissioner will be responsible for the general administration and enforcement of this Ordinance which shall include the following:
1. Ensure that any and all required federal, state and local permits are received prior to the issuance of a watershed development permit.
  2. Ensure that all development activities within the SFHAs of the jurisdiction of the City of Country Club Hills meet the requirements of this Ordinance.
  3. 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 Ordinance;
  4. Require and obtain copies of all necessary federal, state and local permits and ensure that development projects are constructed in accordance with those permits;
  5. Maintain permit files including Elevation and Floodproofing Certificates;
  6. 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 elevation or floodproofing certificates for all

buildings constructed subject to this Ordinance.

7. 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 Ordinance;
8. Submit reports as required for the National Flood Insurance Program; and
9. Notify FEMA of any proposed amendments to this ordinance.
10. Submit data to IDNR and FEMA to support proposed revisions to the regulatory maps.
11. Ensure that development projects authorized by state and federal authorities are constructed in accordance with the related state and federal permits.

**B. *Disclaimer of Liability.***

1. The degree of flood protection required by this Ordinance is considered reasonable for regulatory purposes and is based on available information derived from engineering and scientific methods of study.
2. Larger floods may occur or flood heights may be increased by man-made or natural causes. This Ordinance does not imply that development, either inside or outside of the SFHA, will be free from flooding or damage.
3. This Ordinance does not create liability on the part of the City of Country Club Hills or any officer or employee thereof for any flood damage that results from reliance on this Ordinance or any administrative decision made lawfully thereunder.

**C. *Penalty.***

1. Failure to comply with the requirements of a permit or conditions of a variance resolution shall be deemed to be a violation of this Ordinance.
2. Upon due investigation, the Building Commissioner may determine that a violation of the minimum standards of this Ordinance exist. The Building Commissioner shall notify the owner in writing of such violation.
3. If such owner fails after ten days notice to correct the violation.
  - (a) The City of Country Club Hills may make application to the Circuit Court for an injunction requiring conformance with this Ordinance or make such other order as the Court deems necessary to secure compliance.
  - (b) Any person who violates this Ordinance shall, upon conviction thereof, be fined not less than fifty dollars (\$50.00) or more than one thousand dollars (\$1,000.00) for each offense.
  - (c) A separate offense shall be deemed committed upon each day during or on which a violation occurs or continues.
  - (d) The City of Country Club Hills may record a notice of violation on the title to the property.
4. The Building Commissioner 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.
5. The Building Commissioner 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 stopwork order. The stop-work order constitutes a suspension of the permit.
6. No Site Development Permit shall be permanently suspended or revoked until a hearing is held by the Zoning Board of Appeals. Written notice of such hearing shall be served on the permittee and shall state: (1) the grounds for a complaint or reasons for suspension or revocation; and (2) 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 Zoning Board of Appeals shall determine whether the permit shall be suspended or revoked.

7. Nothing herein shall prevent the City of Country Club Hills from taking such other lawful action to prevent or remedy any violations. All costs connected therewith shall accrue to the person or persons responsible.
- D. *Variances.* Whenever the standards of this Ordinance place undue hardship on a specific development proposal, the applicant may apply to the Zoning Board of Appeals for a variance.
  1. The Zoning Board of Appeals shall review the applicant's request for a variance and shall submit its recommendation to the City Council.
  2. No variance shall be wanted to the requirements of this ordinance unless the applicant demonstrates that:
    - (a) An exceptional hardship would result if the variance were not granted;
    - (b) The relief requested is the minimum necessary;
    - (c) There will be no additional threat to public health, safety, beneficial stream uses and functions, especially aquatic habitat, or creation of a nuisance;
    - (d) There will be no additional public expense for flood protection, lost environmental stream uses and functions, rescue or relief operations, policing, or repairs to streambeds and banks, roads, utilities, or other public facilities;
    - (e) The applicant's circumstances are unique and do not represent a general problem, and;
    - (f) The granting of the variance will not alter the essential character of the area involved including existing stream uses.
  3. No variance shall be granted to the floodplain development requirements of this ordinance unless the applicant demonstrates that:
    - (a) The development project cannot be located outside the SFHA;
    - (b) All floodway construction requirements, if any, will still be met; and
    - (c) All requirements of other permitting agencies will still be met.
  4. The Zoning Board of Appeals shall notify an applicant in writing that a variance from the requirements of Section 16.3.02 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 \$25 for \$100 of insurance coverage;
    - (b) Increase the risks to life and property; and
    - (c) Require that the applicant proceed with knowledge of these risks and that he will acknowledge in writing that he assumes the risk and liability.
  5. Variances requested in connection with restoration of a historic site, building or structure, may be granted using criteria more permissive than the above requirements, subject to the conditions that:
    - (a) The repair or rehabilitation is the minimum necessary to preserve the historic character and design of the building or structure; and,
    - (b) The repair or rehabilitation will not result in the building or structure being removed as a certified historic building or structure.
  6. A variance to Section 16.3.02's prohibition of critical facilities in the SFHA maybe issued, providing:
    - (a) The applicant demonstrates that the facility cannot be located in a flood-free location;

- (b) The facility shall be protected from flood damage to the 500-year flood elevation; and
- (c) The facility shall be provided with at least one all-weather access road that connects the facility to areas outside the SFHA. The surface of the access road shall be at or above the base flood elevation.

E. *Abrogation and Greater Restrictions.*

- 1. This Ordinance is not intended to repeal, abrogate or impair any existing easements, covenants, or deed restrictions.
- 2. Where this Ordinance and other ordinance, easements, covenants, or deed restrictions conflict or overlap, whichever imposes the more stringent restrictions shall prevail.
- 3. This Ordinance is intended to repeal the original ordinance or resolution which was adopted to meet the National Flood Insurance Program regulations, but is not intended to repeal the resolution which the City of Country Club Hills passed in order to establish initial eligibility for the program.

F. *Separability.* The provisions and sections of this Ordinance shall be deemed separable and the invalidity of any portion of this Ordinance shall not affect the validity of the remainder.

