

AGENDA
PARK FOREST PLANNING AND ZONING COMMISSION

Park Forest Village Hall
Board Room

7:00 P.M.

TUESDAY
October 12, 2021

1. Planning and Zoning Commission Call to Order
2. Review of Minutes
 - a. September 14, 2021, Regular Planning and Zoning Commission Meeting
3. Petitions - None
4. Audience to Visitors
5. New Business –
 - a. Public Hearing – Text Amendment to add Chapter XI, Stormwater Management, to the Unified Development Ordinance
6. Old Business - None
7. Communications
 - a. Member Communications
 - b. Trustee Comments
 - c. Staff Communications
8. Adjournment

Any individual with a disability requesting a reasonable accommodation in order to participate in a public meeting should contact the Village Manager's Office at least 48 hours in advance of the scheduled meeting. The Village Manager's Office can be reached via telephone at (708) 283-5605 or via email at athurston@vopf.com. Every effort will be made to allow for meeting participation.

**Park Forest
Planning and Zoning Commission Meeting Minutes
Park Forest Board Room
Tuesday, September 14, 2021**

Present: Chair Vernita Wickliffe-Lewis; Vice Chair Marguerite Hutchins; Commissioners: Samuel Brooks, Cynthia Burton-Prete, Denise Poston, Doug Price; Trustee Liaison Maya Hardy

Board of Trustees Present: Mayor Jon Vanderbilt, Trustees: Theresa Settles, Tiffani Graham, Joe Woods, Candyce Herron, Erin Sloan

Staff: Hildy Kingma, Director of Economic Development and Planning; Thomas Mick, Village Manager

Absent: Commissioners: Kyle Brodnick, Kim Elmore-Perkins

Visitors: Dion Moore, Phoebe Alexander, Ronald Alexander

Call to Order: Wickliffe-Lewis called the meeting to order at 7:01 pm.

Review of Minutes July 13, 2021: On page 5 where Phoebe Alexander is speaking, “fence” should be plural. Under Trustee comments where it says “The Board have their strategic planning session.” It should be “has”, not “have”. A motion to approve the minutes, with corrections, was made by Hutchins, and seconded by Price. All approved (6-0).

Petitions - None

Audience to Visitors: None.

New Business:

- a. Joint Workshop with the Board of Trustees to Discuss: Unified Development Ordinance Use Standards for Fences on Corner Lots

Kingma went over the UDO regarding the fence ordinance. She stated that in the past two years the PZC has considered four requests for major variations to the fence standards in the front yard, with three being for corner lots and one being a request for a six (6) foot fence in the front yard of a house that wasn't on a corner. In all four cases, the Commission recommended denial and the Board of Trustees supported that recommendation. At the July meeting, during consideration of two requested fence variations, the PZC discussed the fact that this request keeps coming up and decided to request direction from the Board regarding their support for the current fence use standards.

Planning and Zoning Commission members expressed their opinions about the current fence use standards. Price noted the importance of only granting variations when the request meets the standards. To date, none of the property owners could demonstrate that their property was

unique enough to warrant the variation. Brooks noted that the UDO standards are in place to maintain community consistency, and if multiple variations are granted, the aesthetics of the community would be impacted in a negative way. Poston indicated the need to ensure that new homeowners are aware of the fence standards. Hutchins and Burton-Prete said that consideration could be given to a compromise, but the need to maintain walkability in the community should be kept in mind.

Wickliffe-Lewis turned the floor over to the Board to hear their input on the current fence standards.

Mayor Vanderbilt invited the Trustees to voice their thoughts and suggestions on the UDO.

Each Trustee voiced their concerns, opinions, and suggestions regarding the use standards for fences on corner lots. They commended the Commissioners on how hard they work to uphold and make the rules. Some were in support of revisiting the UDO and looking for ways to amend it. One suggestion was to allow a six foot fence, but require a setback of five (5) or ten (10) from the property line, or have the fence height be greater than 3 feet, and/or set different standards for the materials that are being used in the front yard of a corner lot. They talked about working on revisions where families feel safe and where new families want to be part of the community. Board members also noted that the revisions should not negatively impact the goals for visibility and walkability. One Trustee did express their concern of having a six to eight foot tall fence in the front yard of a corner lot, and thinks that the current ordinance is appropriate. There was a suggestion of getting assistance from CMAP, who helped in the process of developing the UDO.

After the Board of Trustees members expressed their concerns and opinions, Mayor Vanderbilt announced that he will assign Board Committee A, chaired by Trustee Graham, to discuss and come up with recommendations for possible revisions to height, distance from the walk to the sidewalk, and any other issues that might arise.

Wickliffe-Lewis closed the workshop at 7:55 pm.

b. Public Hearing – Text Amendment to the Use Standards for Community Residences
(Article III-2.F. of the UDO)

Kingma went over the request to amend the use standards for Community Residences. This was initiated by the Village Attorney. A potential buyer of a home in Park Forest was informed of the separation requirements for community residences, and they challenged that standard. The Village Attorney was consulted, and they informed the staff about a similar situation in Springfield in 2018. The court ruled that the Springfield code was in violation of the Fair Housing Act, the ADA, and the Rehabilitation Act. Therefore, the Village Attorney recommended that Park Forest's use standards be amended.

There was no one in the audience to speak to this request. A motion to close the public hearing was made by Price, and seconded by Hutchins. All voted in favor (6-0), and the public hearing closed at 8:02 pm.

After discussing the Standards for Text Amendments, a motion was made by Price to recommend to the Board that the text amendment be approved. The motion was seconded by Hutchins, and all voted in favor (6-0).

Old Business - None

Communications:

- a. **Member Communications:** Burton-Prete ask if Board Committee A and the PZC will be meeting on the fourth Tuesday. Village Manager Mick stated that the Board will meet when there is a written charge that lays out specifically what the Mayor is asking the Committee to consider. It will be in writing to make the expectations clear. Then Board Committee A will work with whoever the staff liaison is to assess what their availability is to get the process started. It will remain to be seen if anyone from the Planning and Zoning Commission is asked to be a part of the process. However, any Commissioner is more than welcome to attend the meeting(s). Brooks asked if Aunt Martha's owns the majority of the group homes in Park Forest. Kingma stated that they do not. Burton-Prete next asked Kingma if she knows the type of residents in the group homes. Kingma stated that they are typically people with developmental disabilities.

Brooks asked Kingma if the owner of Stacy Automotive Repairs still intends to sell cars. Kingma stated that it is still his intention, but he is having trouble with the State license to sell cars.

- b. **Trustee Comments:** Trustee Hardy noted her respect for the Commission, and said she knows how hard they work. She expressed her thoughts on the UDO for Fences on Corner Lots, and stated that there should be some expertise on the Committee that the Mayor forms.
- c. **Staff Communications:** Kingma stated that she and Nick Christie, the Assistant Village Engineer, will be bringing the storm water management ordinance to the Commission at the October meeting. There will be a public hearing to amend the UDO to include this chapter.

Adjournment: A motion to adjourn was made by Poston, and seconded by Burton-Prete. All voted in favor (6-0). Meeting adjourned at 8:37 pm.

PLANNING AND ZONING COMMISSION MEMO

TO: Planning and Zoning Commission

FROM: Hildy L. Kingma, AICP
Director of Economic Development and Planning

DATE: October 6, 2021

RE: NEW BUSINESS – Planning & Zoning Commission Meeting October 12, 2021
Public Hearing to consider a Request for a Text Amendment to add Article XI –
Stormwater Management

When the Unified Development Ordinance (UDO) was adopted in December 2017, Article XI – Stormwater Management, was not included as it was still being developed. The Village worked for the past several years with Terra Engineering to create stormwater management provisions that address the community’s goals for minimizing flooding, protecting existing wetlands, enhancing resilience to climate change, and encouraging the use of native landscaping.

Note that the Village is required to allow the Illinois Department of Natural Resources to review this ordinance revision, and they are currently in the process of doing that review. However, because of their staffing shortages, and the length of time the review is taking, the IDNR has permitted the Village to proceed with adoption of the ordinance so new development will become subject to its requirements. Therefore, it is possible that the IDNR will request revisions to this ordinance in the future.

Public Hearing Requirements

As required by the UDO, notice of this public hearing was published in the *Daily Southtown Newspaper* on September 26, 2021. No other notice is required for text amendments. As of the date of this memo, no comments have been received from the public. Any comments received prior to the Public Hearing will be reported on at the Planning and Zoning Commission meeting.

This request is being considered by the Planning and Zoning Commission (PZC) pursuant to Article VIII-3.E. of the Unified Development Ordinance (Zoning Text and Map Amendments), which provides that the PZC shall hold public hearings on all requests for text amendments and shall make its recommendations to the Board of Trustees. A text amendment may be granted by the Board only after the PZC and the Village Board have evaluated the application and made specific written findings based on the Standards for Zoning Amendments established by Article VIII-3.E.3. The required standards for zoning amendments are noted below, and a worksheet has been attached to assist the PZC in drafting its findings related to the requested amendments. Note that these standards are written to apply to both text and map amendments, and the standard for a recommendation for approval is “based on a balance of the standards”. This is a lower standard than that established for a recommendation for approval of a variation, which is “based on each of the standards”.

- a. The proposed amendment will not endanger the health, safety, comfort, convenience, and general welfare of the public.
- b. The proposed amendment is compatible with the existing uses, character, and zoning of adjacent properties and other property within the immediate vicinity of the proposed amendment.
- c. The proposed amendment provides a relative gain to the public, as compared to any hardship imposed upon an individual property owner.
- d. The proposed amendment makes it more feasible to develop property relative to the present zoning classification of the property.
- e. The proposed amendment addresses the community need for a specific use.
- f. The proposed amendment corrects an error, adds clarification, or reflects a change in policy.
- g. The proposed amendment rectifies existing nonconformities and, if so, the extent of such nonconformities.
- h. The proposed amendment is consistent with the intent of the elements of the Comprehensive Plan, this Unified Development Ordinance, and the other land use policies of the Village.

Proposed Amendment

Nick Christie, PE, Assistant Public Works Director and Assistant Village Engineer, will be at the October 12 meeting to provide background and answer questions about the proposed amendment. He has prepared the attached memo to summarize the most important engineering elements of the ordinance.

