STORMWATER MANAGEMENT REGULATIONS

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Article 1. GENERAL PROVISIONS AND DEFINITIONS

29.5-1.01 TITLE

These Regulations shall be known as the Stormwater Management Regulations and hereinafter referred to as "these Regulations".

29.5-1.02 SCOPE

These Regulations provide for the regulation of matters relative to the management of stormwater in Champaign and its extraterritorial jurisdiction. Its provisions include, but are not limited to, regulating drainage installations and improvements, requiring the preservation and enhancement of certain natural environmental features, requiring the installation of drainage improvements in developments, regulating uses, maintenance, and activities in floodplains and flood hazard areas, requiring permits, payment of fees and assurances of completion, and providing for inspections and control of work. The requirements, standards and specifications herein provided are in addition to any other applicable legal requirements.

29.5-1.03 PURPOSE

These Regulations are adopted in order to accomplish the following specific purposes:

A. To promote and protect the public health, safety and general welfare of the citizens from the hazards of flooding;

B. To preserve property values by protecting new and existing buildings and improvements to buildings from flood damage;

C. To assure that new developments and redevelopments do not increase flood or drainage hazards to others, or create unstable conditions susceptible to erosion;

D. To lessen the burden on taxpayers for flood control projects, repairs to flood-damaged public facilities and utilities, and flood rescue and relief operations;

E. To make federally subsidized flood insurance available for properties in Champaign by fulfilling the requirements of the National Flood Insurance Program, codified as 44 CFR 59-79, as amended;

F. To preserve the natural characteristics of stream corridors in order to moderate flood and stormwater impacts, prevent water quality deterioration, reduce soil erosion and regulate sedimentation, protect aquatic and riparian habitat, provide aesthetic benefits, and enhance community and economic development;

G. Promote a better quality of life by enhancing the community's natural resources.

29.5-1.04 RESPONSIBILITY OF THE CITY ENGINEER

The City Engineer shall enforce all ordinances and regulations related to watercourses, drainage facilities, and grading and drainage of development sites.

29.5-1.05 AUTHORITY OF THE CITY ENGINEER

The City Engineer may enter the premises of any land containing facilities regulated herein at any time for purposes of inspecting a site before, during and after construction to determine compliance with these Regulations. Permission to enter a site shall be a condition of each permit issued.

29.5-1.06 GEOGRAPHIC JURISDICTION

These Regulations shall apply to all development within the City and within the City's extraterritorial area of jurisdiction to the extent permitted under the City's authority granted in its Subdivision Regulations and under state law for annexation agreements.

29.5-1.07 OTHER REGULATIONS

When other laws or regulations covering the same regulated matter apply, the most restrictive requirements shall apply.

29.5-1.08 OFFICIAL ACTIONS

A. The City shall take into account storm and flood hazards, to the extent they are known or can be determined, in all official actions related to land management, land use and land development or redevelopment.

B. The City shall not approve a plat which includes lots intended to be used for residential building sites within a floodplain unless a clearly defined building site of adequate size for the applicable land use requirements is delineated outside the floodplain and all areas of floodplain are confined to the rear yard, and protected by an easement on which habitable buildings will not be allowed.

C. Maintenance of drainage facilities shall be provided.

1. The City will maintain those drainage facilities which are on public land and have been dedicated and accepted for maintenance or stipulated by agreement for maintenance by the City. All other drainage facilities, when location on other than public property, shall be the responsibility of the owner of the property on which they exist

or the owner of the drainage facility, regardless of whether or not dedicated easements exist over said facilities.

2. If the City Engineer provides written notification to a property owner that maintenance deficiencies exist which require correction, the property owner shall remedy such deficiencies within thirty (30) calendar days of such notification or within such other time period stipulated in the City Engineer's notification. If corrections are not made within the allowed time period, the City may enter upon dedicated easements and cause the necessary work to be performed and assess the cost of such work to the property owner.

29.5-1.09 PROHIBITED ACTIONS

A. Surface water shall be allowed to travel its natural or pre-regulations course unless changes are allowed by means of a Grading & Drainage Permit or grading and drainage plans approved by the City Engineer. It shall be unlawful for any person to force surface water off that person's property and onto a neighboring property or to prevent surface water which would have entered that person's property prior to October 7, 1997, from doing so without approval granted by a Grading & Drainage Permit or approved grading and drainge plans as per Section 2.01.

B. No buildings or permanent structures, including impervious surfaces, may be placed wholly or in part within an easement that has been granted for access to drainage facilities of any type, including agricultural drainage conduit, without the written approval of the City Engineer; provided, however, streets, sidewalks and driveways may be allowed to cross easements by the shortest possible route, provided that other requirements are met.

C. It shall be unlawful for any person to cause or maintain any obstruction within a watercourse or drainage facility of any type, except as may be specifically authorized by these Regulations.

D. It shall be unlawful to deposit in any watercourse or other drainage facility any material, trash, trimmings, stones, earth, concrete, wood, or any other material or matter which can be detrimental to water quality or injurious to plant or animal life.

29.5-1.10 GENERAL REQUIREMENTS

A. All new development and redevelopment, including those of governmental agencies and non-profit organizations, shall provide for stormwater detention in accordance with provisions of Article IV of these Regulations.

B. Engineering or architectural drawings required by these Regulations for subdivisions, manufactured home parks, commercial developments, and planned developments, shall include signed statements by a professional

engineer that the drawings account for changes in the drainage of surface waters in a manner consistent with these Regulations.

C. Proposals for development shall include base flood elevation data and floodway delineation whenever any part of the development site is at or below the base flood elevation. Where this information is not available from any existing source(s), the applicant shall be responsible for providing the calculations of the base flood elevation and the floodway delineation.

D. The system of official benchmarks and elevations (NGVD) established by the National Geodetic Survey shall be used by engineers, surveyors, and architects when making topographical surveys and maps, and when setting grades and elevations for buildings, pavements, drainage facilities, and other structures or works publicly constructed or regulated by the City.

29.5-1.11 ENGINEERING STANDARDS MANUAL

The City Engineer is authorized to issue, amend and withdraw administrative rules which implement, interpret and clarify the requirements of this chapter. These administrative rules shall be referred to as the "Engineering Standards Manual". Persons shall comply with these administrative rules to the same extent they are required to comply with the sections of the Regulations which the administrative rules implement, interpret and clarify.

29.5-1.12 ABROGATION AND GREATER RESTRICTIONS

These Regulations are not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions.

29.5-1.13 DEFINITIONS

For purposes of these Regulations, the following definitions shall apply unless inconsistent with the manifest intent of the Council or the context clearly requires otherwise:

29.5-1.13A

ACT An act in relation to the regulation of the rivers, lakes and streams of the State of Illinois, 615 ILCS 5/5 et seq.

ADVERSE IMPACTS Any deleterious impact on water resource systems affecting their beneficial uses including recreation, aesthetics, aquatic habitat, quality, and quantity.

AGRICULTURE DITCH An excavated ditch created for the purpose of draining agricultural land of excess surface and ground water.

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

ARMY CORPS The United States Army Corps of Engineers

29.5-1.13B

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 flood".

BASE FLOOD AREA The land area subject to inundation by waters of the base flood.

BASE FLOOD ELEVATION The elevation at all locations delineating the level of flooding resulting from the 100-year frequency flood event.

BUFFER An area of predominantly vegetated land set aside and maintained to be left open, adjacent to drainageways, wetland, lakes, ponds or other surface waters for the purpose of providing aesthetic values and/or eliminating or minimizing adverse impacts to such areas.

BUILDING A structure that is principally above ground and is enclosed by walls and a roof. This term includes a gas or liquid storage tank, a manufactured home, or a prefabricated building, and recreational vehicles and travel trailers to be installed on a site for more than 180 days.

BUILDING PERMIT A permit issued by the City for the construction, erection or alteration of a structure or building.

BUILDING SAFETY DIVISION The Division of the Fire Department of The City of Champaign, charged with inspecting safety and code compliance of residential, commercial and industrial building construction.

BULKHEAD A structure or wall that protects stream banks and property adjacent thereto.

29.5-1.13C

CERTIFY OR CERTIFICATION A signed, written statement declaring that specific inspections and tests, where required, have been performed, and such tests comply with the applicable requirements of these Regulations.

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

CHANNEL MODIFICATION Alteration of a channel by changing the physical dimensions or material of its bed or banks. Channel modification includes damming,

riprapping (or other armoring), widening, deepening, straightening, relocating, lining and significant removal of bottom or woody vegetation. Channel modification does not include the clearing of debris or trash from the channel. Channelization is a severe form of channel modification involving a significant change in the channel cross-section and typically involving realignment of the existing channel, natural or otherwise.

CITY of Champaign, Champaign County, Illinois, and its officers, agents and employees when lawfully acting on its behalf.

CITY ENGINEER The City Engineer of the City of Champaign.

CITY MANAGER The City Manager of the City of Champaign.

COMPENSATORY STORAGE An artificially excavated, hydraulically equivalent volume of storage within a floodplain used to balance the loss of natural flood storage capacity when artificial fill or structures are placed within the floodplain.

CONDITIONAL APPROVAL OF A REGULATORY FLOODWAY MAP CHANGE Pre-construction approval by the IDNR/OWR and FEMA of a proposed change to the floodway map. This pre-construction approval, pursuant to this part, gives assurances to the property owner that once an appropriate use is constructed according to permitted plans, the floodway map can be changed, as previously agreed, upon review and acceptance of record drawings.

CONDITIONAL LETTER OF MAP REVISION A letter which indicates that the Federal Emergency Management Agency will revise base flood elevations, flood insurance rate zones, flood boundaries, or floodway as shown on an effective Flood Hazard Boundary Map or Flood Insurance Rate Map, once record drawings are submitted and approved.