## ARTICLE 2. - SITE DEVELOPMENT REQUIREMENTS

### 16.2.01. - General Requirements.

- A. *General Requirement.* No development shall adversely affect the flow of surface waters to or from neighboring properties.
- B. *Existing Systems.*
  - 1. Stormwater systems shall properly incorporate and be compatible with existing subsurface and surface drainage systems including agricultural systems.
  - 2. All existing drain tiles shall be incorporated into the new storm sewer system.
- C. *Drainage Easements.*
  - 1. No obstructions shall be placed in any drainage easement that may block or divert the flow of surface drainage.
  - 2. All fences built in or across a drainage easement shall be either:
    - (a) Open to allow the flow of surface water; or
    - (b) Have the bottom of the fence at least 6 inches above grade to allow the unobstructed flow of surface water.
- D. *Stormwater Depths.*
  - 1. The maximum depth of stormwater or floodwaters on new streets, parking lots, and other paved areas shall be eight inches measured at the gutter.
  - 2. The maximum depth of stormwater in other areas that are not designated drainageways or water bodies, shall be one foot.
- E. *Diversions.* Transfers of waters between watersheds shall be prohibited except when such transfers will not violate the provisions of this ordinance.
- F. *Best Management Practices.* Developments shall incorporate all best management practices as may be required pursuant to the United States Clean Water Act, as amended.
- G. *Runoff Volume Reduction Hierarchy.*

1. An applicant shall choose a strategy to meet the release rate requirements that minimizes the increase in runoff and rates from the development and improves water quality.
2. The applicant shall use appropriate best management practices and the following hierarchy in preparing a drainage plan:
  - (a) Preservation of natural resource features of the development site (e.g. floodplains, wetlands, prairies and woodlands);
  - (b) Preservation of the existing natural streams, channels and drainage ways;
  - (c) Minimizing impervious surfaces created at the site (e.g., narrowing road width, minimizing driveway length and width, clustering homes and shared driveways;
  - (d) Design of open vegetated channels to convey stormwater runoff;
  - (e) Preservation of the natural infiltration and storage characteristics of the site (e.g., interspersing grass filter strips in areas with impervious cover and installing on-lot bioretention facilities);
  - (f) Implementation of structural measures that provide water quality and quantity control, such as constructing wet bottom versus dry bottom basins;
  - (g) Implementation of structural measures that provide only quantity control and conveyance.

H. *Design Rainfall.*

1. Unless a continuous simulation approach to drainage system hydrology is used, all design rainfall events shall be based on Illinois State Water Survey's Bulletin 70.
2. The first quartile point rainfall events shall be used for the design and analysis of conveyance systems with a duration of less than twelve hours.
3. The third quartile point rainfall distributions shall be used for the design and analysis of detention basins and conveyance systems with a duration 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 SCS Type II distribution may be used as an alternative.

I. *Design Methods.*

1. Major conveyance systems for tributary areas up to ten (10) acres may be designed using the rational method. All minor conveyance systems may be designed using the rational method.
2. Event hydrograph methods shall be used to calculate design runoff volumes for stormwater storage basins and major conveyance systems with greater than 10 acres of drainage area.
3. The following hydrologic design procedures are considered acceptable for generation of hydrographs: Corps of Engineers HEC-1, TR-20, TR-55 subject to rainfall distribution modifications, and continuous simulation models.
4. Event methods must use antecedent moisture condition 2.
5. The hydrologic model used shall assume that the watershed is either fully urbanized or fully developed according to current zoning ordinances that have jurisdiction over the area. The model may assume that detention will be construction for new development as required by current ordinances that have jurisdiction over the area. Payment of the fee does not relieve the development from meeting all pertinent floodplain development requirements of Part 3 of this Ordinance.

All construction sites regulated by the City must have post construction runoff management that meets or exceeds the requirements of Section IV(D)(2)(b) of NPDES Permit No. ILR10 including management practices controls, and other provisions at least as protective as the requirements contained in the Illinois Urban Manual, 2002.

#### 16.2.02. - Stormwater Storage.

##### A. *Release Rates.*

1. No Level 1 or 2 development shall allow the stormwater runoff to leave the development site at a rate greater than the peak runoff from the site under the conditions that exist when the permit is applied for.
2. The drainage system for a property shall be designed to control the peak rate of discharge from the property for the two-year, 24-hour and 100-year, 24-hour events.
3. The peak discharge for events less than or equal to the two-year event shall not be greater than 0.04 cfs per acre of property drained. The peak 100-year discharge shall not be greater than 0.15 cfs per acre of property drained.
4. Upon approval of the Building Commissioner, storage volume calculations for Level 2 developments may be based on the development's percentage of impervious area, using the calculations in Detention Volume versus Impervious Area (South Suburban Mayors and Managers Association, May, 2000).

##### B. *Emergency Overflow.*

1. All stormwater infiltration, retention and detention facilities shall be provided with an emergency overflow structure capable of passing the 100-year peak flow inflow rate with out damage to buildings or property.
2. The overflow shall be established at the 100-year highwater elevation.
3. The remainder of the basin shall have at least one foot of freeboard.

##### C. *Outlet Design.*

1. Single pipe outlets shall have a minimum inside diameter on 12 inches.
2. If design release rates call for a smaller outlet, a design that minimizes the possibility of clogging, such as a perforated riser, shall be used.
3. The minimum outlet restrictor size shall be four (4) inches in diameter provided there is adequate downstream capacity.
4. All outlets shall be "gravity only" unless otherwise approved by the Building Commissioner.
5. Backwater on the outlet structure from the downstream drainage system shall be evaluated when designing the outlet.

##### D. *Dam Construction.* If the construction of a storage basin involves the construction, modification or removal of a dam or in-stream impoundment structure, as defined in 17 IL Adm. Code 3702 (Rules for Construction of Dams), the applicant shall obtain an Illinois Division of Water Resources Dam Safety Permit or letter stating no permit is required prior to the start of work.

##### E. *Off-site Flow.* Stormwater infiltration, retention and detention facilities required to meet a development's discharge requirements shall be designed to by-pass off-site tributary flow from streams and channels unless approved by the Building Commissioner.

##### F. *Depressional Storage.*

1. The function of existing on-site depressional storage shall be preserved independently of required detention.
2. When depressional storage is removed it must be compensated for by an on-site runoff storage facility at a 1



to 1 ratio. This requirement is in addition to the site runoff storage requirements of this Ordinance.

G. *Storage Basins.* Detention and retention basins shall be designed with the following guidelines:

1. *Provisions for all basins:*

- (a) The facility shall incorporate either open water or wetland features to improve water quality.
- (b) The facility shall be designed to remove stormwater pollutants.
- (c) To the extent feasible, the distance between detention inlets and outlets shall be maximized. Where possible, they should be at opposite ends of the basin.
- (d) The dry portions of the facility may be made available for recreational use.

2. *Provisions for areas with open water:*

- (a) The water shall be at least three feet deep, excluding nearshore banks and safety ledges. If fish habitat is to be provided, at least twenty-five percent of the bottom area shall be ten feet deep to prevent winter freeze-out.
- (b) The side slopes shall be no steeper than 5 to 1 (horizontal to vertical).
- (c) The permanent pool volume at normal depth shall be equal to the runoff volume from its watershed for the 2-year storm. If this can not be achieved, the bottom shall be underdrained or wetland plantings shall be used.
- (d) Shoreline protection shall be provided to prevent erosion. Native vegetation is the preferred landscaping material.
- (e) Facilities shall be available, if possible, to allow the pond level to be lowered by gravity flow for cleaning purposes and shoreline maintenance.
- (f) Aeration facilities may be required to prevent pond stagnation. Agreements for the perpetual operation and maintenance of aeration facilities shall be prepared to the satisfaction of the Building Commissioner.