Other items in the ordinance that will be of interest to the Commission include the following:

- Section XI-86 through 91 – requires provisions for long-term maintenance of stormwater facilities to be established by the property owner. The facilities can be transferred to the Village or another public entity, maintenance can become the responsibility of a property owner’s association, or it can become the responsibility of one or more persons.
- Section XI-91 – if long-term maintenance of the stormwater facility is not the responsibility of a public entity, the Village will require some form of assurance that funding will adequate for maintenance to occur. The Village reserves the right to require the establishment of a Special Service Area, either as the primary funding mechanism or as a back-up in case maintenance is not happening in the manner required by the permit.
- Section XI-103 through 110 – the owner or developer has the ability to request a variation to the provisions of the ordinance. Variations are considered at a public hearing by the Oversight Committee (defined in XI-115 as the Planning and Zoning Commission). The same public notice is required as that required for all other variations from the UDO. The standards for variations to Article XI are defined in Article XI-107 (Granting of Stormwater Management Variations). Many of these standards are very technical. Therefore, the Village Engineer will be involved in guiding the Oversight Committee/PZC through this process should it ever be requested. The final decision on variations to Article XI is made by the Board of Trustees.

- The Zoning Administrator is defined as “the Village of Park Forest Village Manager or designee”, and will typically be the Village Engineer when implementation of Article XI is involved.
- XI-123 through 125 – establishes a program that allows a property owner or developer to pay a fee-in-lieu to fulfill all or a portion of the requirements for volume control (BMPs), detention, or wetland mitigation.

Planning and Zoning Commission Action: After conducting the public hearing, the Planning and Zoning Commission is asked to consider this request for a Text Amendment to add Article XI (Stormwater Management), and make a recommendation to the Board of Trustees on this request.

**ZONING TEXT AND MAP AMENDMENT
STANDARDS FOR ZONING AMENDMENTS
WORKSHEET**

The Unified Development Ordinance requires that the Zoning Administrator, the Planning and Zoning Commission, and the Board of Trustees evaluate requests for zoning amendments based on a balance of the Standards established by the Ordinance. This worksheet is provided to assist the Planning and Zoning Commission with drafting a response to each of the standards for text amendments that will be sent to the Board of Trustees with a recommendation on the requested amendment. The standards are as follows:

- 1. The proposed amendment will not endanger the health, safety, comfort, convenience, and general welfare of the public.*

- 2. The proposed amendment is compatible with the existing uses, character, and zoning of adjacent properties and other property within the immediate vicinity of the proposed amendment.*

- 3. The proposed amendment provides a relative gain to the public, as compared to any hardship imposed upon an individual property owner.*

- 4. The proposed amendment makes it more feasible to develop property relative to the present zoning classification of the property.*

5. *The proposed amendment addresses the community need for a specific use.*

6. *The proposed amendment corrects an error, adds clarification, or reflects a change in policy.*

7. *The proposed amendment rectifies existing nonconformities and, if so, the extent of such nonconformities.*

8. *The proposed amendment is consistent with the intent of the elements of the Comprehensive Plan, the UDO, and other land use policies of the Village.*

Memo

To: Hildy Kingma

From: Nicholas Christie

cc:

Date: October 6, 2021

Re: Park Forest Storm Water Ordinance

Development within the Village of Park Forest is regulated by the Will County Storm Water Ordinance. However, the County Ordinance serves as a base Ordinance and does not serve to meet the sustainable goals of the Village. Therefore, we have been working with Terra Engineering to develop a supplemental storm water ordinance. While the proposed Ordinance is lengthy and discusses many topics, I would like to emphasize what I believe are the most important elements below:

1. **Bulletin 75:** Designers will be required to use the Bulletin 75 rainfall intensity charts recently developed by the Illinois State Water Survey. Bulletin 75 is the most current rainfall table that requires design based upon storm intensities of the most recent past. This rainfall data is generally higher than Bulletin 70 and TR55 data that has been used in the prior ordinances and will likely lead to larger storm water infrastructure being constructed. Please note that Bulletin 75 data is not predictive of future effects of global warming.
2. **Detention (rate control):** Many of our likely future developments will be redevelopments of existing parcels without existing storm water detention. The Ordinance will require detention of all developments that exceed 5,000 S.F. of new impervious or result in an aggregate impervious of over 25,000 S.F. Detention serves to store water onsite during peak events before releasing to the public system. This is a critical component to prevent surcharging of the Park Forest sewer system.

3. BMP Requirements (volume control): Prior to development, open areas naturally infiltrate water into the ground water supply. Post development, parcels are often paved over, forcing water to surface drain to the streets and cause potential flooding. This Ordinance will require developments to capture the first 0.5 inches of rainfall from impervious areas and infiltrate back into the ground water supply. This will serve to cause less flooding, naturally clean the water, and recharge the ground water supply. The methods used are called storm water best management practices (BMPs) and can be wetland bottom ponds, infiltration trenches, pervious pavements and others.

Additionally, this Ordinance serves to reinforce the importance of preserving our native topsoil. Often developments are stripped of all native topsoil and minimally replaced in pervious areas. This causes plants to suffer to fully grow and severely limits the storm water infiltration from a site. The Ordinance seeks to keep native topsoil onsite and requires healthy depths that promote plant growth and storm water infiltration. Additionally, if a developer exceeds the minimum topsoil depths required, a provision has been put in place that will reduce the amount of detention required. This will potentially save a developer money and allow for more developable area.

4. Floodplains: The Ordinance codifies the minimum required FEMA provisions to allow for participation in the National Flood Insurance Program (NFIP). Though, while adopting the FEMA provisions, it is noted that flood plain maps note a significant unstudied Zone X in our central business district. The maps note a flood plain but does not provide additional information. However, the MWRD inundation maps provide a much more detailed study and is considered the best available engineering information. This Ordinance allows staff to consider these maps for future development.

It should be noted that, due to staffing shortages at the Illinois Department of Natural Resources (IDNR), this Ordinance is still considered under review. However, IDNR is allowing us to adopt the Ordinance, though they may require revisions at a later date.

5. Wetlands: Wetlands tributary to waters of the United States are under the jurisdiction of the Army Corps of Engineers. What the Corps considers tributary is sometimes arbitrary to the review at the time. This Ordinance speaks to preserving local wetlands that are not considered tributary. Local wetlands will be protected with development buffers that vary depending on wetland quality.

ARTICLE XI: STORMWATER MANAGEMENT

Purpose and Definitions

- § XI-1 Local statutory authority
- § XI-2 Purposes of this Article
- § XI-3 Definitions

Requirements for Stormwater Management

General Information

- § XI-4 Stormwater management permit applicability
- § XI-5 Stormwater management plan required
- § XI-6 Other applicable requirements
- § XI-7 Building permit and occupancy prerequisites

General Stormwater Requirements

- § XI-8 Requirements applicable to all development
- § XI-9 Overland flow paths
- § XI-10 Design criteria for storm sewers and surface swales
- § XI-11 Grading plans
- § XI-12 General protection of buildings

Site Runoff Requirements

- § XI-13 Stormwater facility discharges
- § XI-14 Minor stormwater system criteria
- § XI-15 Major stormwater system criteria
- § XI-16 Existing sub-surface and surface drainage systems
- § XI-17 Design runoff rate
- § XI-18 Design rainfall
- § XI-19 Stormwater systems easements
- § XI-20 Diversion of flow to another watershed
- § XI-21 Best management practices requirements
- § XI-22 Topsoil preservation runoff reduction incentive

Site Volume Control BMP Requirements

- § XI-23 Applicability
- § XI-24 Volume control BMP storage determination
- § XI-25 Volume control practices, requirements and design criteria
- § XI-26 Excess volume control for future development
- § XI-27 Volume control storage maintenance plan

Site Runoff Storage (Detention) Requirements

- § XI-28 Applicability of site runoff storage (detention) requirements
- § XI-29 Release rate
- § XI-30 Detention storage volume determination
- § XI-31 Downstream water surface elevations
- § XI-32 Site runoff storage facility design requirements
- § XI-33 Detention storage facility maintenance plan
- § XI-34 Site runoff storage facility requirements within the regulatory floodplain
- § XI-35 Site runoff storage facility requirements within the regulatory floodway
- § XI-36 Off-site facilities
- § XI-37 Cross-stream structures for site runoff storage facilities

Soil Erosion and Sediment Control Requirements

- § XI-38 Soil erosion and sediment control general requirements
- § XI-39 Soil erosion and sediment control plan requirements
- § XI-40 Soil erosion and sediment control plan design criteria
- § XI-41 Extended construction shutdown periods
- § XI-42 Inspections

Protection of Special Management Areas

Floodplains and Floodways

- § XI-43 General application and agency coordination
- § XI-44 Base flood elevation (BFE) and designated floodway or regulatory floodplain locations
- § XI-45 Occupation and use of flood fringe areas
- § XI-46 Compensatory storage volume standards
- § XI-47 Occupation and use of designated floodways
- § XI-48 Occupation and use of floodplain areas where floodways are not identified
- § XI-49 Flood-prone area requirements
- § XI-50 General public health and safety standards applicable to all floodplain areas
- § XI-51 Protecting buildings and vehicles in all floodplain areas
- § XI-52 Subdivision requirements involving floodplain areas

Stream and Wetlands Protection

- § XI-53 Authority
- § XI-54 Purpose and intent
- § XI-55 Permit requirements for wetland impacts
- § XI-56 Isolated Park Forest wetland quality designations
- § XI-57 Wetland status certification
- § XI-58 Wetland protective buffer requirements
- § XI-59 Requirements for development affecting wetland function
- § XI-60 Wetland impact mitigation ratios
- § XI-61 Wetland impact and mitigation plan
- § XI-62 Wetland mitigation performance standards
- § XI-63 Wetland establishment

- § XI-64 Watercourse relocation and minor modifications (including channelization and relocation)
- § XI-65 Stream and wetland legal protection
- § XI-66 Long-term wetland maintenance, management, and operation

Stormwater Management Permit Submittal Requirements

General Requirements

- § XI-67 Stormwater management and other permits required
- § XI-68 Permit review fees
- § XI-69 Professional seals and certifications required

Duration and Revision to Permits

- § XI-70 Stormwater management permit expiration
- § XI-71 Permit extension
- § XI-72 Permit revision

Required Permit Submittals

- § XI-73 Generally
- § XI-74 Modification of submittal requirements
- § XI-75 Applications and project overview
- § XI-76 Stormwater management plan submittal
- § XI-77 Stormwater submittal
- § XI-78 Soil erosion and sediment control submittal
- § XI-79 Floodplain/floodway submittal
- § XI-80 Wetland submittal

Other Submittals Prior to Permit Issuance

- § XI-81 Additional submittals required
- § XI-82 Plat of easement
- § XI-83 Performance security
- § XI-84 Stormwater management system maintenance schedule and funding
- § XI-85 Issuance or denial of permit and appeal of permit denial