CONDUIT Any channel, pipe, sewer or culvert used for the conveyance or movement of water, whether open or closed.

CONSTRUCTION Any building or erection of a structure or preparation for same.

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

CULVERT A substructure designed to carry drainage water or small streams below barriers such as roads or railway embankments.

29.5-1.13D

DAM All obstructions, wall embankments or barriers, together with their abutments and appurtenant work, if any, constructed for the purpose of storing or diverting water or creating a pool (i.e. weirs, restrictive culverts, impoundment berms). Underground water storage tanks are not included.

DESIGN STORM A selected storm event, described in terms of the probability of occurring once within a given number of years, for which stormwater or flood control development are designed and built.

DETENTION BASIN OR FACILITY A facility that provides for temporary storage of stormwater runoff and controlled release of this runoff during and after a flood or storm.

DETENTION BASIN OR FACILITY, DRY BOTTOM A detention basin designed to drain completely after temporary storage of stormwater flows and to normally be dry over the majority of its bottom area.

DETENTION BASIN OR FACILITY, WET A detention basin designed to maintain a permanent pool of water after the temporary storage of stormwater runoff.

DEVELOPMENT Any man-made change to real estate, including:

(a) Construction, substantial improvement, reconstruction, 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 on a site for more than 180 days.
(c) Drilling, mining, installing utilities, construction of roads, bridges, or similar projects.
(d) Demolition of a structure or redevelopment of a site.
(e) Clearing of land as an adjunct of construction.
(f) Construction or erection of levees, walls, fences, dams, or culverts; channel modifications; filling, dredging, grading, excavating, paving, or other non-agricultural alterations of the ground surface; storage of materials; deposit of solid or liquid waste.
(g) Any other activity that might change the direction, height, or velocity of flood or surface water, including extensive vegetation removal.

Development does not include maintenance of existing buildings and facilities such as re-roofing or re-surfacing of roads when there is no increase in grade. Development does not include gardening, plowing, and similar agricultural practices that do not involve filling, grading, or construction of levees.

DEVELOPMENT, COMMERCIAL All new building construction except one or two-family residential homes.

DIVISION OF BUILDING SAFETY The Division of Building Safety, Champaign Fire Department, responsible for Building Safety Permits.

DRAINAGE Stormwater drained or being drained off surfaces.

DRAINAGE AREA The land area above a given point that contributes stormwater to that point.

DRAINAGE FACILITY Any natural or man-made feature which acts to control, accommodate or facilitate the flow of water or enhance its quality. This includes, but is not limited to, stream beds, stream banks, channels, conduits, swales, storm sewers, inlet structures, bulkheads, ponds, lakes, detention and retention basins, wetlands and plantings which serve to retard erosion and/or stabilize environmental attributes of water bodies, basins or waterways.

DRAINAGEWAY A readily definable watercourse, but not usually intended to include rivers, streams or creeks.

29.5-1.13E

ENGINEER See PROFESSIONAL ENGINEER.

ENGINEERING STANDARDS MANUAL (Manual) A technical reference manual published and updated by the City Engineer to provide detail requirements and guidance on permitting procedures, design processes, and construction standards consistent with the purposes and minimum standards stipulated in these Regulations.

ELEVATION CERTIFICATES A form published by the Federal Emergency Management Agency that is used to certify the elevation at which a building has been constructed.

EXISTING GRADE The vertical location of the existing ground surface prior to excavation or filling.

29.5-1.13F

FEMA Federal Emergency Management Agency.

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

FLOOD FREQUENCY A period of years, based on a statistical analysis, during which a flood of a stated magnitude may be expected to be equaled or exceeded.

FLOOD FRINGE That portion of the floodplain outside the regulatory floodway.

FLOOD HAZARD BOUNDARY MAP An official map of a portion of the City issued or approved by the Administrator of the Federal Insurance Administration, on which the areas having special flood hazards have been drawn and designated.

FLOOD INSURANCE RATE MAP (FIRM) The maps prepared by the Federal Emergency Management Agency that depicts the Special Flood Hazard Areas (SFHA) within the City of Champaign, dated July 16, 1980, and within the surrounding area of Champaign County, dated March 1, 1984. These maps include insurance rate zones and floodplains and may or may not depict floodways.

FLOOD PROFILE Graphical representations of the elevations of the water surface of a flood along the watercourses of the City.

FLOOD PROTECTION ELEVATION (FPE) The elevation of the base flood or 100-year frequency flood plus one foot at any given location in the floodplain.

FLOODPLAIN The lands within the jurisdiction of the City that are subject to inundation of the base flood. Floodplains include detached special flood hazard areas such as detention basins and their associated emergency overflow areas, as well as the land adjacent to streams. The floodplains of the City are identified on maps described in these Regulations or as modified by LOMA.

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

FLOODPROOFING CERTIFICATE A form published by the Federal Emergency Management Agency that is used to certify that a building has been floodproofed to the flood protection elevation.

FLOODWAY The channel or watercourse and those portions of the adjoining floodplains which are required to carry and discharge the 100-year flood with no significant increase in the base flood elevation. The floodways for the floodplains of the Boneyard Creek, Copper Slough, Embarras River, and Phinney Branch shall be as delineated on the Flood Boundary and Floodway Maps of Champaign County, dated March 1, 1984.

FREEBOARD An increment of elevation added to the base flood elevation to provide a factor of safety for uncertainties in calculations, unknown localized conditions, wave actions, and unpredictable effects such as may be caused by ice or debris jams.

29.5-1.13G

GRADING Excavation or fill or any combination thereof and shall include the conditions resulting from any excavation or fill.

GRADING AND DRAINAGE PERMIT A permit issued by the City to perform site grading and install drainage features for any development except those specifically exempted from this requirement as outlined in these Regulations.

GRADING AND DRAINAGE PLAN A plan which shows site conditions and proposed grading and drainage features for a development as outlined in the Engineering Standards Manual.

29.5-1.13H

HYDROGRAPH A graph showing for a given location on a stream or conduit, the flow rate with respect to time.

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

29.5-1.13I

IDNR/OWR Illinois Department of Natural Resources, Office of Water Resources.

IMPERVIOUS SURFACE Any hard-surfaced, man-made area that does not readily absorb or retain water, including but not limited to, building roofs, parking and driveway areas, graveled areas, sidewalks, and paved recreation areas.

IMPROVEMENT Any pipe, pipeline, fence, wall, planting, grading, vault, manhole, conduit, wire, tower, pole, anchor, cable, transformer, ditch, roadway, pavement, driveway, parkway, sidewalk, pedestrian-way, parking area or any other work, material, structure or object of any kind or character, whether identified herein or not, which is or may be constructed, left, placed or maintained in, upon, along, across, under or over a watercourse.

29.5-1.13J

29.5-1.13K

29.5-1.13L

LANDSCAPING PLAN A plan which shows existing vegetation and identifies which will remain on site and the number, type and size of proposed trees, shrubs or groundcover.

LETTER OF MAP AMENDMENT (LOMA) Official determination that a specific structure is not in a 100-year flood zone; amends that effective Flood Hazard Boundary Map or FIRM.

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 FHBM or FIRM.

LOWEST FLOOR Lowest floor of the lowest enclosed area, including basement.

29.5-1.13M

MAJOR DRAINAGE SYSTEM The portion of a drainage system needed to store and convey flows beyond the capacity of the minor drainage system.

MANUFACTURED HOME A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to 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.

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

MARKET VALUE Three times the Equalized Assessed Valuation as listed by the County Assessor, or as determined by a Licensed Appraiser.

MASTER PLAN A plan approved by City Council giving overall guidance for specific development endeavors, such as drainage improvements, land use, flood control, etc.

MINOR DRAINAGE SYSTEM That portion of a drainage system designed for the convenience of the public. It consists of street gutters, storm sewers, small open channels and swales, and is usually designed to handle the 10-year runoff event or less.

MITIGATION Includes those measures necessary to minimize the negative effects which floodplain development activities might have on the public health, safety and welfare. Examples of mitigation include compensatory storage, soil erosion and sedimentation control, flood proofing, and channel restoration.

29.5-1.13N

NFIP National Flood Insurance Program

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.

NEW CONSTRUCTION In regard to appropriate uses of the floodway, the construction of any new building or structure, or additions to buildings or structures, or the placement of any fill material, or regrading. It does not include the repair, remodeling, or maintenance of buildings or structures in existence on the effective date of these Regulations, except when such can be classified as substantial development.

NEW SUBDIVISION A subdivision that has progressed through the City's approval process for platted subdivisions after the effective date of these Regulations.

29.5-1.13O

ONE HUNDRED-YEAR FLOOD A flood magnitude with one percent statistical chance of being equaled or exceeded during any year. A flood this large would be reached once during a 100-year period, on the average. However, the occurrence of such an event does not diminish the chance of its recurring again at any time.

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

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 estimated using readily available topographic information and shall take into account all on-site and off-site tributary areas in accordance with Article IV.

29.5-1.13P

PARCEL Means all contiguous land in one ownership.

PEAK FLOW The maximum rate of flow of water at a given point in a channel or conduit.

PERMITTEE The individual, firm, association, corporation, governmental agency or any other legal entity to which a permit is issued and is thereby responsible for construction of the proposed development.

PERSON Any person, firm, partnership, association, corporation, company, or organization of any kind.

POND A natural or artificial body of water of less than two acres which retains water year round.

PROFESSIONAL ENGINEER An engineer registered in the State of Illinois, under the provisions of The Illinois Professional Engineering Act of 1989 (225 ILCS 325/1), pars. 5101-5137.)