3. *Provisions where wetland features are used:*

- (a) The design criteria, vegetation selection, performance criteria, and maintenance and monitoring guidelines in Naturalized Stormwater Management Facilities (South Suburban Mayors and Managers Association, May, 2000) shall be followed.
- (b) Sediment basins should be provided at all major inlets to the facility. 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 of depth should be no steeper than 3 to 1 (horizontal to vertical) and basin depth should be at least 3 feet and designed to allow access for sediment removal equipment.
- (c) There should be no low flow bypass between the inlet and outlet. Paved low flow channels shall not be used.

4. *Provisions for shoreline zones:*

- (a) The "shoreline zone" is that area between one foot above normal pool stage and one foot below normal pool stage.
- (b) The side slope in the shoreline zone shall not be steeper than 10 to 1 (horizontal to vertical).
- (c) Appropriate soil conditions shall be provided in the shoreline zone.
  - (1) Compaction of both subsoil and topsoil shall be minimized (i.e., to less than 275 psi).
  - (2) Where subsoil compaction cannot be avoided, it should be disked to a depth of 6—8 inches with a chisel plow before spreading topsoil.

- (3) A suitable uncompacted topsoil, at a minimum thickness of one foot, shall be spread to provide a suitable for aquatic plants. Coarse soils with minimal clay content and a high organic content are recommended.
- (d) Water tolerant, preferably native, vegetation shall be used to landscape the shoreline zone.
  - (1) 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).
  - (2) Plant selection should conform to the guidance in the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois (MRCS et al, 1998).

5. *Provisions for areas (other than shoreline zones) that are intended to remain dry:*

- (a) The minimum bottom slope for turf shall be two percent (2%). If this can not be achieved, the bottom shall be underdrained or wetland plantings shall be used.
- (b) The side slopes shall be no steeper than 4 to 1 (horizontal to vertical) for all turf areas.

H. *Streets, Parking and Underground Storage.*

- 1. No storage basin shall be constructed within a distance of 10 feet plus one and one-half times the depth of any basin to the right-of-way of any public roadway without written permission from Building Commissioner.
- 2. The owner of a parcel being developed adjacent to a state or county road right-of-way shall notify the proper highway authority in writing of the proposed development. The owner shall request that the proper highway authority provide, at the cost of the highway authority or as otherwise provided by law, the amount of additional capacity in any stormwater detention facility to be constructed in the development for the future availability of the highway authority for meeting stormwater detention requirements of any future public construction on the highway.
- 3. The maximum depth of stormwater storage for paved areas designated for public parking is eight inches.
- 4. Underground storage of stormwater shall be avoided. If used, adequate storm sewer inlets must be provided to pass the 100-year flow into the underground storage.

I. *Storage in Floodplains.*

- 1. Stormwater retention and detention facilities shall not be constructed in the SFHA unless approved by Building Commissioner.
- 2. If a storage facility is constructed in the SFHA, the volume of detention storage required to meet the standards of this Section shall be in addition to the floodplain compensatory storage required for the development.

J. *On-Stream Detention.*

- 1. "On-stream" detention means an in-stream impoundment or other detention basin that includes construction of a dam or other barrier in an existing channel.
- 2. All on-stream detention shall provide a Detention Volume Safety Factor equal to one plus 0.05 times the ratio of off-site tributary drainage area to on-site tributary drainage area. The maximum Detention Volume Safety Factor shall be 1.5.
- 3. The applicant for a permit to construct an on-stream detention facility shall provide the Building Commissioner with either an IDNR dam safety permit or a letter from IDNR stating that a dam safety permit is not required.
- 4. On-stream detention shall not be allowed if:
  - (a) The off-site to on-site tributary drainage area ratio is greater than 10:1, except for developments

providing a watershed benefit; or

- (b) The tributary drainage area is greater than 640 acres, except for detention that provides a watershed benefit.
5. The release rate shall be the total of the following:
- (a) 0.04 cubic feet per second per acre of the total tributary drainage area (on-site and off-site) at the elevation created by impoundment of the on-site 2-year storm volume plus the Detention Volume Safety Factor, and
  - (b) 0.15 cubic feet per second per acre of the total tributary drainage area (on-site and off-site) at the elevation created by impoundment of the on-site 100-year storm volume plus the Detention Volume Safety Factor, and
  - (c) The required compensatory storage.
  - (d) The release rate and on-site detention volume shall be calculated using the 24-hour storm event. This release rate calculation shall be used unless other site conditions warrant further analysis and modification from this standard or unless watershed-specific release rate have been adopted.
6. On-stream detention shall provide water quality treatment. One of the following two methods shall be used:
- (a) A wet detention facility shall be constructed with a minimum permanent pool volume equal to the calculated sediment volume accumulated over a one-year period for the entire up stream watershed and an average normal water depth of at least four feet. The facility shall also have a live storage volume that meets the standard storage requirements of this Section.
  - (b) A separate off-line sediment basin shall be used with a volume appropriate for the tributary drainage area to the sediment basin.
7. Impoundment of the stream as part of on-stream detention shall not prevent the migration of indigenous fish species, which require access to upstream areas as part of their life cycle, and shall not cause or contribute to the degradation of water quality or stream aquatic habitat. These fish species may be present or potentially present.
8. Compensatory storage requirements shall be satisfied and shall be in addition to detention volume requirements.
9. No on-stream detention shall be allowed in areas designated as an exceptional functional value wetland.

#### 16.2.03. - Stormwater Conveyance.

##### A. *Capacity.*

- 1. Minor Stormwater conveyance systems shall be sized to convey the 10-year runoff.
- 2. Major conveyance systems shall be sized to carry the 100-year runoff.

##### B. *Storm Sewers and Swales.*

- 1. The 10-year design storm shall be used as a minimum for storm sewers and minor Swales.
  - (a) Storm sewers shall contain the 10-year storm within the pipes and manholes.
  - (b) Roadside ditches and Swales shall contain the 10-year storm without water encroaching on the pavement.
- 2. Storm sewer design shall be based on full flow conditions: otherwise, hydraulic grade calculations shall be performed that show that the rims are not inundated at the design storm.
- 3. Storm sewers and Swales shall not connect to sanitary sewers.

##### C. *Existing Systems.*

1. Field tile systems disturbed during construction must be reconnected by those responsible for their disturbance approved drainage plan includes provisions for the disturbed system. All abandoned field tiles shall be removed entirety.
2. Storm sewers and Swales may connect to existing drain tiles or storm sewers only if the applicant submits a maintenance agreement, recorded easements and a report that indicates the existing system has adequate hydraulic capacity and structural integrity. The recorded easement and maintenance agreement must extend from the connection to the discharge point in an open channel.