Long-Term Maintenance

- § XI-86 Long-term maintenance
- § XI-87 Transfer to permitting authority or other public entity
- § XI-88 Transfer to homeowner's or similar association
- § XI-89 Conveyance to one or more persons
- § XI-90 Incorporation of maintenance obligations in stormwater management permit
- § XI-91 Funding of long-term maintenance of stormwater facilities and wetlands

Construction Certification

§ XI-92 Record Drawings

Enforcement and Penalties

§ XI-93 Inspection and maintenance authority

§ XI-94 Required inspections

§ XI-95 Violations and offenses

§ XI-96 Penalties and remedies

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§ XI-97 Scope of regulation

§ XI-98 Interpretation

§ XI-99 Warning and disclaimer of liability

§ XI-100 Abrogation and greater restrictions

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Stormwater Management Variations

§ XI-103 Purpose

§ XI-104 Application for stormwater management permit variations

§ XI-105 Application fee

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§ XI-108 Recommendations

§ XI-109 Decision

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Administration

§ XI-111 Responsibility for administration

§ XI-112 Recognized duties of Will County Stormwater Management Committee Director

§ XI-113 Duties of Park Forest Zoning Administrator

§ XI-114 Representative capacity

§ XI-115 Oversight committee

§ XI-116 Service

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§ XI-118 General security requirements

§ XI-119 Development security

§ XI-120 Soil Erosion and sediment control security

§ XI-121 Wetland establishment funding guarantee security

§ XI-122 Letters of credit

Fee-in-lieu Programs

§ XI-123 Site volume control BMP storage variance fee program

§ XI-124 Site runoff storage (detention) variance fee program

§ XI-125 Wetland mitigation variance fee program

ARTICLE XI: STORMWATER MANAGEMENT

AUTHORITY, PURPOSE AND DEFINITIONS

§ XI-1 Local Statutory Authority

- A. The regulatory provisions of this Article of the Park Forest Unified Development Ordinance (UDO) are delegated by the Will County Board, to the extent applicable by state law, to the Village of Park Forest pursuant to its qualification and acceptance as a Certified Community by the Will County Board with the authority to regulate Stormwater Management and governing the location, width, course, and release of all stormwater runoff channels, streams, and basins in Will County via the adoption and enforcement of the Will County Stormwater Management Ordinance (WCSMO) with a municipal ordinance that is consistent with and at least as strict as the aforesaid WCSMO. This authority is pursuant to 55 ILCS 5/5-1062, 65 ILCS 5/1-2-1, 5/11-12-12, 5/11-30-2, 5/11-3—8 and 5/11-31-2; and 615 ILCS 5/4, 9, et seq, including 18g.
1. The Park Forest local statutory authority includes Stormwater Management Permit authority for development on school district properties within the Village limits.
 2. The Park Forest local statutory authority does not extend to developments by federal, state, or county departments and agencies or Forest Preserve District governments.
- B. The regulatory authority to enforce these provisions within the Cook County portions of the Village of Park Forest are pursuant to an agreement with the Metropolitan Water Reclamation District of Greater Chicago (MWRD) in accordance with §207.1.E of its Watershed Management Ordinance (WMO) which allows Multi-County Municipalities to adopt and enforce a municipal ordinance that is consistent with and at least as strict as the WCSMO, as amended from time to time by the Will County Board.
1. The initial multi-county municipality intergovernmental agreement between the Village of Park Forest and the MWRD was initially authorized by the Village on June 23, 2014, and formally adopted by the MWRD on August 8, 2014.
 2. An amendment to the above initial agreement was authorized by the Village on April 16, 2018 to address amendments to the MWRD WMO that were adopted by the MWRD on February 15, 2018. Applicable provisions of the MWRD WMO as amended from time to time are understood to be incorporated within this Article.
- C. The Village of Park Forest is **not** an IDNR/OWR Delegated Community as provided in the 17 ILL. ADM. CODE, Part 3708 Rules pertaining to Floodway Construction in Northeastern Illinois. As a non-delegated community, the permitting authority for the Village for any development activities within a Designated Floodway is limited to administering those responsibilities established by Sections 18g and 35 of the Rivers, Lakes and Streams Act (615 ILCS 5/18g and 35). Such Designated Floodway or Regulatory Floodplain development requires coordinated involvement with the IDNR/OWR for any construction activity which modifies the hydraulic characteristics of the floodway.

§ XI-2 Purposes of this Article

The principal purpose of this Article is to promote effective, equitable, acceptable, and legal stormwater management measures by establishing reasonable rules and regulations for development. Other purposes of this Article include:

- A. Manage and mitigate the effects of urbanization on stormwater drainage throughout the Village through planning, appropriate engineering practices, and proper maintenance.
- B. Protect from, and reduce the existing potential for, loss of human life, health, safety, welfare, and property from the hazards of flooding damages on a watershed basis.
- C. Preserve and enhance the natural hydrologic and hydraulic functions and natural characteristics of watercourses, wetlands and associated buffers, and floodplains to reduce flood and stormwater impacts, reduce flood damage, protect and improve water quality, quantity, and availability of surface and groundwater resources, protect aquatic habitats, reduce soil erosion, provide recreational and aesthetic benefits, and enhance community and economic development.
- D. Control sediment and erosion in and from stormwater facilities, developments, agricultural fields, and construction sites and reduce and repair stream bank erosion.
- E. Require that planning for development provides for water resource management, taking into account natural features such as vegetation, wildlife, waterways, wetlands, and topography in order to reduce the probability that new development will create unstable conditions susceptible to erosion.
- F. Protect environmentally sensitive areas from deterioration or destruction by private or public actions.
- G. Protect, conserve, and promote the orderly development of land and water resources by requiring appropriate and adequate provision for site runoff control, especially when the land is developed with a large amount of impervious surface.
- H. Protect new and existing buildings and major improvements to buildings from flood damage due to increased stormwater runoff.
- I. Require the design and evaluation of each site stormwater management plan consistent with watershed capacities.
- J. Prevent the further degradation of the quality of ground and surface waters through the preservation and enhancement of the quality of surface waters, conservation of economic and natural values, and provision of the wise utilization of water and related land resources.
- K. Encourage the use of stormwater storage and infiltration of stormwater in preference to stormwater conveyance.
- L. Lessen the taxpayers' burden for flood-related disasters, flood control projects, repairs to flood-damaged public facilities and utilities, correction of channel erosion problems, and flood rescue and relief operations caused by increased stormwater runoff quantities from new development.

- M. Meet the Illinois Department of Natural Resources-Office of Water Resources floodway permitting requirements delineated in ILCS Ch. 615, Act 5, § 18g (1992) ("An Act in Relation to the Regulation of the Rivers, Lakes, and Streams of the State of Illinois"), as amended from time to time.
- N. Make federally subsidized flood insurance available in the Village by fulfilling the requirements of the National Flood Insurance Program as required to maintain the Village's eligibility in the program.
- O. Comply with the rules and regulations of the National Flood Insurance Program (NFIP) codified in Title 44 of the Code of Federal Regulations 59-79, revised as of October 1, 2000, as well as final NFIP rules published after that date.
- P. Minimize potential losses due to periodic flooding including loss of life, loss of property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and welfare.
- Q. Restrict future development in the floodplain to facilities that will not adversely affect the floodplain environment or adversely affect the potential for flood damage.
- R. Require regular, planned maintenance of stormwater management facilities.
- S. Allow the use of simple technologies whenever appropriate and realistic but require the use of more sophisticated techniques when necessary to ensure the adequacy of stormwater controls.
- T. Enhance the potential ability of property owners that are obligated to acquire insurance coverage from the Federal Emergency Management Agency (FEMA) NFIP to do so at discounted rates pursuant to the NFIP's Community Rating System (CRS) upon community qualification and the rated level of achieved risk limitation in recognition of a community's efforts to better manage floodplains and educate the public concerning the prevention of flood damage to their homes beyond the minimum standards required by FEMA.
- U. Require strict compliance with and enforcement of this Article.

§ XI-3 Definitions

Within the context of this Article, the following words and terms shall have the meanings set forth except where otherwise specifically indicated. These definitions are unique to Article XI. Words and terms not defined shall have the meanings as separately defined within Article XII (Definitions) of the UDO or as indicated by common dictionary definition.

ACOE: Army Corps of Engineers. A federal agency providing military and public works services to the United States, including, but not limited to the planning, designing, building, and operating of locks, dams, flood control, flood protection, waterway dredging, environmental regulation, and ecosystem restoration.

Accessory Structure: A detached non-habitable building without sanitary facilities which is on the same parcel of property or zoning lot as the principal building to be insured and the use of which is incidental to the use of the principal building. Accessory structures include, but are not limited, to detached

garages, storage sheds, gazebos, and picnic pavilions. See §XI-51F for acceptable use restrictions of accessory structures applicable to flood areas.

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.

Administrator: Referenced as the Zoning Administrator throughout this Article. The Village Manager is ascribed the duty of Zoning Administrator and designated by the Village Board to administer and enforce this Article.

Administrative Violation: An administrative violation of the Article occurs when rules and procedures regarding permit applications and Stormwater Management Permits are not followed.

Applicable Engineering Practice: Procedures, methods, or materials recommended in standard engineering textbooks or references as suitable for the intended purpose.

Applicant: Any person, firm, corporation, or governmental agency who executes the necessary forms to procure official approval of a development or permit to carry out construction of a development from the Village.

Appropriate Use: Only types of development and uses within the designated regulatory floodplain and floodway that are eligible will be considered for permit issuance. Acceptable uses shall meet the §XI-45, General Floodplain Development Performance Standards, and the §XI-46 Floodway Standards.

ASCE: American Society of Civil Engineers.

Armoring: A form of channel modification which involves the placement of materials (concrete, riprap, bulkheads, etc.) within a stream channel or along a shore-line to protect property above streams, lakes, and ponds from erosion and wave damage caused by wave action and stream flow.

Base Flood: The flood having a one percent statistical probability of being equaled or exceeded in any given year. The base flood is also known as the 100-year frequency flood event.

Base Flood Elevation (BFE): The highest water surface elevation that can be expected during the base flood. The height in relation to the North American Vertical Datum of 1988 of the computed crest of the base flood. The BFE shall be determined by the effective Flood Insurance Study (FIS) when available or other acceptable flood studies for a development site at the time of application as determined by the criteria provided in §XI-44 (Floodplain, Regulatory Floodplain, Regulatory Floodway, and Base Flood Elevation). The BFE may be raised or lowered in the future on the basis of later hydrologic and hydraulic studies associated with more accurately defined watershed boundaries, changed upstream land uses, climatic change, or altered waterway physical conditions.

Basement: That portion of the building, including any sunken room or portion of a room, having its floor below ground level on all sides.