PROJECT ENGINEER The professional engineer employed by the permittee to design and/or supervise an improvement construction.

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

PUBLIC WORKS DIRECTOR The Director of the Department of Public Works of the City of Champaign.

29.5-1.13Q

29.5-1.13R

REGULATORY FLOODWAY The channel, including upstream lakes and that portion of the floodplain adjacent to a stream or watercourse as designated by the IDNR/OWR, which is needed to store and convey the existing and anticipated future 100-year frequency flood discharge with no more than a 0.1 foot increase in stage due to the loss of flood conveyance or storage, and no more than a 10 percent increase in velocities. The

regulatory floodways designated for Champaign are listed in the Appendix. To locate the regulatory floodway boundary on any site, the regulatory floodway boundary should be scaled off the regulatory 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 regulatory floodway boundary, the IDNR/OWR should be contacted for proper interpretation.

REPAIR, REMODELING OR MAINTENANCE Construction activities which do not result in any increase in the outside dimensions of a building or any changes to the dimensions of a structure or change the performance of the building as it affects stormwater.

RETENTION BASIN A facility designed to completely retain a specified amount of stormwater runoff without gravity release. Retention basins are considered an inappropriate technique for managing stormwater in the area of Champaign. The construction of retention basins is not required or advocated by these Regulations.

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.

29.5-1.13S

SPECIAL FLOOD HAZARD AREA (SFHA) SEE FLOODPLAIN.

SPECIFICATIONS The description, directions, provisions, and requirements of performing the work on a specific project as adopted or approved by the City Engineer. In all cases, the City's Standard Specifications shall govern in applicable circumstances.

STANDARD SPECIFICATIONS Technical specifications adopted as Standard Specifications by the City Engineer and approved by the Director.

STORMWATER DRAINAGE SYSTEM All means, natural or man-made, used for conducting stormwater to, through or from any of the following: conduits and appurtenances, canals, channels, ditches, streams, culverts, streets, storm sewers, detention basins and pumping stations.

STORMWATER RUNOFF The water derived from melting snow or rain falling within a tributary drainage basin which is in excess of the infiltration capacity of the soils of that basin, which flows over the surface of the ground or is collected in channels or conduits.

STREAM A course of running water flowing continuously or intermittently in a channel on the surface of the ground.

STRUCTURE The results of a man-made change to the land constructed on or below the ground, including the construction, reconstruction or placement of a building or any addition to a building; installing a manufactured home on a site, preparing a site for a manufactured home or installing a travel trailer on a site for more than 180 days.

SUBSTANTIAL IMPROVEMENT Any repair, reconstruction or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure, either, (a) before the improvement or repair is started, or (b) if the structure has been damaged, and is being restored, before the damage occurred. For the purposes of this definition, "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 structure. The term does not, however, include either (1) any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions; or (2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

SUBSTRUCTURE Any pipe, conduit, duct, tunnel, manhole vault, buried cable, or wire, or any other structure located below the surface.

SURFACE WATER Water upon whatever surface is exposed to the sky, as opposed to groundwater or water in pipes.

SWALE A low-lying, natural or graded, depressed land area which acts as a drainageway but has no definite bed, banks or shorelines and intermittently conveys only smaller quantities of water, thus permitting growth of maintainable sod or other low vegetation.

29.5-1.13T

TRAVEL TRAILER (or recreational vehicle). A vehicle which is (1) built on a single chassis; (2) 400 square feet or less in size; (3) designed to be self-propelled or permanently towable by a light-duty truck; and (4) designed primarily for use as temporary living quarters for recreational, camping, travel, or seasonal use and not as a permanent dwelling.

29.5-1.13U

29.5-1.13V

VACANT Means land on which there are no structures or only structures which are secondary to the use or maintenance of the land itself.

VEGETATION All plant growth.

29.5-1.13W

WATERCOURSE Any river, stream, creek, brook, branch or other surface path in or into which stormwater runoff and floodwaters flow either regularly or intermittently. Swales between buildings serving to drain waters from no more than two adjacent building sites are not considered watercourses for the purposes of these Regulations.

WATERSHED The land area above a given point on a channel that contributes stormwater to that point.

WETLAND Land that has a predominance of hydric soils (soils that are usually wet and where there is little or no free oxygen) and that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances does support, a prevalence of hydrophytic vegetation (plants typically found in wet habitats) typically adapted for life in saturated soil conditions. Areas that are restored or created as a result of mitigation or planned construction projects and that function as a wetland are included within this definition even when all three wetland parameters are not present.

29.5-1.13XYZ

___ YEAR EVENT A runoff, rainfall, or flood event having a chance of occurring in any given year equal to the inverse (one divided by) of the number of years of the event. For example, a 100-year event has a 1 divided by 100 (or 1%) chance of occurring in any given year. A 2-year event has a 1 divided by 2 (50% chance), etc.

____ YEAR FLOOD EVENT A flood event having a chance of occurring as described above.

____ YEAR STORM EVENT A storm event having a chance of occurring as described above. A 100-year storm event is not the same as a 100-year flood event.

Article II: ADMINISTRATION AND ENFORCEMENT

Preface to Article II

Much of these Administrative Regulations are necessary to satisfy the requirements of the NFIP and IDNR/OWR for administering floodplain regulations. Since floodplain regulations are incorporated in these Regulations, this article is designed to provide the mechanisms, procedures and permitting requirements for all stormwater management topics, thus eliminating the need for separate administrative procedures for each with separate plan requirements, permit requirements, inspections, and administrative procedures.

29.5-2.01 GRADING AND DRAINAGE PERMIT

A. Every person, before beginning a development in the City, shall obtain a Grading and Drainage Permit unless such development is excepted from permitting in Sections B, C and D below.

B. Developments within a floodway do not require a Grading and Drainage Permit if:

1. The development is interior remodeling of an existing structure which is not a substantial improvement and meets State and Federal permit requirements.

2. The development is a new subdivision which is being constructed in accordance with construction plans approved as per the City Subdivision Regulations.

C. Developments within a floodplain do not require a Grading and Drainage Permit if:

1. The development is interior remodeling of an existing structure which is not a substantial improvement.

2. The development activity is demolition.

3. The development is a new subdivision which is being constructed in accordance with construction plans approved as per the City Subdivision Regulations.

D. Developments not within a floodplain do not require a Grading and Drainage Permit if:

1. The development activity is excavation, fill, or any combination thereof which totals less than 50 cubic yards, and the development results in less than 4 feet of cut outside of basement walls at the deepest point, and the total area of plant cover removed is less than 5000 square feet.

2. The development is remodeling which does not alter the footprint of the building.

3. The development is remodeling or additions to the principal structure, or construction of a detached accessory structure of 500 square feet or less, and the construction and site development affects less than 2000 square feet of the site.

4. The development is an improvement which is mostly flush with the ground and does not create a large impervious surface, i.e. sidewalks, athletic fields, playground equipment, patios at grade, decks, etc.

5. The development activity is demolition.

6. The development is a new subdivision which is being constructed in accordance with construction plans approved as per the City Subdivision Regulations.

29.5-2.02 REQUIREMENTS FOR DEVELOPMENTS WITHIN A FLOODWAY

A. DEVELOPMENT OF NEW SUBDIVISIONS

Review of grading and drainage plans for new subdivisions shall be conducted together with review of other plan documents prescribed by the Champaign Subdivision Regulations, but a Grading and Drainage Permit may be issued prior to approval of other subdivision improvements or plats.

B. DEVELOPMENTS WITHIN NEW SUBDIVISIONS

Only development as provided by Section 3.06 is allowed in the floodway. Grading and Drainage Permits are required for any such development.

C. DEVELOPMENTS WITHIN EXISTING SUBDIVISIONS

Only development as provided in Section 3.06 is allowed. Grading and Drainage Permits are required for any such development.

D. REPAIR AND RESTORATION OF EXISTING DEVELOPMENTS

Development predating the adoption of these Regulations in floodways may be repaired or restored only if the work cannot be considered a substantial improvement and the requirements of Sections 3.02 and 3.07 can be met, or is a development as provided in Section 3.06. Developments listed in Section 3.06 require a Grading and Drainage Permit in order to be repaired or restored.

29.5.2.03 REQUIREMENTS FOR DEVELOPMENTS WITHIN A FLOODPLAIN

A. DEVELOPMENT OF NEW SUBDIVISIONS

Review of grading and drainage plans for new subdivisions shall be conducted together with review of other plan documents prescribed by the Champaign Subdivision Regulations, but a Grading and Drainage Permit may be issued prior to approval of other subdivision improvements or plats.

B. DEVELOPMENTS WITHIN NEW SUBDIVISIONS

Buildings developed on lots containing floodplains must comply with the freeboard and setback requirements of Sections 3.04 and 3.05. Fences are considered structures and thus are not allowed in floodplains, except by permit.

C. DEVELOPMENTS WITHIN EXISTING SUBDIVISIONS

New developments in subdivisions predating the adoption of these Regulations are allowed in floodplains only if provided with protection and compensatory storage required by Sections 3.11 - 3.15 and 4.08.

D. REPAIR AND RESTORATION OF EXISTING DEVELOPMENTS

Developments predating the adoption of these Regulations in floodplains may be repaired or restored if the work is not a substantial improvement or if the requirements of Sections 3.08 and 3.11 can be met or if protection is provided as per Sections 3.11 - 3.15.

29.5-2.04 REQUIREMENTS FOR DEVELOPMENTS NOT WITHIN EITHER A FLOODWAY OR FLOODPLAIN

A. DEVELOPMENT OF NEW SUBDIVISIONS

Review of grading and drainage plans for new subdivisions shall be conducted together with review of other plan documents prescribed by the Champaign Subdivision Regulations, but a Grading and Drainage Permit may be issued prior to approval of other subdivision improvements or plats.