D. *Easements.*

1. All storm sewers and Swales shall be located in a public road right-of-way or maintenance easement.
2. The following easement widths shall be used to provide sufficient maintenance access:

Pipe diameter (inches)	Easement width (feet)
Less than 11	10
18 to 36	12
36 to 60	15
Greater than 60	10 feet plus the diameter of the pipe

3. The Building Commissioner shall require additional easement widths if the storm sewer depth is greater than average.
4. All drainage easements shall be accessible to vehicular equipment; however, vehicles do not have to be able to drive down the entire length of the easement.

E. *Erosion Protection.*

1. All stormwater conveyance systems shall be designed and constructed to withstand the expected velocity of flow from all events up to the base flood without erosion.
2. Stabilization adequate to prevent erosion shall be provided at the inlets and outlets for all pipe and channel transitions.

F. *Sewer Design.*

1. The minimum storm sewer shall be 10 inches for the first pipe and 12 inches for subsequent reaches unless approved by the Building Commissioner.
2. The minimum design velocity for a storm sewer shall be 2.5 fps. The maximum design velocity for a storm sewer shall be 8.0 fps.
3. All flared end sections for 12-inch or larger storm sewers shall have grates to stop people, animals or large debris from entering. The grates shall have openings no larger than 3 inches horizontal to 8 inches vertical.

G. *Streams and Channels.* Where an existing stream or channel is proposed as part of the conveyance system for the development's increased runoff, the following requirements shall apply:

1. The project shall meet all requirements in Sections 16.2.04, 16.2.05, and 16.3.03 on channel and bank

protection.

2. Clearing of channel vegetation shall be limited to that which is necessary. A re-vegetation plan is required using the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, MRCS, et al. as a minimum standard.
3. A minimum maintenance easement of 12 feet from the top of bank is required along one side of all channels draining 20 or more acres.

H. *Overland Flow Paths.*

1. The development must have an overland flow path that will pass the 100-year flood flow without damage to buildings or property.
2. If the upstream drainage area is less than 20 acres, the storm sewer pipe and inlet systems sized for the base flood can be constructed in lieu of providing an overland flow path.
3. The critical duration 100-year flood flow shall be used to design the overland flow path limits and it shall include all on-site and off-site tributary areas.
4. Overland flow paths shall be protected from fencing, landscaping or storage shed placement, which could impair its function. This protection shall be established through an easement, deed or plat restriction as required in Section 16.1.05(G).
5. All principal buildings on parcels containing or adjoining an overland flow path or other high water level designation shall have a lowest adjacent grade elevation:
  - (a) 0.5 feet above the overflow elevation for tributary areas of 20 acres or less.
  - (b) One foot above the overflow elevation for tributary areas greater than 20 acres.

16.2.04. - Erosion and Sediment Control.

A. *General Principles.*

1. The requirements of this Section shall only affect Level 1 and 2 developments.
2. Development should be related to the topography and soils of the site so as to create the least potential for erosion. Areas of steep slopes, where high cut and fills may be required, should be avoided and natural contours should be followed as closely as possible.
3. Natural vegetation should be retained and protected. Clearing of natural ground cover and/or trees within a buffer area as defined in Section 16.2.05 should be left undisturbed wherever possible.
4. The smallest practical area of land should be exposed at any one time.
5. Prior to site clearing and grading, sediment basins or traps, filter barriers, diversions and other appropriate control measures shall be installed.
6. Permanent vegetation and structures should be installed and functional as soon as practical during development. Native vegetation is preferred for developments near, or adjacent to high quality natural areas, wetlands and streams.
7. Those areas being converted from agricultural purposes to other land uses shall be vegetated with an appropriate protective cover prior to development.
8. All waste generated as a result of site development shall be properly disposed of and shall be prevented from being carried off the site by either wind or water.

B. *On-Site Control Measures.* The on-site control measures shall be designed based on the size of the disturbed areas as follows:

1. For disturbed areas draining less than one (1) acre, filter barriers (including filter fences, straw bales, or equivalent measures) shall be constructed to control all off-site runoff as specified in referenced handbooks. Vegetated filter strips with a minimum width of twenty-five (25) feet may be used as an alternative where runoff in sheet flow is expected.
  2. For disturbed areas draining more than one (1) acre but less than five (5) acres, a sediment trap or equivalent control measure shall be constructed at the downslope point of the disturbed area in conjunction with other filter barriers.
  3. For disturbed areas draining more than five (5) acres, a sediment basin or equivalent control measure shall be constructed at the downslope point of the disturbed area in conjunction with other filter barriers.
  4. Sediment basin and trap design shall provide for both detention storage and sediment storage. The detention storage shall be for equal volumes of "wet" detention storage and "dry" detention storage. Each shall be sized for the 2-year, 24-hour runoff from the site. The release rate shall be that rate required to achieve a minimum detention time of ten (10) hours. The outlet structure shall be placed such that it only drains the dry detention storage.
  5. 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. A sediment removal schedule is required for construction periods exceeding one year.
- C. *Stormwater Conveyance Channels.* Stormwater conveyance channels, ditches, swales, and diversions, shall convey a 10-year frequency storm without erosion. All channels shall be stabilized within 48 hours, consistent with the following standards:
1. For grades up to 4 percent, seeding in combination with mulch or erosion blankets shall be placed along the channel sides with sod or erosion blanket applied to the bottom.
  2. For grades of 4 to 8 percent, sod shall be used.
  3. For grades greater than 8 percent, use rock or rip-rap, or reduce the grade using drop structures.
- D. *Channel Protection.*
1. A vegetated buffer strip of at least 25 feet in width shall be preserved and/or re-established, where possible, along existing channels.
  2. Land disturbance activities in stream channels and construction vehicle use of channels shall be minimized.
  3. Temporary stream crossings shall be constructed, where necessary, to minimize erosion. Temporary crossings shall be constructed of non-erosive materials such as rip-rap or gravel.
  4. The temporary stream crossing shall be completely removed and the stream restored to its preconstruction condition within 48 hours after completion of construction, incorporating appropriate native vegetation. Also see Section 16.3.03, Requirements in Floodways.
- E. *Additional Requirements.*
1. Storm sewer inlets and culverts shall be protected by sediment traps or filter barriers meeting accepted design standards and specifications.
  2. If dewatering devices are used, discharge locations shall be protected from erosion. All pumped discharges shall be routed through appropriately designed sediment traps or basins, or equivalent.
  3. Each site shall have graveled entrance roads, access drives and parking areas of sufficient length and width to prevent sediment from being tracked onto public roadways. 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.

F. *References Adopted.*

1. Specifications for erosion control measures shall be in accordance with the "Illinois Urban Manual" (1995) or latest edition.
2. Sediment and erosion control planning shall be in accordance with "Procedures and Standards for Urban Soil Erosion and Sedimentation Control in Illinois" (revised July, 1988) by the Urban Committee of the Association of Illinois Soil and Water Conservation Districts (the "Green Book") Chapters 1—5.
3. Where the requirements of Section 16.2.04(B)—(E) [and] the Illinois Urban Manual or the "Green Book" conflict, the more restrictive requirement shall prevail.