Benchmark: A permanent, stable object containing a marked point of known elevation (with respect to North American Vertical Datum (NAVD) 1988) which is used as a vertical reference point for topographic

surveys, setting building foundation elevations and site development features, and documenting building elevation certificates.

Best Management Practices (BMP): A measure used to control the adverse impacts of stormwater-related effects of discharges from development on water quality downstream. BMPs include structural devices (e.g. vegetated swales, filter strips, infiltration trenches, permeable paving, green roofs, native landscaping, rain gardens, and detention basins) designed to remove pollutants, reduce runoff rates and volumes, and protect aquatic habitats. BMP's also include non-structural measures such as public education efforts and information on proper disposal and use of pesticides and herbicides to prevent the dumping of household chemicals into storm drains.

Bioretention Facility: A low impact development BMP in the form of cells, swales, or planters that are engineered to treat and infiltrate a specific amount of stormwater runoff. They have exact design criteria to ensure they function according to design intent. The facilities include designed soil mixes. They may also include control structures like underdrains to aid in the control of overflow, catch basins to filter sediment, and check dams or weirs to slow the water moving through the facility. Bioretention facilities have operation, maintenance, and inspection requirements since they are part of a stormwater treatment and flow control system. They are primarily designed to meet volume control regulations, but they may also include additional volumes that help meet a development site's detention requirements. The bioretention facilities contain a variety of shrubs, small trees, and/or other plants appropriate for seasonally moist and dry soil conditions. The concentration of salts within the expected tributary storm runoff must be considered in the selection of vegetative species planted in the facility.

Bounce: The difference between the normal water level and the design high water level in a wet bottom pond, and the invert of the outlet control and the design high water level for a dry bottom pond.

Bridge or Culvert Reconstruction: The total replacement of an existing bridge or culvert, including substructure and superstructure, on an existing road alignment or on an alignment within 100 feet upstream or downstream of the existing alignment in an urban area.

Buffer: An area of predominantly vegetated land located adjacent to channels, wetlands, lakes, or ponds for the purpose of reducing contaminants in stormwater that flows to such areas.

Building: A structure that is principally above ground and enclosed by walls and a roof. As defined by FEMA, the term includes a gas or liquid storage tank, a manufactured home, a mobile home, or a prefabricated building. The term also includes recreational vehicles and travel trailers to be installed on a site for more than 180 days (or 180 days in a calendar year).

Building Permit: A permit issued by the Village for the construction, erection, or alteration of a structure or building.

Bulkhead: A retaining wall that protects property along water.

Bulletin 75: A 2020 publication by the Illinois State Water Survey entitled, "Precipitation Frequency Study for Illinois." The study provides frequency distribution of rainfall as statistically derived in terms of precipitation verses recurrence interval incorporating the most recent available precipitation data and which includes indicated adjustments of time distributions of heavy rainfall presented as Huff Curves as

previously published within ISWS Circular 173 with an effective beginning enforcement date of January 1, 2020.

Bypass Flows: Stormwater runoff or groundwater from upstream properties tributary to a property's drainage system but not under its control.

Channel: Any river, stream, creek, brook, branch, natural or artificial depression, ponded area, flowage, slough, ditch, conduit, culvert, gully, ravine, wash, or natural or manmade drainage way, which has a definite bed and bank or shoreline, in or into which surface, groundwater, effluent, or industrial discharges flow either perennially or intermittently.

Channel Modification: Alteration of a channel by changing the physical dimensions or materials of its bed or banks. Channel modification includes damming, rip rapping (or other armoring), widening, deepening, straightening, relocating, lining, and significant removal of natural vegetation from the bottom or banks. Channel modification does not include the clearing of dead or dying vegetation and debris, removal of trash, or dredging to previously documented thalweg elevations and side slopes.

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

Clearing: Any activity which removes vegetative ground cover.

Commercial Redevelopment: Development on a parcel upon which the existing condition is buildings, parking lots, and infrastructure associated with commercial activities as defined in Article III of the UDO. Additions to existing buildings and new impervious surfaces added after January 1, 2004 (the effective date of the WCSMO) are specifically excluded from this definition.

Community: The Village of Park Forest.

Compensatory Storage: An artificially excavated, hydrologically and hydraulically equivalent volume of storage created to offset the loss of existing flood storage when artificial fill or structures are placed within the floodplain or flood storage area.

Compost: Well-compacted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through ¼-inch (19-mm) sieve; soluble salinity content of 5 to 10 deciSiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

- A. Organic Matter Content: 50 to 60 percent of dry weight.
- B. Feedstock: agricultural, food, or industrial residuals; yard trimmings; or source-separated or compostable solid waste.
- C. Produced by recognized member company of the US Composting Council.

Conditional Approval of a Regulatory (Designated) Floodway Map Change: Preconstruction approval by the IDNR/OWR and FEMA of a proposed change to the floodway map. This preconstruction approval, pursuant to IDNR/OWR Ill. Admin. Code Part 3708 Rules, gives assurance to a 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 the as-built plans which show the project was built in accordance with the permitted plans.

Conditional Letter of Map Amendment (CLOMA): A FEMA comment letter on a proposed structure or group of structures that would, upon construction, be located on existing natural ground above the base flood elevation on a portion of a legally defined parcel of land that is partially inundated by the base flood and would not be inundated by the base flood if built as proposed.

Conditional Letter of Map Revision (CLOMR): A FEMA comment letter on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective base flood elevations, or the Special Flood Hazard Area (SFHA).

Conditional Letter of Map Revision Based on Fill (CLOMR-F): A FEMA comment letter on a proposed project that would, upon construction, result in a modification of the SFHA through the placement of fill outside the existing regulatory floodway. The CLOMR-F would indicate that a parcel of land or proposed structure that will be elevated by fill would not be inundated by the base flood if fill is placed on the parcel as proposed or the structure is built as proposed.

Control Structure: A structure designed to limit the rate of flow that passes through the structure to a specific rate, given a specific upstream and downstream water surface elevation.

Culvert: A structure designed to carry drainage water or small streams below barriers such as roads, driveways, or railway embankments.

Critical Duration: The duration of a storm event that results in the greatest peak runoff.

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

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

Demolition: Removal of buildings, structures, impervious area, or utilities that return land to a natural or vacant state. Demolition must not increase the volume and flow rate, nor alter drainage patterns or composition of stormwater. Demolition activities that change the use of the land or require any fill within a flood protection area are considered development. (Compare demolition with development, maintenance, and maintenance activities.)

Depressional Storage: The volume contained below a closed contour on a one-foot contour interval topographic map, the upper elevation which is determined by the invert of a surface gravity outlet.

Designated Floodway: The channel, including on-stream lakes, and that portion of the floodplain adjacent to a stream or watercourse, generally depicted on the FEMA Flood Insurance Rate Map (FIRM) which is needed to store and convey the existing base flood discharge with no more than a 0.1-foot increase in stage due to the loss of flood conveyance or storage, and no more than a 10 percent increase in velocities as established by FEMA pursuant to approved Flood Insurance Studies.

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

The designated foodways are designated on the FIRM panels for Cook County and Will County as defined in §XI-44 (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations) of this Article. When two Floodway maps exist for a waterway, the more recent effective Floodway limit shall prevail.

Detention Basin (Site Runoff Storage Facility): A constructed structure for the temporary storage of stormwater runoff from a development with a controlled release rate as specified by this Article during and immediately following a storm event. The storage facility includes a stormwater storage basin, control structure (or restrictors), and the basin outlet, overflow, and inflow pipes.

Developer: A person who creates or causes a development.

Development:

- A. Any constructed change to real estate including:
 - 1. Construction, reconstruction, repair, or replacement of a building or an addition to a building,
 - 2. Substantial improvement of an existing building,
 - 3. Installing a manufactured home on a site, preparing a site for a manufactured home, or installing a travel trailer or recreational vehicle on a site for more than 180 days. If the travel trailer or recreational vehicle is on site for more than 180 days, it must be fully licensed and ready for highway use. The Village zoning regulations do not permit mobile homes or mobile home parks.
 - 4. Drilling, mining, installing utilities, construction of roads, bridges or similar projects,
 - 5. Installing utilities, construction of roads, bridges, or similar projects,
 - 6. Demolition of a structure, redevelopment of a site, clearing of land as an adjunct of construction,
 - 7. Construction or erection of levees, walls, fences, dams, or culverts, channel modifications,
 - 8. Filling, dredging, grading, excavating, paving, drilling, mining, or other non-agricultural alterations of the ground surface,
 - 9. Storage of materials, including the placement of gas and liquid storage tanks,
 - 10. Any other activity that might change the direction, height, or velocity of flood or surface water, including extensive vegetation removal.

- B. The following are not considered development:
 - 1. Maintenance of existing buildings and facilities to an extent that does not attain the market value threshold of substantial improvement, such as reroofing; or
 - 2. Resurfacing of roads with an impervious surface when there is no increase in elevation; or

3. Demolition of a building when all debris is removed, and no fill is placed above existing adjacent ground elevations); or
 4. Agriculture and gardening activities that do not involve filling, grading, or construction of levees.
- C. The reconstruction of existing curbs and sidewalks or the construction of curb ramps or ramps (external to a building) as required to meet federal and state Americans with Disabilities Act (ADA) requirements for access within the public right-of-way will not be considered as development provided:
1. The reconstructed elements do not raise elevations in a manner that impede or obstruct flood conveyance within a regulatory floodway or overland flow path, and
 2. The ramp construction does not contribute to a substantial improvement of a building having its lowest floor elevated to the required flood protection elevation.

Disturbed Area: Actual land surface area disrupted by construction activity.

Downspout Disconnection: Downspout disconnection refers to the rerouting of rooftop drainage pipes to drain rainwater to rain barrels, cisterns, or permeable areas instead of the storm sewer. Downspout disconnection stores stormwater and/or allows stormwater to infiltrate into the soil. This simple practice may have particularly great benefits where combined sewer systems exist.

Drainage Area: The land area upstream of a given point that may contribute runoff flow at that point from rainfall.

Effective Date: The effective date of the overall WCSMO - January 1, 2004. The effective date establishes grandfathered development conditions within the Village.

Elevation Certificates: A form published by FEMA that is used by local communities to certify the elevation to which a building has been elevated in relationship to the applicable base flood elevation for purposes of confirming compliance with the Village floodplain and stormwater management regulations, determining proper insurance premium rates, and supporting a Letter of Map Amendment (LOMA) or a Letter of Map Revisions based on fill (LOMR-F).

Emergency Overflow: The structure in a detention or retention basin designed to protect the basin in the event of a malfunction of the primary outlet or a storm event greater than the basin design storm.

Ephemeral Stream: A stream whose bed elevation does not intersect the groundwater table, it carries flow only during and immediately after a runoff producing rainfall event.