B. DEVELOPMENTS WITHIN NEW SUBDIVISIONS

In subdivisions developed after the date of the adoption of these Regulations, individual building lots being developed must acquire a Grading and Drainage Permit along with the Building Permit, except as per 2.01.D above.

C. DEVELOPMENTS WITHIN EXISTING SUBDIVISIONS

New developments in subdivisions predating the adoption of these Regulations must acquire a Grading and Drainage Permit along with the Building Permit, except as per 2.01.D above.

D. REPAIR AND RESTORATION OF EXISTING DEVELOPMENTS

Developments predating the adoption of these Regulations being repaired or restored must acquire a Grading and Drainage Permit if they do not meet the requirements of 2.01.D above.

29.5-2.05 CONTENTS OF THE GRADING & DRAINAGE PERMIT APPLICATION.

A. A completed application form.

B. Grading and drainage plans prepared in accordance with the requirements of these Regulations and the Manual.

C. Any and all local, state or federal maps marked to reflect any proposed change in the floodway location or configuration.

D. Conditional approval by FEMA of changes in the floodway map that have been made if the floodway delineation, base flood, or 100-year frequency flood elevation will change due to the proposed project.

E. Engineering calculations and supporting data.

F. If the project involves channel modification, the following information shall be submitted:

1. A discussion of the purpose and need for the proposed work;
2. A discussion of the practicability of using alternative locations or methods to accomplish the purpose of the proposed work;
3. Analysis of the impacts of the proposed project, considering cumulative effects on the physical and biological conditions of the body of water affected; and
4. Additional information as required by the Manual.

29.5-2.06 WHERE TO APPLY

The Grading and Drainage Permit application shall be submitted to the City Engineer prior to commencing any work. If a Building Permit is also required for the development, the Grading and Drainage Permit application shall be submitted to the Building Safety Division at the time application is made for a Building Permit. City departments shall coordinate their activities to prevent additional, unnecessary delays.

29.5-2.07 OTHER AGENCY PERMITS

A. The City Engineer shall not issue a Grading and Drainage Permit unless all required federal, state and drainage district permits have been obtained by the applicant and copies thereof reviewed by the City Engineer. The granting of a Grading and Drainage Permit under these Regulations shall in no way affect the owner's responsibility to obtain the approval required by

any other statute, ordinance or code, or to meet the requirements of other City ordinances and regulations, including but not limited to: building permits, IDNR/OWR, IEPA permits, and U.S. Army Corps of Engineers' permits.

B. Any work involving the construction, modification or removal of a dam as defined herein, per 92 Ill. Adm. Code 702 (Rules for Construction of Dams), shall require an IDNR/OWR Dam Safety Permit prior to permit being issued by the City.

C. Any development involving work in waters of the United States, including wetlands and streams as identified and regulated by the U.S. Army Corps of Engineers, shall require permits or sign-offs from the Corps prior to the issuance of a City permit.

29.5-2.08 OTHER SUBMITTALS

The City Engineer may require additional information in order to assure that the intentions of these Regulations are met. Such additional information may be required under conditions stipulated in the Engineering Standards Manual and shall be prepared in accordance with the requirements of said manual.

29.5-2.09 REVIEW OF GRADING AND DRAINAGE PERMIT APPLICATIONS

A. Upon receipt of a Grading and Drainage Permit application for a project located wholly or in part within a floodplain, the City Engineer shall compare the elevation of the site to the base flood or 100-year frequency flood elevation. If the developer can prove that the existing elevation has not been increased over the natural grade as it appeared when the parcel was first identified on a Flood Insurance Rate Map (FIRM) as being in a floodplain, and if the existing elevation is above the base flood elevation, the site is not located in a floodplain and therefore not subject to the requirements applicable specifically to floodplains. The City Engineer shall maintain documentation of the existing ground elevation at the development site and certification that this ground elevation existed prior to the date of the site's first being identified on the FIRM.

B. The City Engineer shall review and approve or reject a Grading and Drainage Permit application.

1. Approval. If, after examination of the application, the City Engineer determines that the proposed development of a site will be in compliance with these Regulations, the Engineering Standards Manual, and such ordinances and resolutions passed by the City Council applicable thereto, the City Engineer shall approve such application and issue the Grading and Drainage Permit as soon as practicable.

2. Rejection. If, after examination of the application, the City Engineer determines that the proposed development or the application itself does not comply with these Regulations, the Engineering Standards Manual, and such ordinances and resolutions passed by the City Council applicable thereto, the City Engineer shall reject such application and a written report of findings shall be attached to the application. A copy of the report shall be provided to the applicant as soon as practicable.

29.5-2.10 CONDITIONS OF APPROVAL

In granting any permit under this Article, the City Engineer may attach such conditions as may be reasonably necessary to prevent creation of a nuisance or hazard to public or private property or to protect the hydrologic characteristics of any affected drainage facility.

29.5-2.11 EMERGENCY WORK

When emergency work is performed to preserve life or property, the person performing the work shall:

A. Report the pertinent facts relating to the work to the City Engineer within 3 days after commencement of the work;

B. immediately thereafter obtain a Grading and Drainage Permit if required; and

C. perform such work as may be required by the City Engineer to bring such emergency work into compliance with these Regulations.

29.5-2.12 PERMIT LIMITATIONS

A. The issuance of a Grading and Drainage Permit shall constitute an authorization to do only that work which is described or illustrated on the application for the permit or on the plans and specifications approved by the City.

B. The issuance of a permit or the approval of drawings and specifications shall not be construed to be a permit for, nor an approval of, any violation of or deviation from the provision of these Regulations or any other ordinance, law, rule, or regulation.

C. The issuance of a permit, based upon drawings and specifications, shall not prevent the City from thereafter requiring the correction of errors in said drawings and specifications or from stopping unlawful construction operations being carried on thereunder.

D. The Grading and Drainage Permit shall be valid for the same time period as the preliminary plat or Building Permit it is connected to. The City Engineer

may grant an extension if relevant design and construction standards have not changed and if in the City Engineer's opinion, the work approved under the permit does not unduly adversely affect the health, safety and general welfare of the public. Otherwise, a new permit shall be acquired before work is started or continued.

29.5-2.13 REVOCATION OF A PERMIT

A. The City Engineer may revoke a permit:

1. Where there has been any false or inaccurate statement or misrepresentation as to a material fact in the application or plans on which the permit was based;

2. When work is performed contrary to the provisions of the application or plans on which the permit is based.

B. When a permit is revoked, the City Engineer shall inform the permittee, in writing, of the specific steps the permittee must take in order to have the permit reissued.

C. It shall be unlawful to continue any work authorized by a permit after revocation of that permit until that permit is reissued or until a new permit is issued.

29.5-2.14 FEES AND CHARGES

A. The City Council shall initially set and adjust fees and charges for the purpose of defraying costs associated with processing permit applications, reviewing engineering plans, reviewing special document submittals, making routine inspections, and construction inspections.

B. Any other costs involved in applying for and complying with a Grading and Drainage Permit shall be the responsibility of the applicant.

29.5-2.15 LIABILITY

Neither the issuance of a permit under the provisions of these Regulations nor the compliance with the provisions hereto, or with any conditions imposed in the permit issued hereunder, shall relieve any person from responsibility for damage to other persons or property, nor impose *any* liability upon the City for damage to other persons or property.

29.5-2.16 BONDING

No separate bond shall be required for issuance of a Grading and Drainage Permit. Construction of subdivision drainage facilities shall be included within and bonded as part of the Subdivision Improvement Performance Bonds when required by the Subdivision Regulations.

29.5-2.17 CONSENT FOR INSPECTIONS

All work for which a permit is required shall be subject to inspection by the City. It shall be unlawful to refuse to permit City-authorized personnel to enter such premises or structure at any reasonable time to make inspections. It shall be unlawful to interfere with or hinder City inspectors when in the performance of their duties. An application for a permit shall constitute the permittee's continuing consent to allow the City to enter upon the land or improvement for purposes of making inspections as provided in these Regulations.

29.5-2.18 SURVEILLANCE TO BE PROVIDED

The City may provide for surveillance, at the discretion of the City Engineer, of all development being installed which is regulated by these Regulations to assure their satisfactory completion. In cases of larger projects, such as subdivision developments, the permittee shall be required to provide construction surveillance services by contract with a professional firm qualified to perform such services. The selection of the firm, the scope of services, and the assignment of personnel under such arrangements shall be subject to approval by the City Engineer, but all associated costs shall be paid by the permittee.

29.5-2.19 TESTING REQUIRED

When deemed necessary by the City, materials testing and/or compaction testing shall be performed in accordance with the requirements of the City Engineer. Such testing shall be performed by a qualified testing service to be approved in advance by the City Engineer. The results of all tests shall be provided to the City promptly. The cost of materials or compaction testing as may be required by the City shall be the responsibility of the permittee.

29.5-2.20 NOTICE OF VIOLATIONS, STOP-WORK ORDERS, APPEALS

A. The City Engineer shall serve a Notice of Violation and order upon any person responsible in whole or in part for the construction, alteration, repair, maintenance, or removal of drainage improvements in violation of engineering plans and specifications approved pursuant to this chapter, or in violation of any permit issued under the provisions of these Regulations, or otherwise in violation of this chapter. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

B. Upon notice from the City Engineer that work on any improvement is being performed contrary to the provisions of these Regulations or is being performed in an unsafe or dangerous manner, such work shall be immediately stopped. Such a notice, a Stop-Work Order, shall be in writing and shall be served upon or otherwise given to the developer or the developer's engineer, or to any person in charge of or performing work on drainage improvements in the development, or to an agent of any of the

foregoing. Such an order shall state the conditions under which work may be resumed. No person shall continue any work after having been served with a Stop-Work Order, except such work as is directed to be performed to remove a violation or dangerous or unsafe condition, as provided in the order.