G. *Plan Requirements.* An erosion and sediment control plan shall include the following:

1. Proposed sequencing schedule, including dates, for:
  - (a) Stripping;
  - (b) Installation of temporary on-site control measures and perimeter controls;
  - (c) Clearing and grading;
  - (d) Construction;
  - (e) Installation of storm drainage and paving; and
  - (f) Final grading, removal of temporary measures and landscaping.
2. Location, standard details and design specifics of sediment basins and traps. The design specifics should include outlet details and the drainage area to each measure.
3. Location and description of all control measures, including seeding mixtures and rates, types of sod, method of seedbed preparation, expected seeding dates, kind and quantity of mulching for both temporary and permanent vegetative control measures and types of non-vegetative stabilization measures.
4. Description of dust and traffic control measures and location and specifications for construction entrances.
5. Locations of stockpiles and description of stabilization measures.
6. Volumes, locations and methods of stabilization for off-site fill or borrow.
7. Provisions for maintenance of control measures, including a maintenance schedule.
8. Description of permanent stabilization measures.
9. Identification (name, address and telephone) of the person(s) or entity responsible for maintenance during and after construction.
10. The erosion and sediment control plan must meet or exceed the requirement for a storm water pollution prevention plan as required in Part IV of NPDES permit No. ILR10 including management practices, controls, and other provisions at least as protective as the requirements contained in the Illinois Urban Manual, 2002.

- H. *Extended Construction Shutdown Period.* Disturbed areas shall be stabilized with temporary or permanent measures within seven (7) calendar days following the end of active disturbance or redisturbance. The condition of the construction site for the winter shut down period shall address proper sediment and erosion control early in the fall growing season. Stabilization measures include seeding, mulching, sodding or erosion control blankets.
- I. *Final Site Stabilization.* All temporary control measures shall be disposed of within thirty days after permanent soil stabilization measures have been installed. Trapped sediment and other disturbed soils resulting from the temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

16.2.05. - Stream and Wetland Protection.

- A. *Buffer Areas Required.* Buffer areas shall be required along all streams, lakes, waterways, channels and wetlands,

except for the following:

1. Roadside ditches;
2. Existing excavated stormwater storage facilities;
3. Borrow pits and quarries;
4. Leveed waterways; and
5. Improvements to existing public roads and utilities.

**B. *Buffer Area Dimensions.***

1. **Linear Buffers.** Linear buffers shall be designated along both sides of all streams and natural channels. A minimum buffer of thirty feet on each side of the channel shall be provided.
2. **Water Body Buffers.** Water body buffers shall encompass all lakes, wetlands and other nonlinear bodies of water. A minimum buffer of thirty feet on each side of the channel shall be provided.
3. Exceptional functional value wetlands shall have a minimum buffer of one hundred (100) feet.
4. In areas having state or federal threatened and endangered species present or for Illinois Natural Area Inventory Sites, buffer widths may be modified to meet the terms and conditions specified during consultation with the Illinois Department of Natural Resources or United States Fish and Wildlife Service, pursuant to state and federal laws and regulations.
5. The buffer area for all Waters of the United States shall extend from the ordinary highwater mark. The buffer area for wetlands shall extend from the edge of the delineated wetland. A property may contain a buffer area that originates from the Waters of the United States on another property.
6. Buffer averaging may be allowed by the Building Commissioner, provided the buffer width is at least half of the buffer width required by this ordinance or the minimum width required by a Corps of Engineers permit, whichever is wider.

**C. *Buffer Requirements.***

1. Features of the stormwater management system may be within the buffer area of a development.
2. Access through buffer areas shall be provided, when necessary, for maintenance purposes.
3. Preservation of buffer areas shall be provided by deed or plat restriction.

**D. *Allowed Uses in Buffer Areas.***

1. All buffer areas shall be maintained free from development except for the following uses:
  - (a) Passive recreation, including pedestrian, bicycle or equestrian trails.
  - (b) Construction and maintenance of utilities and Stormwater facilities.
2. Structures and impervious surfaces related to recreational facilities, such as trails and paths, may occupy a maximum of twenty (20) percent of the buffer surface area, provided the runoff from such facilities is diverted away from the Waters of the United States or such runoff is directed to enter the buffer area as unconcentrated flow. Boat docks, boathouses and piers shall be allowed and count as a structure when calculating percent of impervious area.
3. Buffer areas hydrologically disturbed by allowing construction or as part of a revegetation plan shall be revegetated using the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, (NRCS, et al.) as a minimum standard.

**E. *Channel Protection.***

1. If the proposed activity involves a channel modification, the permit applicant shall demonstrate that:



- (a) There are no practicable alternatives to the activity, which would accomplish its purpose with less impact to conditions of the body of water affected. Channel modification is acceptable if the purpose is to restore nature and improve water quality and fish and wildlife habitat.
  - (b) 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.
2. A channel modification shall be designed and 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.
  - (b) Hydraulically effective transitions shall be provided at both the upstream and down stream 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 stream side (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 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 rip-rap 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.
  - (l) The provisions of Sections 16.2.04(D) and 16.3.03(E) shall also be met.

F. *Dumping.*

1. No person, firm, corporation or governmental agency shall dispose of or dump grass clippings, brush, fill, trash, other material that may obstruct the flow or storage of water in any channel, swale, culvert, storm sewer, wetland basin or other natural or man-made watercourse or water body.
2. No person, firm, corporation or governmental agency shall dispose of or dump any petroleum products, chemicals, noxious liquids, animal waste or other materials that will pollute the water in any channel, swale, culvert, storm sewer, wetland, storage basin or other natural or man-made watercourse or water body.

### ARTICLE 3. - FLOODPLAIN DEVELOPMENT REQUIREMENTS

#### 16.3.01. - Regulatory Floodplain Data.

##### A. *Special Flood Hazard Area.*

1. All development within the Special Flood Hazard Area is subject to this ordinance.
2. The "Special Flood Hazard Area" (SFHA) is the area subject to flooding by the base flood and shown on the November 6, 2000, Cook County county-wide Flood Insurance Rate Map as Zone A, A1-30, AE, AO, and/or AH.

##### B. *Base Flood Elevation.*

1. The base flood elevation for the SFHAs of the southwest branch of the Calumet Union Drainage Ditch and tributaries north and south shall be as delineated on the 100-year flood profiles in the Cook County county-wide Flood Insurance Study prepared by FEMA and dated November 6, 2000, and such amendments to such study as may be prepared from time to time.
2. The base flood or 100-year frequency flood elevation for the SFHA's of those parts of unincorporated Cook County that are within the one and one-half mile extraterritorial jurisdiction of the City that may be annexed into the City are designated for the southwest branch of the Calumet Union Drainage Ditch and tributaries north and south on the following map number 17031C and panels 0707F, 0709F, 0717F, 00719F, 0738F and 0739F and dated November 6, 2000, respectively, of the countywide FIRM of Cook County prepared by FEMA.
3. The base flood elevation for each SFHA delineated as an "Zone AH" or "Zone AO" shall be that elevation (or depth) delineated on the November 6, 2000, Cook County county-wide Flood Insurance Rate Map.
4. The base flood elevation for all other SFHAs and regulated areas shall be as defined in Section 16.3.04(B).