Emergency Overland Flow Route: The flow path of stormwater runoff calculated assuming all enclosed storm sewers are inoperable.

Erosion: The process whereby soil is detached by the action of water or wind.

Erosion and Sediment Control Practice: A temporary or permanent measure that stabilizes soil by covering and/or binding soil particles in order to prevent soil particles from becoming detached by the forces of wind, water, or gravity and intercepts sediment in runoff.

Excavation: Any act by which organic matter, earth, sand, gravel, rock, or any other similar material is cut into, dug, quarried, uncovered, removed, displaced, relocated, or bulldozed and shall include the conditions resulting therefrom.

Existing Grade: The vertical location of the existing ground surface prior to excavation or filling.

Existing Manufactured Home Park or Subdivision: A Manufactured Home Park or subdivision for which the construction of facilities for servicing the lots on which the Manufactured Homes are to be affixed or Buildings to be constructed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) that has been completed before the July 16, 1980 date of initial floodplain management regulations.

Expansion to an Existing Manufactured Home Park or Subdivision: The preparation of additional sites by the construction of facilities for servicing the lots on which the Manufactured Homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

Fee-in-Lieu of Site Volume Control BMP Storage: A fee paid by a developer to the Village, commensurate with the costs and fee schedules adopted by the Village required for the development to meet the required onsite volume control BMP storage volume. Rules and procedures for the establishment and administration of the Fee-in-lieu of Site Volume Control BMP Storage are contained in §XI-123 (Site Volume Control BMP Storage Variance Fee Program) of this Article.

Fee-in-Lieu of Site Runoff Storage (Detention): A fee paid by a developer to the Village, commensurate with the costs and fee schedules adopted by the Village as a certified community pursuant to the WCSMO based on the detention volume required for the development to meet the release rates. Rules and procedures for Fee-in-lieu of Site Runoff Storage (Detention) are contained in §XI-124 (Site Runoff Storage Variance Fee Program) of this Article.

Fee-in-lieu of Wetland Mitigation: A fee paid by a developer to the Village commensurate with the costs and fee schedules adopted by the Village based on the area and floristic quality of the displaced isolated wetland of Park Forest. Rules and procedures for the establishment and administration of the Fee-in-lieu of Wetland Mitigation are contained in §XI-125 (Wetland Mitigation Variance Fee Program) of this Article.

FEMA: Federal Emergency Management Agency and its regulations at 44 CFR 59-79, effective as of September 29, 1989, as amended. FEMA is the federal agency whose primary mission is to reduce the loss of life and property and protect the nation from all hazards (including natural disasters, acts of terrorism, and other man-made disasters) by leading and supporting the nation in a risk-based comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.

Fill: Any act, by which earth, sand, gravel, rock, or any other material is deposited, placed, replaced, pushed, dumped, pulled, transported, or moved by man to a new location and shall include the conditions resulting therefrom.

Filtered View: Filtered view means the maintenance or establishment of woody vegetation of sufficient density to screen developments from a stream or wet land, to provide for streambank stabilization and erosion control, to serve as an aid to infiltration of surface runoff, and to provide cover to shade the

water. The vegetation need not be so dense as to completely block the view. Filtered view means no clear cutting.

Final Grade: The vertical location of the ground or pavement surface after the grading work is completed in accordance with the site development plan.

Flood or Flooding: As applied in a non-coastal region, a general and temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal ways or the unusual and rapid accumulation of runoff of surface waters from any source.

Flood Frequency: Normally expressed as a period of years, based on a percent chance of occurrence in any given year from statistical analysis, during which a flood of a stated magnitude may be expected to be equaled or exceeded. For example, the two-year flood frequency has a 50 percent chance of occurrence in any given year. Similarly, the 100-year flood frequency has a 1 percent chance of occurrence in any given year.

Flood Fringe: That portion of the floodplain along a channel that is outside of the FEMA “**Designated Floodway.**”

Flood Insurance Rate Map (FIRM): The current version of a map issued by FEMA that is an official community map, on which map FEMA has delineated both the Special Flood Hazard Areas (SFHA) and the insurance risk premium rate zones and floodplains applicable to the community together with any amendments, additions, revisions, or substitutions issued by FEMA at any time. This map may or may not depict floodways and may or may not show BFE.

Flood Insurance Study (FIS): An examination, evaluation, and determination of Flood hazards and if appropriate, corresponding water surface elevations published by FEMA.

Floodplain: That land typically adjacent to and including a body of water or watercourse with ground surface elevations at or below the base flood or the 100-year frequency flood elevation including detached Special Flood Hazard Areas, ponding areas, etc. Where delineated on a FIRM the floodplain is also known as the Special Flood Hazard Areas (SFHA). Floodplains include Regulatory Floodplain and are also present but not limited to locations where non-special flood hazard areas are delineated as shaded Zone X on a FIRM.

Flood-Prone Area: Any area inundated by the base flood. (See §XI-49 Flood-prone area requirements.)

Floodproof or Floodproofing: Any combination of structural and non-structural additions, changes or adjustments to buildings or property which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents. “Dry floodproofing” measures are designed to keep water from entering a building. “Wet floodproofing” measures minimize damage to a structure and its contents from water that is allowed into a building.

Floodproofing Certificate: A form published by FEMA that is used to certify that a building has been designed and constructed to be structurally dry flood proofed to the FPE.

Flood Protection Areas: Regulatory floodplains, regulatory floodways, riparian environments, wetlands, and wetland buffers.

Flood Protection Elevation (FPE): The elevation of the base flood or 100-year frequency flood plus a vulnerability-based freeboard set forth as follows:

- (a) minimum of three feet of freeboard applicable to buildings along Thorn Creek,
- (b) minimum of one-foot freeboard above the base flood applicable to buildings at all other areas of the SFHA for the Thorn Creek and Butterfield Creek watersheds,
- (c) one foot above the 100-year design water surface elevation of any adjacent stormwater facility, including emergency overland flow routes, whichever is higher, applicable to buildings located outside the SFHA; and
- (d) the freeboard for accessory structures shall be as set forth in §XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas).

Floodway: The floodway includes the channel, on-stream lakes, and that portion of the floodplain adjacent to a stream or channel which is needed to store and convey the critical duration 100-year frequency flood discharge with no more than a 0.1-foot increase in flood stage due to the loss of flood conveyance or storage, and no more than a 10 percent increase in velocities. Designated Floodways are distinguished as specifically defined pursuant to an FIS and are depicted on the FEMA FIRM. (See also Regulatory Floodway.)

Floodway Conveyance: The measure of the flow carrying capacity of the floodway section and is defined using Manning's equation as, $K = (1.486 AR^{2/3}) / n$, where "n" is Manning's roughness factor, "A" is the effective area of the cross-section, and "R" is ratio of the wetted area to the wetted perimeter.

Flow-Through Practices: Permanent volume control practices designed to treat stormwater runoff from impervious areas of a development after permanent stabilization is achieved.

Freeboard: An increment of height in terms of elevation added to the BFE or 100-year design water surface elevation for purposes of floodplain management to provide a factor of safety for uncertainties in calculations, unknown local conditions, wave actions, and unpredictable effects such as those caused by climatic changes and ice or debris jams.

Functional: In the context of the usage in this Article, functional refers to stormwater facilities, which serve their primary purpose of meeting developed release rate requirements but do not meet all final design conditions. For example, a detention basin, which has been excavated but has not had the side slopes graded, nor the final landscaping placed, may be considered "functional" as a site runoff storage facility.

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

Green Infrastructure: Green infrastructure uses vegetation, soils, and natural processes to manage water and create healthier urban environments. At the scale of a city or county, green infrastructure refers to the patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the scale of a neighborhood or site, green infrastructure refers to stormwater management systems that mimic nature by soaking up and storing water. (See **Bioretention Facility**.)

Green Parking: Many of the green infrastructure elements described above can be seamlessly integrated into parking lot designs. Permeable pavements can be installed in sections of a lot and rain gardens and

bioswales can be included in medians and along a parking lot perimeter. Benefits include urban heat island mitigation and a more walkable built environment.

Groundwater: Water that is located within soil or rock below the surface of the earth. Also known as subsurface water.

Groundwater Control System: A designed system which may consist of tiles, under drains, French drains, or other appropriate stormwater facilities whose purpose is to lower the groundwater table to a predictable elevation throughout the year.

Highest Adjacent Grade: The highest natural elevation of the ground surface next to the proposed walls of a building prior to construction.

Historic Structure: Any structure that is:

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

Hydraulics: The science and study of the mechanical behavior of water in physical systems and processes.

Hydraulic Characteristics: The features of a watercourse that determine its water conveyance capacity. These features include but are not limited to the following: size and configuration of the cross-section of the watercourse and floodway; texture and roughness of materials along the watercourse; alignment of watercourse; gradient of watercourse; amount and type of vegetation within the watercourse; and size, configuration, and other characteristics of structures within the watercourse. In low-lying areas, the characteristics of the overbank area also determine water conveyance capacity.

Hydraulically Connected Impervious Area: Hydraulically connected impervious area shall consist of those areas of concrete, asphalt, and gravel surfaces along with roof tops which convey flows directly to an improved drainage system consisting of storm sewers or paved channels. Rooftops whose downspouts discharge to unpaved surfaces which are designed for the absorption and filtration of stormwater runoff shall not be considered as hydraulically connected impervious surfaces. Roadways whose primary conveyance is through open ditches and swales shall not be considered as hydraulically connected impervious surface. Roadways drained by curb and gutter and storm sewer, and driveways hydraulically connected to those roadways shall be considered as directly connected impervious surface.

Hydraulically Disturbed: An area where the land surface has been cleared, grubbed, compacted, or otherwise modified so as to change runoff volumes, rates, or direction.

Hydraulically Equivalent Compensatory Storage: Compensatory storage either adjacent to the floodplain fill or not located adjacent to the development but can be shown by hydrologic and hydraulic analysis to be equivalent to compensatory storage located adjacent to the development.

Hydraulically Significant: The length of a hydraulically significant portion of a watershed is determined by three factors: the drainage area of the watershed, the amount of floodplain storage in the Regulatory Floodway of the stream, and the impact flood plain storage has on reducing downstream flood heights.

Hydrologic and Hydraulic Calculations: Engineering analysis which determine expected flood flows and flood elevations based on land characteristics and rainfall events.

Hydrology: The science of the behavior of water, including its dynamics, composition, and distribution in the atmosphere, on the surface of the earth, and underground.

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

IDOT: Illinois Department of Transportation.

IEPA: Illinois Environmental Protection Agency.

Illinois Urban Manual: This manual contains design guidance for a development site to meet this Article's performance standards for erosion and sediment control. Reference shall be to the latest version of the manual.