C. The developer, developer's engineer, any person in charge of or performing work on drainage improvements in the development, or any other interested person, may appeal a decision of the City Engineer pursuant to these Regulations, to the City Manager. The appeal shall be in writing, setting forth the reasons for the appeal, and shall be filed with the City Manager within ten (10) days after receipt of the City action which prompted the appeal. The City Manager shall fix a time and place for hearing the appeal, not more than twenty (20) days following the receipt of the appeal. The filing of an appeal shall not operate as a stay of a Notice of Violation or Stop-Work Order.

D. The City Manager shall grant the appeal and issue the appropriate instructions to the City Engineer upon a finding of fact that there is no violation of the Regulations or the permit issued.

29.5-2.21 ENFORCEMENT OF NOTICE OF VIOLATION AND STOP WORK ORDERS

A. A complaint may be filed with the Circuit Court for any violation of this Chapter. The Court may impose a fine on any person convicted of violating any of the terms or provisions of this chapter up to but not to exceed more than the maximum amount established in Section 1-21 of the Municipal Code. A separate violation shall be deemed to have been committed on each day that the violation existed.

B. In addition to other remedies, the City Attorney may institute any action or proceeding which:

1. Prevents the unlawful construction, alteration, repair, maintenance, or removal of drainage improvements in violation of this chapter or the violation of any permit issues under the provision of these Regulations;

2. Prevents the occupancy of a building, structure or land where such violation exists;

3. Prevents any illegal act, conduct, business, or use in or about the land where such violation exists;

4. Restrains, corrects or abates the violation.

In any action or [proceeding under this section, the City Attorney may request the Court to issue a restraining order or preliminary injunction, as

well as a permanent injunction, upon such terms and conditions as will enforce the provisions of this chapter.

29.5-2.22 FINAL APPROVAL OF GRADING AND DRAINAGE WORK

Final approval of permitted work shall be a requirement of every permit issued. Request for final inspection shall be submitted to the City Engineer upon completion of work authorized by a Grading and Drainage Permit. If, upon final inspection of the development site, the City Engineer finds that the work has been performed in accordance with the approved application and plans for the work, a written certification to that effect shall be issued. If final inspection reveals otherwise, approval shall not be granted until all deficiencies are corrected.

29.5-2.23 EXCEPTIONS

Nothing in this Article shall be construed to require observation by the City or the payment of inspection fees for materials or workmanship for the actual installation, replacement, maintenance or repair of utility distribution paraphernalia when such work is performed by a corporation franchised by the City to supply or convey gas, water, electricity, sanitary sewer collection, or communication impulse. City inspection and the payment of inspection fees will be required for all excavation, backfill, compaction, and surface restoration associated with or necessitated by such utility work when performed within a floodplain or watercourse of any type.

29.5-2.24 VARIANCES

The granting of variances is not consistent with the purpose of these Regulations. It is, therefore, essential that every effort be made to comply with its requirements.

A. Only City Council may grant a variance. When, in the opinion of a developer, the standards of these Regulations place an undue hardship on a specific development proposal, the applicant may apply for a variance. The City Engineer shall review the applicant's request, prepare a recommendation and schedule a public hearing on the matter within 45 days with the Zoning Board of Appeals (ZBA). The ZBA shall hear the case and present a recommendation to the City Council. The City Council shall rule on the variance at its earliest convenience, after the hearing.

B. A variance may be granted by the Council for development in a floodway in an existing subdivision if the applicant demonstrates all of the following:

1. The development activity cannot be located outside the floodplain;

2. The property cannot yield a reasonable return if the variance is not granted;

3. the relief requested is the minimum necessary;

4. there will be no threat to public health and safety or to beneficial stream uses and functions, especially aquatic habitat, or creation of a nuisance;

5. there will be no additional public expense for flood protection, rescue or relief operations, policing, or repairs to stream beds and banks, roads, utilities, or other public facilities;

6. the applicant's circumstances are unique such that the proposed variance will not serve as a special privilege, but will alleviate a demonstrable hardship not shared by other property;

7. the granting of the variance will not alter the essential character of the area involved including existing stream uses;

8. all other agency permits have been obtained;

9. the applicant did not know or deliberately place him or herself in the position of hardship.

C. The City Engineer shall notify the applicant, in writing, that a variance from any requirements of this Article that would lessen the degree of protection to a building will:

1. result in increased premium rates for flood insurance;

2. increase the risks to life and property; and

3. require that the applicant proceed with knowledge of these risks and that the applicant acknowledge, in writing, the assumption of the risk and liability.

D. The City Engineer may require an independent study and report by a qualified professional engineer, the cost of which shall be paid by the applicant for the variance. The purpose of the study shall be to provide evaluations of the applicant's proposed development as they may affect stream flows and hydraulic characteristics of the watercourse and to also evaluate possible alternatives to the applicant's proposal.

E. Variances which allow development in a floodway shall require protection as per Section 3.11 to 3.14, and compensatory storage as per Section 3.10B, or fee in lieu of detention as per Section 4.07. Other special requirements may be imposed as a condition of granting a variance.

F. Variances from the building protection requirements of these Regulations requested in connection with the reconstruction, repair or alteration of a site or building included on the National Register of Historic Places or the Illinois Register of Historic Places, may be granted using criteria more permissive than the requirements for other buildings.

29.5-2.25 DUTIES OF THE CITY ENGINEER

The City Engineer shall be responsible for the general administration and enforcement of these Regulations. The City Engineer shall cause all necessary surveys, studies, inspections, and reviews to take place, including but not limited to the following duties:

A. Prepare and publish an Engineering Standards Manual providing detailed requirements and guidance on design process and construction standards consistent with the purposes and minimum standards stipulated in these Regulations. The preparation of the manual, as well as revisions thereto, shall be conducted with the input and review of Champaign County engineering firms.

1. The City Engineer shall establish and/or approve interim procedures, processes and standards for use until the Manual is published or revised.

2. At least 45 days prior to its effective date, the City Engineer shall send a copy of the administrative rules or amendments thereof to the City Manager, the Public Works Director, and the Environmental Advisory Commission for administrative review. The administrative rule shall go into effect after the review unless disapproved by the City Manager.

3. The form and legality of each administrative rule shall be approved by the City Attorney prior to its effective date.

4. Prior to the effective date of a new administrative rule, a copy shall be filed with the City Clerk and City Manager, and a copy shall be sent to the City Council.

B. Process Grading and Drainage Permits in accordance with these Regulations.

C. Prepare master plans for drainage basins and such implementation plans as needed. Administer fee in lieu of detention program.

D. Review each proposed development site to determine whether such site is in a floodplain. If the site is in a floodplain, determine whether it is in a floodway or flood fringe (floodplain). If the development is proposed to be located in a floodplain which drains onto land on which a detailed study has not been conducted, the City Engineer shall require that a detailed study be conducted.

E. Inspect all development projects located in a floodplain and take actions necessary to ensure compliance with these Regulations and ensure that all development in a floodway (or a floodplain with no delineated floodway) meets the damage prevention requirements of Article III.

F. Maintain a record of the elevation certificate of the lowest floor (including basement) or the elevation to which a non-residential building has been floodproofed, using a floodproofing certificate, for all buildings within floodplain areas and constructed subject to these Regulations.

G. Ensure that the building protection requirements for all buildings subject to Article III are met and maintain a record of the "as-built" elevation of the lowest floor (including basement) or floodproof certificate.

H. Assure that all new subdivisions and annexations meet the requirements of these Regulations.

I. Maintain for public inspection and furnish upon request, base flood data, floodplain and floodway maps, copies of federal or state permit documents, documentation of variances, Conditional Letters of Map Revision, Letters of Map Revision, Letters of Map Amendment, and "as built" elevation and floodproofing data for all buildings constructed subject to these Regulations.

J. If a variance is requested, ensure that the requirements of Section 2.24 are met and maintain documentation of any variances granted.

K. Ensure that construction authorization has been granted by the IDNR/OWR for all development projects within floodplains.

L. Notify IDNR/OWR and any neighboring downstream communities prior to any alteration or relocation of a watercourse.

M. Cooperate with state and federal floodplain management agencies to improve base flood or 100-year frequency flood and floodway data to improve the administration of these Regulations.

N. Assure that applicants are aware of and obtain any and all other required local, state and federal permits.

O. Provide information and assistance to citizens upon request about permit procedures and floodplain construction techniques.

ARTICLE III. FLOODPLAIN REGULATIONS

Preface to Article III

This article is drafted to reflect at least the minimum requirements of the Federal Emergency Management Agency (FEMA) for eligibility of units of government in the National Flood Insurance Program, as well as the requirements of the Illinois Department of Natural Resources, Office of Water Resources, concerning development affecting floodplains. Statutory authority of IDNR/OWR to regulate floodway development is found in 615 Illinois Compiled Statutes 5/5 through 29a.

29.5-3.01 DISCLAIMER OF LIABILITY

The degree of flood protection required by these Regulations is considered reasonable for regulatory purposes and is based on available information derived from engineering and scientific methods of study. Larger floods may occur or flood heights may be increased by man-made or natural causes. These Regulations do not imply that development either inside or outside of the floodplain will be free from flooding or damage. The Regulations do not increase liability on the part of the City or any officer or employee thereof for any flood damage that results from reliance on these Regulations or any administrative decision made lawfully thereunder.