##### C. *SFHAs Defined by Elevation.* Upon receipt of a development permit application, the Building Commissioner shall compare the elevation of the site to the base flood elevation. Any development located on land that can be shown to be higher than the base flood elevation and which has not been filled since the date of the site's first Flood Insurance Rate Map as required by this ordinance, is not in the SFHA and therefore not subject to the requirements of this Ordinance.

##### D. *Flood Protection Elevation (FPE).* The Flood Protection Elevation, or "FPE," shall be the elevation of the base flood plus one foot at any given location in the SFHA.

##### E. *Designated Floodway.*

1. The floodway includes the channel and that portion of the riverine floodplain adjacent to a stream or watercourse as designated by IDNR/OWR, which is needed to store and convey the existing base 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 10 percent increase in velocities.
2. The floodways are designated for those areas located within and around the City's jurisdiction and the unincorporated areas in Cook County as noted on the November 6, 2000 Cook County county-wide Flood

## Insurance Rate Map.

- F. *Challenges to Regulatory Floodplain Data.* When a party disagrees with the regulatory floodplain data proscribed by this ordinance, he/she may finance the detailed engineering study needed to replace existing data with better data and submit it to IDNR/OWR and FEMA.

## 16.3.02. - Requirements in all Special Flood Hazard Areas.

- A. *Jurisdiction.* All development projects in all types of Special Flood Hazard Areas shall comply with this section. Development proposed in floodways and in SFHAs without regulatory floodplain data shall also comply with the additional requirements of Sections 16.3.03 and 16.3.04.
- B. *Public Health Protection.*
1. No development in the SFHA shall create a threat to public health or safety.
  2. No development 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 FPE.
  3. New and replacement water supply systems, wells, and sanitary sewer lines may be permitted providing all manholes or other above ground openings located below the FPE are watertight.
  4. Septic systems and other on-site waste disposal systems are prohibited in the SFHA.
- C. *Filling and Grading.* Whenever a development project proposes to fill or grade vacant land in order to remove a portion of it from the SFHA or to change the floodway boundary:
1. The top of the resulting filled or graded area shall be at or above the FPE; and
  2. The Building Commissioner shall not issue a development permit until the applicant has received a Conditional Letter of Map Revision from FEMA.
  3. The Building Commissioner shall not issue a certificate of occupancy until the applicant has received a Letter of Map Revision from FEMA.
- D. *Compensatory Storage.*
1. Whenever any portion of a floodplain is authorized for use, the volume of space which will be occupied by the authorized fill or building below the base flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the base flood elevation.
  2. The excavation volume shall be at least equal to 1.25 times the volume of storage lost due to the fill or building.
  3. In the case of streams and watercourses, such excavation shall be made opposite or adjacent to the areas so filled or occupied.
  4. All floodplain storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation at least a 1:1 ratio. All floodplain storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation at least a 1:1 ratio.
  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. All such excavations shall be constructed to drain freely and openly to the watercourse.
  7. This compensatory storage requirement does not apply to small temporary structures (such as above ground swimming pools) where such projects are located on small lots with existing buildings where the site does not have sufficient space to provide compensating storage.

E. *Protecting Buildings.*

1. All new buildings and improvements and repairs to buildings located within the SFHA shall be protected from flood damage below the FPE.
2. This building protection requirement applies to the following situations:
  - (a) Construction or placement of a new building.
  - (b) Remodeling or other activity that will result in a substantially improved building.
  - (c) An addition that will result in a substantially improved building.
  - (d) An existing building that has been substantially damaged.
  - (e) Installing a manufactured home on a new site or a new manufactured home on an existing site. This building protection requirements does not apply to returning a manufactured home to the same site it lawfully occupied before it was removed to avoid flood damage.
  - (f) Installing a recreational vehicle or travel trailer on a site for more than 180 days.
  - (g) Construction of new buildings and substantial improvements in the 500-year floodplain.
3. This building protection requirement may be met by the methods specified in Section 16.3.02(F)–(I). Only nonresidential buildings may use the methods specified in Section 16.3.02(I). Buildings are also subject to the other requirements of this ordinance, including the floodway restrictions in Section 16.3.03.
4. A certification of occupancy shall not be issued for a building project until the permit applicant provides the Building Commissioner with a properly completed, signed and sealed as-built FEMA Elevation or Floodproofing Certificate.

F. *Buildings on Fill.* A residential or non-residential building may be constructed on permanent land fill in accordance with the following:

1. The lowest floor (including basement) of the building or addition shall be at or above the FPE.
2. The fill shall be placed in layers no greater than one foot deep before compacting and should extend at least ten feet beyond the foundation of the building before sloping below the base flood elevation.
3. The top of the fill shall be above the base flood elevation. However, the ten foot minimum may be waived if a structural engineer certifies an alternative method to protect the building from damage due to erosion, scour and other hydrodynamic forces.
4. The fill shall not adversely affect the flow or surface drainage from or onto neighboring properties.

G. *Elevated Buildings.* A residential or non-residential building may be elevated in accordance with the following:

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 FPE.
2. The building or improvements shall be elevated on crawlspace, stilts, piles, walls, or other foundation that is permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood.
3. Water and sewer pipes, electrical and telephone lines, submersible pumps, and other waterproofed service facilities may be located below the FPE.
4. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining buildings so as to minimize exposure to known hydrostatic and hydrodynamic forces such as uplift, current, waves, ice and floating debris.
5. All areas below the FPE shall be constructed of materials resistant to flood damage.
6. The areas below the RE may only be used for the parking of vehicles, building access or storage of non-floatable and non-hazardous materials in an area other than a basement. The applicant shall be advised that

equipment, machinery and fixtures not required for support of the building and contents located below the lowest floor are not covered by a flood insurance policy.

7. If the building is on a crawlspace or other design where the walls below the FPE are enclosed, the following requirements apply:
  - (a) The walls shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a Licensed Professional Engineer or architect or meet or exceed the following minimum criteria:
    - (1) There shall be a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
    - (2) The bottom of all openings shall be no higher than one foot above grade.
    - (3) Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
  - (b) The floor of the crawlspace shall not be lower than the lowest grade adjacent to the building's exterior.
  - (c) Gravity storm and sanitary sewer connections are prohibited in the enclosed area. If there are facilities in the enclosed area connected to storm and sanitary sewers, the connections must be to sumps, pumps and overhead sewer lines.
  - (d) If the lowest floor is more than five feet above the floor of the crawlspace, the owner shall sign a nonconversion agreement to assure that the enclosed lower area will not be improved, finished or converted to a use other than parking, building access or storage of materials.