Impervious Area: Surfaces that cause most rainfall to be converted to direct runoff. Asphalt, concrete, and roofing systems are to be considered impervious. Areas that are designed to promote the infiltration of rainfall into the ground at rates at or above the infiltration rate of naturally vegetated areas (given applicable soil types), such as non-compacted gravel areas, porous/permeable pavement areas, and bioretention areas (rain gardens and bioswales, composed of an engineered soil mix) shall not be considered impervious.

Imported Topsoil: Fertile, friable, **non-screened** soil containing less than 5 percent total volume of the combination of debris including subsoil, refuse, roots larger than one-inch diameter, heavy or stiff clay, stones larger than two inches in diameter, noxious seeds, sticks, brush, litter, or any substances deleterious to plant growth. The percent (%) of the above objects shall be controlled by source selection. Topsoil shall be suitable for the germination of seeds and the support of vegetative growth.

A. The Imported Topsoil shall not contain weed seeds in quantities that cause noticeable weed infestations in the final planting beds. Imported Topsoil shall meet the following physical and chemical criteria:

1. Soil texture: USDA loam, sandy clay loam or sandy loam with clay content between 15 and 40 percent. The combined clay/silt content shall be no more than 75 percent.
2. pH value shall be between 5.5 and 7.5.
3. Percent organic matter (OM): 2.0-10.0 percent, by dry weight. (If the percent organic matter is less than 6 percent, it shall be amended with compost when placed.)
4. Soluble salt level: Less than 2 mmho/cm.
5. Soil chemistry suitable for growing the plants specified.

- B. Imported Topsoil shall not contain quack-grass rhizomes, *Agropyron Repens*, and the nut-like tubers of nutgrass, *Cyperus Esculentus*, and all other primary noxious weeds seeds in quantities that cause noticeable weed infestations in the final planting beds.
- C. Imported Topsoil shall be a harvested soil from the "A" horizon of the soil profile from fields or development sites. The organic content and particle size distribution shall be the result of natural soil formation. Manufactured soils where coarse sand, composted organic material or chemical additives has been added to the soil to meet the requirements of this specification section shall **not** be acceptable. **Retained soil peds** shall be the same color on the inside as is visible on the outside.

Impoundment Structure: A dam or excavation which creates an impoundment to collect or store debris, sediment, or water.

Indirect Wetland Impact: A development activity that causes the wetland hydrology to fall below 80 percent, or exceed 150 percent, of the existing condition storm event runoff volume to the wetland for the two-year, 24-hour storm event.

Industrial Redevelopment: Development on a parcel upon which the existing condition is buildings, parking lots, and infrastructure associated with industrial activities as defined in Article III of the UDO. Additions to existing buildings and new impervious surfaces added after January 1, 2004 (the effective date of the WCSMO) are specifically excluded from consideration as industrial redevelopment.

Infiltration Planter: Infiltration planters are urban rain gardens with vertical walls and open or closed bottoms that collect and absorb runoff from sidewalks, parking lots, and streets. Planter boxes are ideal for space-limited sites in dense urban areas and as a streetscaping element. When designed to meet specific hydraulic and infiltration parameters, an infiltration planter may be considered a bioretention facility.

Interim Watershed Plan: A regional study of a watershed which does not address the entire range of purposes, goals, and objectives outlined in the Will County Comprehensive Countywide Stormwater Management Plan adopted by the Will County Board on October 13, 1998, as amended from time to time or the latest Little Calumet River Detailed Watershed Plan elements of the Cook County Stormwater Management Plan adopted by the MWRD.

Intermittent Stream: A stream whose bed intersects the groundwater table for only a portion of the year on the average or any stream which flows continuously for at least one month out of the year but not the entire year.

Isolated Waters of Park Forest: All waters, including lakes, ponds, streams, intermittent streams, and wetlands that are located within the corporate limits of the Village of Park Forest, but not necessarily under U.S. Army Corps of Engineers jurisdiction. The limits of the Isolated Waters of Park Forest extend to the Ordinary High-Water Mark or delineated wetland boundary. Isolated Waters of Park Forest exclude permitted excavations created for such purposes as stormwater conveyance, detention/recreation areas as constructed as part of a stormwater management system, recreation, irrigation, settling basins, or roadside ditches. Compensatory wetland mitigation created to meet the requirements of this Article or Section 404 of the Clean Water Act is not excluded.

Jurisdictional Wetlands: All wetlands that are under the jurisdiction of the US Army Corps of Engineers.

Lake: A natural or artificial body of water encompassing an area of two or more acres, which retains water throughout the year.

Letter of Map Amendment (LOMA): Official determination by FEMA that a specific Building, area of land or a parcel of land, where there has not been any alteration of the topography since the July 16, 1980 date of the first NFIP map showing the property within the Floodplain, was inadvertently included within the Floodplain and that the Building, area of land or a parcel of land is removed from the Floodplain. A LOMA amends the current effective FIRM.

Letter of Map Change (LOMC): A general term used to refer to several types of revisions and amendments to FEMA maps that can be accomplished by letter. They include Letter of Map Amendment (LOMA), Letter of Map Revision (LOMR), and Letter of Map Revision with Fill (LOMR-F).

Letter of Map Revision (LOMR): Letter that revises BFEs, Floodplains or Designated Floodways as shown on an effective FIRM. LOMR's are generally based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the associated regulatory modifications.

Letter of Map Revision Based on Fill (LOMR-F): A LOMR-F is FEMA's modification of the SFHA shown on the FIRM based on the placement of fill outside the existing Regulatory Floodway. The letter from FEMA states that an existing structure or parcel of land that has been elevated by fill would not be inundated by the base flood.

Lot: A parcel of land intended to be separately owned, developed, or otherwise used.

Lowest Entry Elevation. The elevation at which water can enter a building through any non-watertight opening such as a doorway threshold, windowsill, or basement window well.

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

Maintenance: The action required to preserve the original function and prevent failure of systems, which include but are not limited to, sewage systems, major stormwater systems, constructed wetlands, or green infrastructure.

Maintenance Activities: In kind replacement, restoration, or repair of existing infrastructure, pavement, or facilities including, but not limited to, roadways and parking lots such that they will perform the same functions for which they were originally designed and constructed. (Compare **Maintenance Activities** with **Maintenance, Development, Demolition, Repair, and Remodeling**.)

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

Manufactured Home Park or Subdivision: A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale. The Village has no existing manufactured home parks or subdivisions as of the December 11, 2017, adoption date of the UDO.

Major Stormwater System: That portion of a stormwater facility needed to store and convey flows beyond the capacity of the minor stormwater system.

Mass Grading: Development in which the primary activity is a change in topography affected by the movement of earth materials.

Material Change: Any deviation from the approved plans or specifications accompanying an application for which a Stormwater Management Permit has been issued under this Article, that would affect the runoff, capacity, flow, or operation of sewerage and/or major stormwater systems constructed under said Stormwater Management Permit.

Minor Stormwater System: All infrastructure including curb, gutter, culverts, roadside ditches and swales, storm sewers, tiles, sub-surface drainage systems, and other practices intended to convey or capture stormwater runoff from storm events less than a 100-year storm event. The design frequency for minor stormwater systems shall be in accordance with the applicable ordinances of the local community, or Highway Department jurisdiction.

Mitigation: Measures taken to offset negative impacts from development in wetlands or the floodplain. Mitigation includes those measures necessary to minimize the negative effects which floodplain or wetland development activities might have on the public health, safety, and welfare. Examples of mitigation include excavation of compensatory storage, soil erosion and sedimentation control, and channel restoration. Mitigation may also include those activities taken to reduce a structure's susceptibility to flooding.

National Flood Insurance Program (NFIP): A federal program whose requirements are codified in Title 44 of the Code of Federal Regulations.

Natural: Natural in reference to watercourses and depressional areas means those stream channels, grassed waterways, and swales formed by the existing surface topography of the earth prior to changes made by unnatural causes. A natural stream tends to follow a meandering path; its floodplain is not constrained by levees; the area near the bank has not been cleared, mowed or cultivated; the stream flows over soil and geologic materials typical of the area with no alteration of the course or cross-section of the stream caused by filling or excavating. Depressional storage created by excavation or the placement of embankments that have blocked the natural flow of a watercourse shall not be considered natural depressional storage.

NAVD 88: National American Vertical Datum of 1988. NAVD 88 supersedes the National Geodetic Vertical Datum of 1929 (NGVD).

Natural Drainage: Channels formed in the existing surface topography of the earth prior to changes caused by unnatural causes.

Net Benefit in Water Quality: The institution of best management practices as part of a development that when compared to the pre-development condition can be judged to reduce downstream sediment loading or pollutant loadings.

Net Watershed Benefit: A finding that, when compared to the existing condition, the developed project will do one of the following: substantially reduce (more than 10 percent) downstream peak discharges; reduce downstream flood stages (more than 0.1 foot); or reduce downstream damages to structures occurring in the pre-development condition. The demonstration of one of these conditions must be through detailed hydrologic and hydraulic analysis of watersheds on a regional scale as approved by the Zoning Administrator. For any development within a Regulatory Floodway concurring approval of the IDNR/OWR is required.

New Impervious Area: Impervious areas that result from development or redevelopment including new structures or buildings associated with development, new impervious surfaces, and impervious surfaces that are being replaced as part of redevelopment.

New Manufactured Home Park or Subdivision: A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) has been completed on or after the July 16, 1980, Village of Park Forest initial floodplain management regulations.

Non-Riverine: Areas not associated with a stream or river such as isolated depressional storage areas, ponds and lakes.

Non-Residential: Land uses other than residential subdivisions, multi-family residential, right-of-way, or open space. Non-residential land use may include, but is not limited to, commercial land use and industrial land use.

NPDES II: Mandated by Congress under the Clean Water Act, the NPDES Stormwater Program is a comprehensive two-phased national program for addressing the non-agricultural sources of stormwater discharges which adversely affect the quality of our nation's waters. The program uses the National Pollutant Discharge Elimination System (NPDES) permitting mechanism to require the implementation of controls designed to prevent harmful pollutants from being washed by stormwater runoff into local water bodies.

NRCS: The United States Department of Agriculture, Natural Resources Conservation Service.

NWI: National Wetland Inventory. The wetland mapping program created by the U.S. Fish and Wildlife Service to provide information on the characteristics, extent, and status of the nation's wetlands, deep water habitats, and other wildlife habitats.

Observation Structures: Structures built on a field tile where the pipe inflow and outflow is visible upon removal of a lid.

Open Channel: A conveyance system with a definable bed and banks carrying the discharge from field tiles and surface drainage. Open channels do not include grassed swales within farm fields under agricultural production, which are ephemeral in nature.