29.5-3.02 PUBLIC HEALTH STANDARDS

A. No developments in the floodplain shall include locating or storing chemicals, explosives, buoyant materials, flammable liquids, pollutants, or other hazardous or toxic materials below the floodplain elevation.

B. New and replacement water supply systems, wells, sanitary sewer lines and on-site waste disposal systems may be permitted providing all manholes or other above-ground openings located below the FPE are watertight.

29.5-3.03 BASE FLOOD ELEVATION

The protection standard of these Regulations is based on the Flood Insurance Study for the City of Champaign, dated July 16, 1980, and Champaign County, dated September 1, 1983. If a base flood elevation for 100-year frequency flood elevation is not available for a particular site, the protection standard shall be according to the best existing data available in the Illinois State Water Survey's Floodplain Information Repository. When a party disagrees with the best available data, he/she may finance the detailed engineering study needed to replace existing data with better data and submit it to the City Engineer, the IDNR/OWR and FEMA.

A. The base flood or 100-year frequency flood elevation for the floodplains of the various streams and their tributaries shall be as delineated on the following maps:
   1. Current Federal Emergency Management Agency Map used for the National Flood Insurance Program.

2. FEMA Flood Insurance Study for the City of Champaign, dated July 16, 1980.
3. Specific flood study project maps accepted by City Council.
4. Recorded subdivision plats showing detention basins and overflows.

When a floodplain is shown on more than one map, the more restrictive map shall be used for determination of the base flood.

B. The base flood or 100-year frequency flood elevation for the floodplains of those parts of unincorporated Champaign County that are within the extraterritorial jurisdiction of the City or that may be annexed into the City shall be as delineated on the 100-year flood profiles in the Flood Insurance Study of Champaign County prepared by the Federal Emergency Management Agency, dated September 1, 1983.

C. The base flood or 100-year frequency flood elevation for each floodplain delineated as an "AH Zone" or an "AO Zone" shall be that elevation (or depth) delineated on the Flood Insurance Rate Maps for the City.

D. The base flood or 100-year frequency flood elevation for each of the remaining floodplains delineated as an "A Zone" on the Flood Insurance Rate Maps for the City shall be according to the best existing data available in the Illinois State Water Survey Floodplain Information Repository. When no base flood or 100-year frequency flood elevation exists, the base flood or 100-year frequency flood elevation for a riverain floodplain shall be determined from an approved backwater model such as HEC-II, WSP-2, or an approved dynamic model such as HIP. The flood flows used in the hydraulic models shall be obtained from an approved hydrologic model, such as HEC-I, TR-20 or HIP, or by techniques presented in various publications prepared by the United States Geological Survey for estimating peak flood discharges. Flood flows shall be based on anticipated future land use conditions in the watershed as determined from adopted local and regional land use plans. Along any watercourses draining more than one square mile, the above analyses shall be submitted to the City Engineer and to the IDNR/OWR for approval. Once approved, it must be submitted to the Illinois State Water Survey Floodplain Information Repository for Filing. For a non-riverain floodplain, the base flood elevation shall be the historic flood of record plus three feet, unless calculated by a detailed engineering study and approved by the Illinois State Water Survey.

29.5-3.04 FREEBOARD (Flood Protection Elevation)

The following protective measures apply to buildings constructed or reconstructed subsequent to the adoption of these Regulations, within 100 feet of the identified limits of a floodplain:

A. Residential buildings. The lowest floor elevation, including basement, shall be no less than one foot above base flood elevation.

B. Commercial buildings. Either the lowest floor elevation, including basement, shall be no less than one foot above base flood elevation, or the building shall be protected from flooding as per Section 3.14.

29.5-3.05 SETBACK AND BUFFER STRIPS

For areas adjacent to streams where a floodway has been defined in a new subdivision, a buffer strip shall be preserved within the setback areas. The buffer strip shall be designed to protect the water flow determined in the drainage plan and reasonably facilitate maintenance activities. Acceptable multiple uses of the buffer strip should be considered during design.

29.5-3.06 ALLOWABLE USES WITHIN A FLOODWAY

Within the floodway identified on the Flood Boundary and Floodway Map, and within all other floodplains where a floodway has not been delineated, the following standard shall apply: No development shall be allowed which, acting in combination with existing and anticipated development, will cause any increase in flood heights or velocities or create a threat to public health and safety.

A. The following specific development activities shall be considered as meeting this requirement:

1. Aerial utility crossings meeting the conditions of IDNR/OWR Statewide Permit No. 4;

2. Minor boat docks meeting the conditions of IDNR/OWR Statewide Permit No. 5;

3. Minor, non-obstructive activities meeting the conditions of IDNR/OWR Statewide Permit No. 6;

4. Outfall structures and drainage ditch outlets meeting the conditions of IDNR/OWR Statewide Permit No. 7;

5. Underground pipeline and utility crossings meeting the conditions of IDNR/OWR Statewide Permit No. 8;

6. Bank stabilization projects meeting the conditions of IDNR/OWR Statewide Permit No. 9;

7. Accessory structures and additions to existing residential buildings meeting the conditions of IDNR/OWR Statewide Permit No. 10;

8. Minor maintenance dredging activities meeting the conditions of IDNR/OWR Statewide Permit No. 11; and

B. Other development activities not listed in (A) may be permitted ONLY if:

1. a permit has been issued for the work by IDNR/OWR (or written documentation is provided that an IDNR/OWR permit is not required);

2. sufficient data has been provided to FEMA, when necessary, and approval obtained from FEMA for a revision of the regulatory map and base flood elevation; and

3. a variance has been granted by City Council.

29.5-3.07 ALTERING NON-CONFORMING STRUCTURES IN FLOODWAYS

Non-conforming structures located in a floodway may remain in use, but may not be enlarged, replaced or substantially improved, unless protected from flooding damage in accordance with this Article. A non-conforming structure damaged by flood, fire, wind or other natural or man-made disaster may be restored unless the damage exceeds 50% of its market value before it was damaged. A restoration project worth more than 50% of the pre-damage market value of a building shall be treated as new construction. Repair and replacement activities which meet the definition of substantial improvements must be conducted within the original footprint of the building and adhere to all the applicable requirements of these Regulations and any state or federal regulations.

29.5-3.08 ALLOWABLE USES WITHIN A FLOODPLAIN

On properties in the City subdivided and developed prior to the effective date of these Regulations, activities listed in Sections 3.06 and 3.09 of these Regulations are allowed, as well as repair and replacement of existing structures, provided the repair or replacement activities are conducted within the original footprint of the building and protection is provided as required in Section 3.11. The repair or replacement activities are required to adhere to all other applicable requirements of these Regulations and any applicable federal or state regulations.

29.5-3.09 ALLOWABLE USES IN FLOODPLAINS WITHIN NEW SUBDIVISIONS

It shall be unlawful to cause, create or maintain any new development within a floodplain or watercourse of any type located in a subdivision approved subsequent to the adoption of these Regulations, except those classified herein as appropriate uses or otherwise authorized by these Regulations. The only developments in a floodplain which will be allowed are appropriate uses which will not create a damaging or potentially damaging increase in flood heights or velocity or be a threat to public health, safety and welfare, or impair the natural hydrologic and hydraulic functions of the floodplain or channel, as existing or modified, or impair existing water quality or aquatic habitat during or after the development activity. Only those appropriate uses listed below will be allowed:

A. Any of the uses stipulated in Section 29.5-3.06.

B. Public flood control structures, dikes, dams, and other public works or private improvements relating to the control of drainage, flooding of existing structures, erosion, water quality or habitat for fish and wildlife;

C. Structures or facilities relating to the use of or requiring access to the water or shoreline, such as pumping and treatment facilities, and facilities and developments related to recreational boating and other functionally water-dependent uses.

D. Public open space and recreational facilities such as playing fields and trail systems, including any related fencing (at least 50% open when viewed from any one direction) built parallel to the direction of flood flows and including open air pavilions;

E. Bridges, culverts, roadways, walkways, and any modification thereto, which are used for crossing the floodplain or watercourse; and automobile parking lots, provided that the lowest point where cars may park be not more than 0.6 feet below BFE, and that signs be posted at appropriate locations to warn of possible flood conditions;

F. Regrading within the floodplain without fill to create a positive, non-erosive slope toward a watercourse.

Appropriate uses do not include the construction or placement of any new structures, fill, detention or retention facilities, building additions, buildings on stilts, excavation or channel modifications done for the convenience of site design, and storage of materials.

29.5-3.10 MODIFYING FLOODPLAINS IN DEVELOPING AREAS

A. Modifying a floodplain, whether mapped or unmapped, in a new subdivision, may be allowed for the following purposes.

1. To establish naturalizing features to an existing channel.

2. To provide multi-use purposes within and/or adjacent to the floodplain consistent with its purpose as a watercourse.

3. To enhance the safety and maintainability of a watercourse.

4. To enhance the hydraulics and stormwater storage features of the watercourse.

5. To create satisfactory and flood-free building sites in the new subdivision.

B. Whenever any portion of a flood fringe is authorized for modification, the volume of space which will be occupied by authorized fill below the base flood or 100-year frequency flood elevation shall be compensated for and

balanced by hydraulically equivalent volume of excavation taken from below the base flood or 100-year frequency flood elevation. The excavation volume shall be at least equal to 1.5 times the volume of storage lost due to the fill. In the case of streams and watercourses, such excavation shall be made opposite or adjacent to the areas so filled. All floodplain storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All floodplain storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation. All such excavations shall be graded to drain freely and openly to the watercourse.

C. In the absence of an area-wide drainage planning effort by the City or others, all engineering and mapping required for approvals by the City Engineer, IDNR/OWR, and FEMA shall be performed at the developer's expense.