H. *Manufactured Homes and Recreational Vehicles.*

1. In addition to the requirements of Section 16.3.02(E)–(G), manufactured homes:
  - (a) Shall have the lowest floor elevated to or above the FPE; and
  - (b) 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 Tie-Down Act issued pursuant to 77 Ill. Adm. Code Part 870.
2. Recreational vehicles or travel trailers shall be required to meet the above elevation and anchoring requirements for manufactured homes unless:
  - (a) They are on site for fewer than 180 consecutive days; and
  - (b) They are fully licensed and ready for highway use. 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.

I. *Floodproofed Buildings.* Only a non-residential building may be structurally dry floodproofed (in lieu of elevation) provided that:

1. A Licensed Professional Engineer shall certify that the building has been structurally dry floodproofed below the FPE and that the building and attendant utility facilities are watertight and capable of resisting the effects of the base flood.
2. 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.
3. Floodproofing measures shall be operable without human intervention and without an outside source of electricity (levees, berets, floodwalls and similar works are not considered floodproofing for the purpose of this subsection).

J. *Accessory Buildings.* Tool sheds and detached garages on an existing single-family platted lot, may be constructed w lowest floor below the FPE provided the building meets the following requirements:

1. The building is not used for human habitation.
2. The building shall meet the permanent opening criteria of Section 16.3.02(G)(7).
3. All areas below the FPE shall be constructed with waterproof material.
4. Service facilities such as electrical and heating equipment shall be elevated or floodproofed to the FPE.
5. The building shall be anchored to prevent flotation.
6. The building shall be less than 500 square feet in floor size.
7. The building shall be less than \$7,500 in value.
8. The building shall be used only for the storage of vehicles or tools and may not contain other rooms, workshops, greenhouses or similar uses.

K. *Critical Facilities.*

1. Critical facilities are defined as:
  - (a) Buildings or facilities that produce, use, or store highly volatile, flammable, explosive, toxic and/or water-reactive materials;
  - (b) Hospitals, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a flood;
  - (c) Police stations, fire stations, vehicle and equipment storage facilities, and emergency operations centers that are needed for flood response activities before, during, and after a flood;
  - (d) Public and private utility facilities that are vital to maintaining or restoring normal services to flooded areas before, during, and after a flood.
2. No critical facility shall be allowed in the SFHA.

L. *Known Flood Hazards.* The City Council shall take into account flood hazards, to the extent that they are known in all official actions related to land management, use and development.

M. *Major Developments.*

1. Subdivisions, annexation agreements; planned unit developments (PUDs), manufactured home parks and other major developments shall be reviewed to assure that the proposed developments are consistent with the provisions of this ordinance and the need to minimize flood damage.
2. 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.
3. The surface of all new arterial streets shall be at or above the base flood elevation. The surface of all new collector streets shall be at or above eight inches below the base flood elevation.

#### 16.3.03. - Requirements in Floodways.

A. *Jurisdiction.* This section applies to proposed development, redevelopment, site modification or building modification within a floodway.

1. Only those uses and buildings that meet the criteria in this section shall be permitted.
2. All floodway modifications shall be the minimum necessary to accomplish the purpose of the project.
3. All development projects shall also meet the requirements of Section 16.3.02.

B. *Terminology.*

1. The term "designated floodway" refers to floodways that have been mapped and designated by IDNR. These floodways are subject to the special requirements of 92 Ill. Adm. Code Part 3708.
2. The term "regulatory floodway" refers to floodways that have not been mapped and designated by IDNR but are determined by the developer pursuant to Section 16.3.04(C).

C. *Smaller Development Projects in Designated Floodways.* The following development projects may be permitted by the Building Commissioner provided there is no increase in flood levels. All other projects in the designated floodway are subject to the requirements of Section 16.3.03(D) and (E).

1. Underground and overhead utilities that meet the following requirements:
  - (a) The utility shall not result in any increase in existing ground elevations.
  - (b) The project shall not require the placement of above ground structures in the floodway.
  - (c) In the case of underground stream crossings, the top of the pipe or encasement shall be buried a minimum of 3' below the existing streambed.
  - (d) Overhead utility lines shall be constructed above the FPE or attached above the low chord of an existing bridge (with the permission of the bridge owner). Supporting towers shall not be placed in the watercourse and shall be designed so as to not catch debris during a flood.
  - (e) Disturbance of streamside vegetation shall be kept to minimum during construction to prevent erosion and sedimentation. All disturbed floodway areas, including the stream banks shall be restored to their original contours and seeded or otherwise stabilized upon completion of construction.
  - (f) A utility crossing carrying material that may cause water pollution as defined by the Environmental Protection Act 415 ILCS 5 shall be provided with shut-off valves on each side of the body of water to be crossed.
  - (g) All Illinois Commerce Commission. National Electric Safety Codes, and federal requirements for clearance must be met.
2. Storm and sanitary sewer relief outfalls that:
  - (a) Do not extend riverward or lakeward of the existing adjacent natural bank slope;
  - (b) Do not result in an increase in ground elevation; and
  - (c) Are designed so as not to cause stream erosion at the outfall location.
3. Construction of sidewalks, athletic fields (excluding fences), properly anchored playground equipment and patios at grade.
4. Construction of shoreline and streambank protection that:
  - (a) Does not exceed 1000 feet in length.
  - (b) Materials are not placed higher than the existing top of bank.
  - (c) Materials are placed so as not to reduce the cross-sectional area of the stream channel or bank of the lake.
5. Temporary stream crossings that meet the following requirements:
  - (a) The approach roads will be ½ foot or less above natural grade.
  - (b) The crossing will allow stream flow to pass without backing up the water above the stream bank vegetation line or above any drainage tile or outfall invert.
  - (c) The top of the roadway fill in the channel will be at least 2' below the top of the lowest bank. Any fill in the

channel shall be non-erosive material, such as rip-rap or gravel.

- (d) All disturbed stream banks will be seeded or otherwise stabilized as soon as possible upon installation and again upon removal of construction.
- (e) The access road and temporary crossings will be removed within one year after authorization.