Open Space: Pervious land to be retained as pervious land which is not part of a larger development. Open space may include sidewalk, bike path, nature or walking trail development less than or equal to twelve feet in width. [Compare Open Space with Right-of-Way.]

Ordinary High-Water Mark (OHWM): The point on the bank or shore up to which the presence and action of surface water is so continuous so as to leave a distinctive mark, such as by erosion, destruction or prevention of terrestrial vegetation, predominance of aquatic vegetation, or other easily recognized characteristic. For purposes of determining compensatory floodplain or compensatory floodway volumes, the OHWM shall be considered the Natural Water Surface Elevation for agency permitting purposes.

Outfall: The end point of any storm sewer providing a point source discharge into a defined watercourse. Outfalls do not include culverts or open conveyance systems connecting two segments of a watercourse. Outfalls do not include private single-family home drains.

Owner: The record title holder or a beneficiary of a land trust which is the record title holder and includes singular and plural; if the owner is other than an individual, the term includes beneficiaries, agents, shareholders, officers, and directors.

Ownership: The holding of record title or any beneficial interest.

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

Oversight Committee: The Village's Planning and Zoning Commission (PZC). See §XI-115 (Oversight Committee).

Parcel: All contiguous land under common ownership or control including right(s)-of-way to be dedicated in conjunction with the proposed development.

Perennial Streams: Riverine watercourses whose thalweg generally intersects the groundwater table elevation and flows throughout the year.

Permanent Soil Erosion Control Measures: Those control measures which are installed or constructed to control soil erosion, and which are maintained after completion of a project.

Permeable Paving: Permeable pavements are paved surfaces that infiltrate, treat, and/or store rainwater within aggregate material void space beneath the permeable paving surface where it falls. Permeable pavements may be constructed from pervious concrete, porous asphalt, permeable interlocking pavers, and several other materials.

Permitting Authority: The Village of Park Forest for the purpose of issuing the Stormwater Management Permit for applicable development activities within the Village. IDNR/OWR has authorized Regional Permits and Statewide Permits for certain qualified work within floodways and retains the authority for the purpose of either approving the hydraulic analysis relating to certain existing and proposed floodway conditions or issuing IDNR/OWR General Permits, referenced herein as State Floodway Permits, for applicable development activities within a Regulatory Floodway. The IDOT Department of Highways has

been delegated the permit authority by IDNR/OWR for IDOT/DOH bridge and culvert improvements on state highways. Local and county bridge and culvert improvements for waterways having a tributary watershed in excess of 640 acres, as well as roadway approaches to such structures, shall be subject to IDNR/OWR permitting authority, even if funded thru the IDOT Bureau of Local Roads and Streets.

Person: Any individual, partnership, firm, school, district, company, corporation, municipal corporation, association, joint stock company, trust, estate, unit of local government, sanitary district, special taxing district, school district, public utility, political subdivision, county agency, state agency, federal agency, or any other legal entity, or owner, or any legal representative, agent, or assign thereof.

Pond: Any inland water body, fed by spring or surface water flow that is not a lake.

Primary Gravity Outlet: The outlet structure designed to meet the release rate requirements of this Article.

Professional Engineer (P.E.): An engineer registered in the State of Illinois, under The Illinois Professional Engineering Practice Act. (ILCS Ch. 225, Act 325, § 1 et seq.), as amended.

Professional Land Surveyor (P.L.S.): A land surveyor registered in the State of Illinois, under The Illinois Land Surveyors Act. (ILCS Ch. 225, Act 330, § 1, et seq.), as amended.

Property: Contiguous land under single ownership or control.

Public Bodies of Water: All open public streams and lakes capable of being navigated by watercraft in whole or in part for commercial uses and purposes and all lakes, rivers and streams, which in their natural conditions were capable of being improved and made navigable, or that are connected with or discharge their waters into navigable lakes or rivers within, or upon the borders of the State of Illinois, together with all bayous, sloughs, backwaters, and submerged lands that are open to the main channel or body of water directly accessible thereto, as identified in Ill. Adm. Code Part 3704.

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 Flood Easement: An easement acceptable to the appropriate jurisdictional body that meets the regulations of the IDNR/OWR, the Village, the MWRD within Cook County, and the Will County Land Use Department within Will County, and that provides legal assurances that all areas subject to flooding in the created backwater of the development will remain open to allow flooding.

Qualified Professional: Qualified professional means a person trained in one or more of the disciplines of biology, geology, soil science, engineering, or hydrology whose training and experience ensure a competent analysis and assessment of stream, lake, pond and wetland conditions and impacts.

Rain Garden: Rain gardens are shallow, vegetated basins that collect and absorb and treat runoff from rooftops, sidewalks, streets, and turf. Rain gardens mimic natural hydrology by infiltrating and evapotranspiring runoff. Rain gardens are versatile features that can be installed in almost any unpaved

space. When designed to capture, treat, and infiltrate a specific amount of stormwater, rain gardens are considered a bioretention facility.

Rainwater Harvesting (Rain Barrels): Rainwater harvesting systems collect and store rainfall for later use. When designed appropriately, rainwater harvesting systems slow and reduce runoff and provide a source of water.

Record Drawings: Drawings prepared, signed, and sealed by a registered professional engineer or registered land surveyor representing the final "as-built" record of the actual in-place elevations, location of structures, and topography.

Recreational Vehicle or Travel Trailer: A vehicle which is: a) built on a single chassis; b) 400 square feet or less when measured at the largest horizontal projection, including expandable room sections regardless of height; c) designed to be self-propelled or permanently towable by a light duty truck; and d) designed primarily not for use as a permanent dwelling, but as a temporary living quarters for recreational camping, travel, or seasonal use.

Redevelopment: Any human-induced activity or change to an existing developed property (including but not limited to, grading, paving, excavation, dredging, or fill; alteration, subdivision, change in land use or practice; building; or storage of equipment or materials) undertaken by private or public entities that affects the volume, flow rate, drainage pattern, or composition of the site stormwater runoff on the previously developed land. The term shall not be understood to include **Maintenance Activities** or **Demolition**.

Regional Permits: Regional permits are offered for pre-approved projects which are considered minor projects that are permissible per IDNR/OWR Part 3708 rules for Northeastern Illinois Designated Floodways. A complete listing of the terms and conditions for specific project types can be obtained from the IDNR/OWR website.

Registered Structural Engineer: A person licensed under the laws of the State of Illinois as a structural engineer under the Illinois Professional Engineering Practice Act (225 ILCS 325/1, et seq).

Regulatory Floodplain: The floodplain as determined by the BFE used as a basis of regulation in this Article for community-wide watershed and floodplain management. Regulatory Floodplains may be either riverine or non-riverine depressional areas. Floodplain boundaries shall be delineated by projecting the base flood elevation onto the best available topography and superimposing the Special Flood Hazard Area onto the base map. A flood-prone area is a Regulatory Floodplain if it meets any of the following descriptions:

- A. Any riverine area inundated by the base flood where there is at least 640 acres of tributary drainage area. Such floodplains are subject to the regulatory authority of IDNR/OWR and subject to FEMA FIS regulations applicable to the FIRM flood risk designations.
- B. Any non-riverine area with a natural depressional storage volume of 0.75 acre-foot or more when inundated by the base flood or as may be represented by a shaded Zone X on the FEMA FIRM. Property and buildings in such areas are subject to this stormwater management ordinance's local regulations and are not eligible for FEMA flood insurance.
- C. Any area indicated as a Special Flood Hazard Area on the FEMA FIRM or LOMR. This may include riverine areas inundated by the base flood having tributary areas less than 640 acres where FEMA has included them. Such floodplains are subject to FEMA FIS regulations.

Regulatory Floodway: The floodway that is used as the basis of regulation in this Article. The Regulatory Floodway includes all Designated Floodway that has been delineated on the FEMA FIRM. It also includes the floodway under the jurisdiction of IDNR (17 IL Adm. Code 1700.30 Parts 3700 and 3708) pertaining to floodplain associated with tributary watersheds greater than 640 acres for which the floodway boundary has not been established by an IDNR approved analysis.

Repair, Remodeling or Maintenance: Development or construction activities which do not result in any increases in the outside dimensions of a building or any changes to the dimensions of a structure.

Repetitive Loss: Flood-related damages sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damaged occurred.

Retention-Based Practices: Permanent volume control practices designed to capture, retain, infiltrate, and treat stormwater runoff from impervious areas of a development after permanent stabilization is achieved.

Retention/Detention Facility: A retention facility stores stormwater runoff without a gravity release. A detention facility provides for storage of stormwater runoff and controlled release of this runoff during and after a flood or a storm.

Right-of-Way: Publicly owned right-of-way dedicated as of January 1, 2004, (the effective date of the WCSMO), including features such as roads and sidewalks. [Compare **Right-of-Way** with **Open Space**.]

Riparian Environment: The vegetated area between aquatic and upland ecosystems adjacent to a waterway or body of water that provides flood management, habitat, and water quality enhancement or other amenities dependent upon the proximity to water.

Riverine: Related to, formed by, or resembling a channel (including creeks and rivers).

Riverine Floodplain: Any floodplain or SFHA subject to flooding from a river, creek, intermittent stream, ditch, on-stream lake system, or any other identified channel. This term does not include areas subject to flooding from lakes, ponding areas, areas of sheet flow, or other areas not subject to overbank flooding.

Runoff: The waters derived from melting snow or rain falling within a tributary drainage basin that exceeds the infiltration capacity of the soils of that basin.

Seasonal High Groundwater Table: The upper limits of the soil temporarily saturated with water, being usually associated with spring wetness conditions. This may be indicated by soil mottles with a Munsell color of 2 chroma or less.

Sediment: The suspended soil particles that are transported after erosion has occurred.

Sedimentation: The process that deposits hydraulically moved soils, debris, and other materials either on other ground surfaces or in bodies of water or stormwater drainage systems.

Sediment Trap: A structure or area that allows for the temporary deposit and removal or disposal of sediment materials from stormwater runoff.

Seepage: The movement of drainable water through soil and rock.

Setback: When applied relative to water bodies, setback means the horizontal distance between any portion of a structure or any development activity and the ordinary high-water mark of a perennial or intermittent stream, the ordinary high-water mark of a lake or pond, or the edge of a wetland, measured from the structure's or a development's closest point to the ordinary high-water mark, or edge.

Silt Fence: A temporary sediment control barrier consisting of entrenched geotextile filtering fabric attached to supporting posts that is designed to prevent sediment-laden runoff from leaving a site. The application of a silt fence is limited to containment of sheet flow runoff from small drainage areas.