29.5-3.11 PROTECTING BUILDINGS

Buildings allowed to be built, replaced or modified in a floodplain shall be protected from flood damage below the flood protection elevation. In addition, existing buildings located within a floodway allowed to be built, replaced or modified, shall also meet the more restrictive allowable use standards included in Section 3.07. These building protection requirements apply to the following situations:

A. Repair or replacement of an existing structure allowed under Section 3.07.

B. A structural alteration to an existing building that either increases the first floor area by more than 20% or the building's market value by more than 50%.

C. Construction or placement of a new building valued at greater than $1,000.

D. Installing a manufactured home on an existing site. These building protection requirements do not apply to returning a mobile home to the same site it lawfully occupied before it was removed to avoid flood damage; and

E. Installing a travel trailer on a site for more than 180 days.

29.5-3.12 PROTECTION BY FILL

A building allowed to be protected from flooding by being constructed on permanent fill shall comply with the following:

A. The lowest floor (including basement) shall be at or above the flood protection elevation.

B. The fill shall be placed in layers no greater than one foot deep before compaction and should extend at least ten feet beyond the foundation of the building before sloping below the flood protection elevation. The top of the fill shall be above the flood protection elevation. However, the ten- foot

minimum may be waived if a structural engineer certifies an alternative method to protect the building from damages due to hydrostatic pressures. The fill shall be composed of rock or soil (sound structural fill materials) and not incorporate debris or refuse materials. The fill shall be protected against erosion and scour. The fill shall not adversely affect the flow or surface drainage from or onto neighboring properties.

29.5-3.13 PROTECTION BY ELEVATING

A building allowed to be protected from flooding by being elevated shall comply with the following:

A. The building or development shall be elevated on stilts, piles, walls, crawl space, or other foundation that is permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood or 100-year frequency flood. The permanent openings shall be no more than one foot above grade, and a minimum of two openings having a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding shall be provided, unless an alternate design is certified by a professional engineer.

B. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice, and floating debris.

C. All areas below the flood protection elevation shall be constructed of materials resistant to flood damage. The lowest floor (including basement) and all electrical, heating, ventilating, plumbing, and air conditioning equipment and utility meters, shall be located at or above the flood protection elevation. Water and sewer pipes, electrical and telephone lines, submersible pumps, and other waterproofed service facilities may be located below the flood protection elevation.

   Gravity storm and sanitary sewer connections are specifically prohibited. Overhead sewers are required for sanitary connections and sump pumps, and for storm sewer connections.

D. No area below the flood protection elevations shall be used for storage of items or materials.

E. When the building wall encloses open space that is below the base flood elevation, gravity storm and sanitary sewer connections are specifically prohibited and overhead sewers are required for the sanitary connections and sumps for the storm sewer connections.

F. Manufactured homes and travel trailers to be installed on a site for more than 180 days shall be elevated at or above the flood protection elevation and shall be anchored to resist flotation, collapse, or lateral movement by being

tied down in accordance with the rules and regulations for the Illinois Mobile Home Tie-Down Act issued pursuant to 77 Ill. Adm. Code 870.

29.5-3.14 OTHER PROTECTIVE MEASURES

Only a non-residential building may be floodproofed (in lieu of elevation) provided that a professional engineer shall certify that the building has been structurally floodproofed below the flood protection elevation and the structure and attendant utility facilities are watertight and capable of resisting the effects of the base flood or 100-year frequency flood. 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. Floodproofing measures shall be operable without human intervention and without an outside source of electricity. Levees, berms, floodwalls and similar works are not considered floodproofing for the purposes of these Regulations.

29.5-3.15 ACCESSORY STRUCTURES

In other than subdivisions developed after the adoption of these Regulations, new accessory structures on existing single-family platted lots, such as sheds and detached garages, may be constructed with the lowest floor below the flood protection elevation in accordance with all the following:

A. The building is not in a floodway.

B. The building is not used for human habitation.

C. All areas below the base flood or 100-year frequency flood elevation shall be constructed with waterproof material. Structures located in a floodway shall be constructed and placed on a building site so as not to block the flow of flood waters and shall also meet the appropriate use criteria of this Article. All other requirements of this Article must be met.

D. The structure shall be anchored to prevent flotation.

E. Service facilities such as electrical and heating equipment shall be elevated or floodproofed to the flood protection elevation.

F. The building must be valued at less than $5,000 and be less than 500 square feet in size.

F. The building must only be used for the storage of vehicles or tools and may not contain other rooms, workshops, greenhouses, or similar uses.

ARTICLE IV. DRAINAGE SYSTEM DESIGNS

Preface to Article IV

This article replaces the existing stormwater-related design regulations. It closely follows a model ordinance developed by the Northern Illinois Planning Commission which contains a few less than common features in the Central Illinois area.

29.5-4.01 MINIMIZATION OF RUNOFF

In the design of a drainage plan for a development, the applicant shall evaluate and implement, where practicable, site design features which minimize the increase in runoff volumes and rates from the site. The applicant's grading and drainage plan submittal shall include evaluations of site design features which are consistent with the following hierarchy:

A. Minimize impervious surfaces on the property consistent with the needs of the project;

B. Attenuate flows by use of open vegetated swales and natural depressions and preserve existing natural stream channels;

C. Provide stormwater detention structures; and

D. Construct storm sewers and channels.

29.5-4.02 WATER QUALITY AND MULTIPLE USES

The drainage system shall be designed to include or allow for future construction of components to achieve water quality management practices and where practical allow for adding multiple use activities. Water quality management practices include silt collection, pollutant settlement and removal, wetland nutrient treatment systems, and aquatic habitat protection. The location of water quality management practice components shall be accessible from public rights-of-way and shall be planned to accommodate movement of heavy construction equipment.

29.5-4.03 DRAINAGE SYSTEM MASTER PLAN COORDINATION

Developers shall consult with the City to determine if there is a regional basin plan for the area of proposed development. When there are areas not meeting the storage and release rates of these Regulations, tributary to the applicant's property, regionalized detention on the applicant's property shall be explored by the applicant.

29.5-4.04 STORMWATER DETENTION

A. Developments initiated after the adoption of these Regulations shall provide for temporarily detaining stormwater runoff from the site in the following cases:

1. In any non-residential development of greater than 2 acres, including one-half of existing, adjacent streets, or less than 2 acres if more than 50% of the surface area is impervious.

2. In any residential development of greater than 5 acres, including one-half of existing, adjacent streets, or less than 5 acres if more than 50% of the surface area is impervious.

3. In any other development, if the City Engineer determines that the development needs detention to prevent its doing harm.

B. The drainage system for a development shall be designed to control the peak rate of discharge from the property for the 100-year, 24-hour event to levels which will not cause an increase in flooding or channel instability downstream when considered in aggregate with other developed properties and downstream drainage capacities. The peak 100-year discharge shall not be greater than 0.18 cfs per acre of property drained.. These release rates may be modified by provisions of a detailed study, if one exists for the watershed in which a proposed development is to be located. Other details of detention requirements are listed in the Manual.

29.5-4.05 DETENTION STORAGE VOLUME

The design maximum storage to be provided in a detention basin shall be based on the runoff from the 100-year, 24-hour event and reservoir (also called modified PULS or level pool) routing. Detention storage shall be computed using hydrograph methods as described in the Manual prepared and adopted by the City Engineer.

29.5-4.06 DETENTION STORAGE AND RELEASE RATE REQUIREMENTS

A. The requirement for stormwater detention and release rate does not apply when:

1. The development is on a lot in a new subdivision for which detention is otherwise provided;

2. The development is on a lot or parcel in a subdivision for which detention was provided and approved prior to the effective date of these Regulations.

B. The requirement for stormwater detention and release rate may be waived by the City Engineer when:

1. The development is below the threshold levels for requiring detention as detailed in Section 4.04 above.

2. When it can be demonstrated by acceptable engineering calculations, that the stormwater runoff from the development in a 100-year storm event will not adversely impact any other property or improvement and that all receiving drainage facilities have adequate capacity to accommodate the runoff without it causing overload to the facilities or increased flood elevation in a floodplain.

3. The City Engineer determines it is in the best interest of the City to require fee in lieu of detention.

29.5-4.07 FEE IN LIEU OF DETENTION OR COMPENSATORY STORAGE

A. For the purpose of satisfying the requirements for stormwater detention or compensatory storage for a development or redevelopment on a property for which detention or compensatory storage was not previously provided, a fee in lieu of detention or compensatory storage may be assessed against the development prior to the issuance of a permit. Fees shall be calculated to establish the property's fair share of costs to provide detention or compensatory storage for the watershed or drainage basin in which the property exists. The cost figures used for detention shall be actual costs for detention or compensatory storage being provided by contract or estimated costs for planned detention or compensatory storage facilities approved by the City Engineer. All revenues received through such fees shall be used for no purpose other than defraying public costs associated with providing detention or compensatory storage facilities.

B. The City also may require a fee for each acre foot of detention needed in lieu of the applicant building a basin on site, provided the property will discharge stormwater into existing or proposed detention facilities with added capacity for the additional runoff.

C. In instances where regional benefits and economies of scale can be achieved, it will be permissible for adjacent properties to utilize a common regional detention basin. Applicants shall have the option of paying a fee for each acre foot of detention required so that the City can build regional facilities or they can jointly build the necessary facilities themselves. Recorded covenants and easements are required for any off-site detention or compensatory storage facilities and their associated drainageways.