D. *Smaller Development Projects in Regulatory Floodways.* Within all riverine SFHAs where the floodway has not been designated, the following standards shall apply:

1. The requirements of Section 16.3.04(C) shall be met.
2. Within the regulation floodway, the following activities may be permitted by the Building Commissioner All other projects in the designated floodway are subject to the requirements of Section 16.3.03(E) and (F).
  - (a) All activities listed in Section 16.3.03(C).
  - (b) The construction of light poles, sign posts and similar structures.
  - (c) The construction of properly anchored, unwall, open structures such as playground equipment, pavilions, and carports built at or below existing grade that would not obstruct the flow of flood waters.
  - (d) The placement of properly anchored buildings not exceeding seventy (70) square feet in size, nor ten (10) feet in any one dimension (e.g., animal shelters and tool sheds).
  - (e) The construction of additions to existing buildings which do not increase the first floor area by more than twenty (20) percent, which are located on the upstream or downstream side of the existing building, and which do extend beyond the sides of the existing building that are parallel to the flow of flood waters.
  - (f) Minor maintenance dredging of a stream channel where:
    - (1) The affected length of stream is less than 1000 feet;
    - (2) The work is confined to reestablishing flows in natural stream channels; or
    - (3) The cross-sectional area of the dredged channel conforms to that of the natural channel upstream and downstream of the site.

E. *Work in Channels.*

1. If the proposed project involves a channel modification, the applicant shall submit the following information:
  - (a) A discussion of the purpose of and need for the proposed work;
  - (b) A discussion of the feasibility of using alternative locations or methods to accomplish the purpose of the proposed work;
  - (c) An analysis of the extent and permanence of the impacts each feasible would have on the physical and biological conditions of the body of water affected; and
  - (d) 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. Construction of shoreline and streambank protection in the channel may be permitted by the Building Commissioner provided:
  - (a) The project does not exceed 1000 feet in length.
  - (b) Materials are not placed higher than the existing top of bank.
  - (c) Materials are placed so as not to reduce the cross-sectional area of the stream channel by more than 10 percent.
3. The flood carrying capacity within any altered or relocated watercourse shall be maintained.
4. The Building Commissioner shall notify the appropriate offices of adjacent communities at least 30 days



before issuing a permit on a project that will alter, relocate or modify a channel.

- F. *Larger Floodway Projects.* All development proposals other than those permitted under Section 16.3.03(C), (D) and (E) require a permit from IDNR/OWR. The Building Commissioner shall not issue a permit for a proposed project until the applicant first obtains a permit or written documentation that a permit is not required from IDNR/OWR, issued pursuant to 615 ILCS 515 et seq.
1. Application for an IDNR/OWR permit shall be submitted on a form according to procedures specified by IDNR/OWR.
  2. No development site shall be occupied, no certificate of occupancy shall be issued, and no subdivision or other development shall be accepted by the City Council unless and until all provisions of the IDNR/OWR permit are met.
  3. Only appropriate uses are allowed in a floodway. "Appropriate uses" are activities which:
    - (a) Will not cause a rise in the base flood elevation;
    - (b) Will not create a damaging or potentially damaging increase in flood heights or velocity;
    - (c) Will not be a threat to public health and safety and welfare; and
    - (d) Will not impair the natural hydrologic and hydraulic functions of the floodway or channel, or permanently impair existing water quality or aquatic habitat.
  4. 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) Buildings, structures or other facilities relating to the use of, or requiring access to, the water or shoreline, such as in-stream aeration and similar treatment facilities, and facilities and improvements related to recreational boating, commercial shipping and other functionally water dependent use;
    - (c) Storm and sanitary sewer relief outfalls;
    - (d) Underground and overhead utilities;
    - (e) Open space and 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;
    - (f) Detached garages, storage sheds, or other non-habitable accessory buildings 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 the surface of the parking lot shall be at or above nine inches below the base flood elevation;
    - (i) Designated floodway regrading, without fill, to create a positive non-erosive slope toward a watercourse. Regrading or other modifications of the floodway for the convenience of site design for a private development is not considered an appropriate use;
    - (j) Floodproofing activities to protect previously existing lawful buildings including dry floodproofing a building and the construction of floodwalls where the outside toe of the floodwall shall be no more than ten (10) feet away from the exterior wall of the existing building;
    - (k) The replacement, reconstruction, or repair of a damaged building, provided that the outside dimensions are not increased;
    - (l) Modifications to an existing building that will not increase the enclosed floor area of the building below

the FPE and which will not block flood flows, including, but not limited to, fireplaces, bay windows, decks, patios and second story additions.

4. Appropriate uses do not include:

- (a) The construction or placement of any new buildings, fill or building additions;
- (b) Critical facilities or wastewater treatment plants;
- (c) Excavation or channel modifications done to accommodate otherwise non-appropriate uses in the floodway;
- (d) Fencing (including landscaping or planting designed to act as a fence);
- (d) Storage of materials except as specifically defined above as an appropriate use.

16.3.04. - Areas Without Regulatory Floodplain Data.

- A. *Jurisdiction.* This section applies to proposed development, redevelopment, site modification or building modification in SFHAs and other regulated areas where base flood elevations have not been established and/or floodways have not been identified. Within these areas, all appropriate requirements of Section 16.3.02 shall apply.
- B. *Base Flood Elevations.* The base flood elevation shall be the best data available in the Illinois State Water Survey's Floodplain Information Repository. If the State Water Survey does not have data sufficient for regulatory purposes, the following procedures shall be used to obtain the base flood elevation for a site.
  - 1. If the base flood elevation is needed for a Level 2 or 3 development in a riverine SFHA, then the base flood elevation shall be determined using the "Quick - 2 Computer Program" or similar method described in Managing Floodplain Development in Approximate Zone A Areas, FEMA publication 265, and accepted by the State Water Survey.
  - 2. If the base flood elevation is needed for a Level 1 development project within a riverine SFHA, then:
    - (a) The base flood elevation shall be determined from a backwater model; such as HEC-II, WSP-2, or a dynamic model such as HIP.
    - (b) The flood flows used in the hydraulic models shall be obtained from a hydrologic model that meets the requirements of Section 16.2.01(I), Design Methods.
    - (c) Along any watercourses draining more than one square mile, the analyses shall be submitted to IDNR/OWR for approval. Once approved it must be submitted to the Illinois State Water Survey Floodplain Information Repository for filing.
  - 3. For a non-riverine SFHA:
    - (a) The base flood elevation shall be the highest historic flood recorded plus three feet, unless calculated by a detailed engineering study.
    - (b) In drainage areas greater than one square mile, the calculations shall be approved by IDNR/OWR.
- C. *Designated Floodway.* An applicant for a permit in an SFHA without a designated floodway may:
  - 1. Treat the entire SFHA as the designated floodway.
  - 2. Have an engineering study performed by a Licensed Professional Engineer to determine a regulatory floodway. The regulatory floodway may be submitted to IDNR/OWR for inclusion on IDNR/OWR's designated floodway list.
  - 3. If the application is for a Level 2 or 3 development project, treat the 90% of the floodplain closest to the channel as the regulatory floodway and the 10% of the floodplain farthest from the channel as fringe.

D. *Level 1 Developments*. Proposals for new Level 1 developments:

1. Shall include base flood elevation data and floodway delineations. The applicant's engineer shall be responsible for calculating the needed data.
2. The applicant's engineer shall submit the data to IDNR/OWR for review and approval as best available regulatory data and then send it to the State Water Survey.