29.5-4.08 DETENTION IN FLOOD FRINGES

The placement of detention basins within the flood fringe is strongly discouraged because of questions about their reliable operation during flood events. However, detention requirements may be fulfilled by providing detention storage within the flood fringe on the project with the following provisions:

A. The placement of a detention basin in a flood fringe area shall require compensatory storage for 1.5 times the volume below the base flood elevation occupied by the detention basin including any berms.

B. The release from the detention storage provided shall still be controlled consistent with the requirements of the Manual.

C. The applicant shall demonstrate its operation for all stream flow and floodplain backwater conditions.

D. Excavations for compensatory storage along watercourses shall be opposite or adjacent to the area occupied by detention.

E. All floodplain storage lost below the 10-year flood elevation shall be replaced below the 10-year flood elevation.

F. All floodplain storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation.

G. All compensatory storage excavations shall be constructed to drain freely and openly to the watercourse.

29.5-4.09 ON-STREAM DETENTION

On-stream detention basins are prohibited unless they provide regional public benefits and meet the other provisions of these Regulations with respect to water quality and control of the two-year and 100-year, 24-hour events from the property. Further criteria are presented in the Manual. If on-stream detention is used, it is required that the applicant use an approved model to demonstrate that the design will not increase stage for any properties upstream or downstream of the property.

29.5-4.10 ROOFTOP STORMWATER STORAGE

Rooftop storage of excess stormwater shall be designed and constructed to provide permanent control inlets and parapet walls to contain excess stormwater. Adequate structural roof design must be provided to ensure that roof deflection does not occur which could cause the roofing material to fail and result in leakage. Overflow areas must be provided to ensure that the weight of stormwater will never exceed the structural capacity of the roof.

29.5-4.11 AUTOMOBILE PARKING LOT STORAGE AREAS

Automobile parking lots may be designed to provide temporary detention storage on a portion of their surfaces. Automobile parking facilities used to store excess stormwater may be constructed having a maximum depth of stored stormwater of 0.6 feet; and these areas shall be located in the most remote, least used areas of the parking facility. Design and construction of automobile parking in stormwater areas must insure that there is no damage to the parking facility due to flooding, including

damage to the subbase. Warning signs shall be mounted at appropriate locations to warn of possible flood conditions during storm periods.

29.5-4.12 EARLY COMPLETION OF DETENTION FACILITIES

Where detention, retention, or depressional storage areas are to be used as part of the drainage system for a property, they shall be constructed as the first element of the initial earthwork program. Any eroded sediment captured in these facilities shall be removed by the developer before project completion in order to maintain the design volume of the facilities. Any areas disturbed during removal of captured sediment shall be restored. The actual volume of dry detention basins shall be verified by an engineer before final approval will be granted.

29.5-4.13 DRAINAGE SYSTEM DESIGN AND EVALUATION

The following criteria should be used in evaluating and designing the drainage system. The underlying objective is to provide capacity to pass the 5-year peak flow in the minor drainage system and an overload flow path for flows in excess of the 5-year peak flow.

A. DESIGN METHODOLOGIES - DETENTION BASINS - Runoff hydrograph methods as described in the Manual must be used for the design of all detention basins.

B. DESIGN METHODOLOGIES - MINOR CONVEYANCES - Minor conveyance systems including storm sewers shall be designed using acceptable methods described in the Manual.

C. DESIGN METHODOLOGIES - MAJOR CONVEYANCES - Major conveyance systems can be designed using flows calculated using acceptable methods described in the Manual.

D. POSITIVE DRAINAGE - All areas of the property must be provided an overland flow path that will pass the 100-year flow at a stage of at least one foot below the lowest foundation grade in the vicinity of the flow path. Overland flow paths designed to handle flows in excess of the minor drainage system capacity shall be designed to pass the overland flow to the appropriate receiving detention basin, or in the absence thereof, to the appropriate receiving drainage facility.

E. UNOBSTRUCTED STORM SEWER OUTLETS - Storm sewers from new subdivisions must outlet in unsurcharged condition in a five-year storm event or be provided with pumping equivalent to same.

F. MINIMUM SLOPE REQUIREMENTS - Runoff from overland drainage shall be collected into and conveyed to approved facilities by a variety of systems including swales, ditches, streets, underdrains, storm sewer conduits and open channels. Gradients for each such conveyance component are

critical for proper functioning. Minimum, and where appropriate, maximum slopes for each type of drainage facility and material are listed in the Manual.

29.5-4.14 DRAINAGE IN STREETS

If streets are to become part of the minor or major drainage system, water depths shall not exceed 9 inches on local streets or 6 inches on collector streets; for arterial streets, the center lane shall be kept dry. In any case, no street shall remain flooded for more than eight hours for any event less than or equal to the 100-year event.

29.5-4.15 DISCHARGE OF PRIVATE DRAINAGE SYSTEMS

A. Generally.

1. The discharge of any substance into any storm sewer or storm drainage facility other than stormwater, ground water, sub-surface drainage, cooling water, or unpolluted process waters is prohibited.

2. The discharge of stormwater, ground water, roof runoff, and sump pumps, into a sanitary sewer is prohibited.

3. The discharge of stormwater, ground water, roof runoff, sump pumps, and floor drains into agricultural drainage system conduits is prohibited, except by the written permission of the owner and maintainer of the agricultural drainage system.

B. *Sump Pumps.* Each building site in a new subdivision shall be provided with an approved facility for the discharge of sump pump water. Sump pumps installed to receive ground waters or stormwater shall discharge to approved drainage facilities which include only wet detention basins, streams or creeks which have a base flow, storm sewers or other underground pipes which have been designed for the discharge. Dry bottomed detention basins and grass swales are not acceptable discharge locations.

C. *Floor Drains.* Floor drains shall be discharged to sanitary sewers and not to storm drainage facilities.

D. *Downspouts and Roof Drains.* Downspouts and roof drains shall not be connected to the sanitary sewer system. All downspouts or roof drains for single family residences shall discharge onto the ground.

E. *Footing Drains.* Footing drains and drainage tile shall not be connected to sanitary sewers. Footing drains shall discharge to approved drainage facilities. Dry-bottomed detention basins and grass swales are not acceptable discharge locations.

29.5-4.16 PROVISIONS FOR AGRICULTURAL DRAINAGE

A. Existing easements for any agricultural drainage systems located underneath areas that will be developed shall be preserved. If no such easement exists, an easement shall be dedicated for access and maintenance as provided for in these Regulations and the Manual.

B. All agricultural drainage systems that serve upstream areas outside of the development and that are located underneath areas that will be developed shall be replaced with non-perforated conduit to prevent root blockage, provided, however, that the existing drainage district system may remain in place with the approval of the drainage district.

C. Agricultural drainage systems that, due to development, will be located underneath streets, driveways, and other paved areas as allowed by these Regulations, shall be replaced with conduits meeting the specifications defined in the Manual, as needed to prevent the collapse of the agricultural drainage conduit.

D. Agricultural drainage systems may be relocated within the development area upon the approval of the City Engineer. Such relocation shall maintain sufficient slope and capacity to prevent sedimentation and to prevent an increase in scouring or structural damage to the conduit. Such relocation shall only be with the consent and approval of the Drainage District responsible for the system. If the system is not under the authority of a drainage district, the City Engineer shall consider the interests of those landowners who are served by the system.

29.5-4.17 DRAINAGE INTO WETLANDS

Wetlands shall be protected from damaging modifications and adverse changes in runoff quality and quantity associated with land developments. In addition to the other requirements of these Regulations, the following requirements shall be met for all developments whose drainage flows into wetlands:

A. DETENTION IN WETLANDS - Existing wetlands shall not be modified for the purposes of stormwater detention unless it is demonstrated that the existing wetland is low in quality and the proposed modifications will maintain or improve its habitat and ability to perform beneficial functions. Existing depressional storage in wetlands shall be maintained and the volume of detention storage provided to meet the requirements of this section shall be in addition to this existing storage.

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

C. ALTERATION OF DRAINAGE PATTERNS - Site drainage patterns shall not be altered to substantially decrease or increase the existing area tributary to the wetland.

D. DETENTION/SEDIMENTATION - All runoff from the development shall be routed through a preliminary detention/sedimentation basin designed to capture the two-year, 24-hour event and hold it for at least 24 hours before being discharged to the wetland. This basin shall be constructed before property grading begins. Alternative methods of preventing sedimentation will be considered. In addition, the drainage hierarchy defined in Section 29.5.4.01 should be followed to minimize runoff volumes and rates being discharged to the wetland.

E. VEGETATED BUFFER STRIP - A buffer strip of at least 25 feet in width, preferably vegetated with native plant species, shall be maintained or restored around the periphery of the wetland.

29.5-4.18 CHANNEL MODIFICATION

Channel modification is acceptable if the purpose is to restore natural conditions and improve water quality and fish and wildlife habitat. If the proposed development activity involves a channel modification, it must be demonstrated that:

A. Water quality, habitat, and other natural functions would be significantly improved by the modification and non-significant habitat area may be destroyed, or the impacts are offset by the replacement of an equivalent degree of natural resource values;

B. The activity has been planned and designed and will be constructed in a way which will minimize its adverse impacts on the natural conditions of the stream or body of water affected, consistent with requirements and guidance in the Manual.

29.5-4.19 MAINTENANCE CONSIDERATIONS

The stormwater drainage system shall be designed to minimize and facilitate maintenance. Turfed sideslopes shall be designed to allow lawn mowing equipment to easily negotiate them. Wet basins shall be provided with alternate outflows which can be used to completely drain the pool for sediment removal. (Pumping may be considered if drainage by gravity is not feasible). Pre-sedimentation basins shall be included, where feasible, for localizing sediment deposition and removal. Access for heavy equipment shall be provided. Access to drainage facilities on private property in the City shall be assured regardless of who is to be responsible for maintenance.