Site: A parcel on which development or redevelopment is proposed or has occurred. The area of the site shall include right-of-way to be dedicated in conjunction with the development.

Site Constraint: Condition on a site that limits the use of retention-based practices, such as contaminated soils, high ground water, wetlands, riparian environments, or floodways. New development that is considered a site constraint includes, but is not limited to gas stations, chemical storage facilities, and conservation areas. Poor soils and proposed utility conflicts are not considered site constraints.

Special Flood Hazard Area (SFHA): An area having special flood, mudslide or mudflow, or flood-related erosion hazards, and which area is shown on the FIRM as Zone A, AO, AE, or AH. (See Regulatory Floodplain.)

Slab on Grade: A type of construction involving a structure that is constructed with the bottom floor at or above ground level (grade) on at least one side.

Stabilization or Stabilized: Establishment of vegetative cover, riprap, or other means that minimizes erosion on disturbed areas.

Start of Construction: Includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation. For a substantial improvement of a building, actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Statewide Permits: Statewide permits are offered for pre-approved projects that are considered minor projects which are permissible per the IDNR/OWR Part 3700 rules. The applicable statewide permits within the Village are listed in §XI-48 (Occupation and Use of Floodplain Areas Where Floodways are not Identified). The specific conditions and requirements that must be met for statewide permits can be obtained from the IDNR/OWR website.

Stormwater: Precipitation that falls to the ground that does not naturally infiltrate into the subsurface soil.

Stormwater Facility: All ditches, channels, conduits, bridges, culverts, levees, ponds, natural and man-made impoundments, wetlands, riparian environment, tile, swales, sewers, or other natural or artificial structures or measures which serve as a means of draining surface and subsurface water from land or storing runoff on or beneath the ground.

Stormwater Management Permit: The permit issued under the 'Stormwater Management Permit Submittal Requirements' referenced in Table XI-73-A of this Article in accordance with the final Stormwater Management Plan. This permit is required by the WCSMO for the Village of Park Forest as a Certified Community subject to the WCSMO and includes all aspects of watershed management inherent to this Article. The issuance of a Stormwater Management Permit signifies that the proposed development is in compliance with the stormwater and watershed management provisions of this Article.

Stormwater Management Plan: The site planning documents demonstrating compliance with the horizontal and vertical delineation of applicable floodplains, floodways, and wetlands as required by this Article and the final engineering documents which meet or exceed all regulations and stormwater and watershed management standards established in this Article.

Stormwater Pollution Prevention Plan (SWPPP): A sediment and erosion control plan plus all the construction activities to prevent stormwater contamination and comply with the requirements of the Clean Water Act.

Stripping: Any activity which removes or significantly disturbs the vegetative surface cover including clearing and grubbing operations.

Structure: The results of a man-made change to the land constructed on or below the ground, including but not limited to the reconstruction or placement of a building as defined herein, or any addition to a building; installing utilities, constructions of roads or similar projects; construction or erection of levees, walls, fences, bridges, or culverts; drilling, mining, filling, dredging, grading, excavating; and the storage of materials.

Substantial Damage: Damage of any origin including, but not limited to by flood, fire, wind, or other disaster, sustained by a building whereby the cumulative percentage of damage during a 10-year period equals or exceeds 50 percent of the market value of the building before the damage occurred regardless of actual repair work performed. Volunteer labor and materials must be included in this determination. The term includes **Repetitive Loss** buildings. (See **Repetitive Loss**.)

Substantial Improvement: Any repair, reconstruction, rehabilitation, addition, or other improvement of an existing building taking place within a 10-year period, in which the cumulative percentage of improvement equals or exceeds, individually or in the aggregate, 50 percent of the market value of the building, before the **Start of Construction** of the improvement. The term "cost of improvement" includes the market value of volunteer labor and donated materials. Additions that increase the building's floor area by more than 20 percent also constitute a substantial improvement.

A. "Substantial Improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external

dimensions of the building. This term includes buildings which have incurred repetitive loss or substantial damage, regardless of the actual work done.

- B. The term “Substantial Improvement” does not, however, include either:
1. Any project for improvement of a building to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
 2. Any alteration of an “historic structure” listed on the National Register of Historic Places or the Illinois Register of Historic Places, provided that the alteration will not preclude the building’s continued designation as a “historic structure”.

Subsurface Drainage: The removal of excess soil water to control water table levels at predetermined elevations for structural, environmental, or other reasons in areas already developed or being developed for agricultural, residential, industrial, commercial, or recreational uses.

Subsurface Water: Water beneath the ground or pavement surface. Sometimes referred to as ground water or soil water.

Swink and Wilhelm Mean Coefficient of Conservation (\hat{c}): The mean coefficient of conservation (\hat{c}) in an inventory group calculated by the sum of all coefficients in an inventory unit divided by the number of species (N).

Swink and Wilhelm Floristic Quality Index (FQI): The index derived from floristic inventory data. The index is the arithmetic product of the average coefficient of conservation (\hat{c}) and the square-root of the species richness (\sqrt{N}) of an inventory unit.

T Factor: The T factor is the soil loss tolerance. It is defined as the maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained. Erosion losses are estimated by Universal Soil Loss Equation (USLE) and Revised Universal Soil Loss Equation (RUSLE).

Technical Manual: The manual adopted by the Will County Board that establishes the minimal stormwater management standards that are to be enforced within the Village which provide additional explanations and examples. The Village stormwater design standards include further guidance for aspects of this Article that are not required in the WCSMO.

Temporary Soil Erosion Measures: Interim control measures which are installed or constructed for the control of soil erosion until permanent soil erosion control is accomplished.

Thalweg: A line along the lowest point in a channel.

Transition Section: Reaches of the stream or floodway where water flows from a narrow cross-section to a wide cross-section, or vice versa.

Tributary Area: All land drained by or contributing water to the same stream, lake, or stormwater facility, or which drains to a common point.

Underdrain: A below grade pipe containing openings that allow the drainage of stormwater from overlying soils, gravel, sand, aggregate, and other similar media. New underdrains shall be installed with perforated pipe and filter fabric.

Unrestricted Flow: Stormwater runoff from a development which is not directed to the required detention facility is unrestricted or uncontrolled release or flow. The areas generating unrestricted flow are referred to as unrestricted or uncontrolled release rate areas.

Upstream Tributary Flow: Stormwater runoff or groundwater flows from tributary areas upstream of a development site. Upstream tributary flows can be bypass flows.

Usable Space: Space used for dwelling, storage, utilities, or other beneficial purposes, including without limitation basements.

Vegetated Swales (Bio-Swales): Bio-swales are vegetated, mulched, or xeriscaped channels that provide treatment and retention as they move stormwater from one place to another. Vegetated swales slow, infiltrate, and filter stormwater flows. As linear features, vegetated swales are particularly suitable along streets and parking lots. When designed to meet specific hydraulic and infiltration parameters, vegetated swales may be considered a bioretention facility.

Vegetation: Vegetation means all plant growth, especially trees, shrubs, mosses, and grasses.

Volume Control BMP Practices: Permanent practices designed to capture, retain, and infiltrate stormwater runoff from impervious areas of a development after permanent stabilization is achieved for purposes of both runoff reduction and water quality enhancement.

Volume Control BMP Storage: The capture of the initial flush of at least the first 0.50 inch of runoff from the impervious area of development on the site.

Water Resource Benefit: A decrease in flood elevations, a reduction in flood damages, especially to structures upstream or downstream of the project, a reduction in peak flow rates, an improvement in water quality, and/or enhancement of existing water-related environmental resources created by the project which is greater than the minimum Article requirements.

Water Table: The upper limit of a free water surface in a saturated soil or underlying material.

Waters of the U.S.: As defined by the United States Army Corps of Engineers in their Federal Methodology for the Regulation of Wetlands. For purposes of this Article, waters of the U.S. include wetlands, lakes, rivers, streams, creeks, bogs, fens, and ponds. Waters of the U.S. do not include maintained stormwater facilities.

Watercourse: Watercourse means any river, stream, creek, brook, branch, natural or artificial depression, ponded area, slough, gulch, draw, ditch, channel, conduit, culvert, swale, grass waterway, gully, ravine, wash, or natural or man-made drainageway, which has a definite channel, bed and banks, in or into which stormwater runoff and floodwater flow either regularly or intermittently.

Watershed: All land area drained by, or contributing water to, the same stream, lake, stormwater facility, or draining to a point.

Watershed Benefit: (See **Net Watershed Benefit**).

Watershed Characteristics: Watershed characteristics include land use, physiology, habitat, climate, drainage system, and community profile.

Watershed Plan: A study and evaluation of an individual drainage basin's stormwater management floodplain management water quality, and flood control needs and capabilities.

Wetland. An area of land, which meets the criteria as defined in current federal methodology recognized by the U.S. Army Corps of Engineers, whether or not the area of land is subject to the regulatory authority of U.S. Army Corps of Engineers or any other regulatory authority. Wetlands consist of areas which are inundated or saturated by surface or ground water (hydrology) at a frequency and duration sufficient to support, under normal circumstances, a prevalence of vegetation (hydrophytes) typically adapted for life in saturated soil conditions (hydric soils). A wetland is identified based upon three attributes: 1) hydrology, 2) soils, and 3) vegetation as mandated by the Federal wetland determination methodology. Wetlands generally include swamps, marshes, bogs, and similar areas. See §XI-56 (Isolated Park Forest Wetland Quality Designations) for wetland quality designations as applied in this Article.

Wetland Buffer: The vegetated area adjacent to wetlands left open for the purpose of eliminating or minimizing adverse impacts to such areas.

Wetland Impact: Wetlands that are directly or indirectly disturbed or otherwise adversely affected, whether temporarily or permanently, by filling, excavation, flooding, or drainage which results from implementation of a development activity.

Wetland Mitigation: The process of offsetting wetland impacts through the restoration, creation, enhancement, and preservation of wetlands.

Wetland Mitigation Bank: A site where wetlands are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for authorized impacts. In general, a mitigation bank sells compensatory mitigation credits (acres) to the co-permittee(s), whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor.

Wetland Specialist: A person having skill in the art and science of identifying, delineating, and assessing wetlands.

Village: The Village of Park Forest, Cook and Will Counties, Illinois.

Zoning Administrator: The Village of Park Forest Village Manager or designee is ascribed the duty of administering this Stormwater Management Article.

REQUIREMENTS FOR STORMWATER MANAGEMENT

GENERAL INFORMATION

§ XI-4 Stormwater Management Permit Applicability

Pursuant to the Will County Stormwater Management Ordinance (WCSMO), all subdivision of land, development of land and structures placed thereon shall be subject to review for compliance to the required stormwater management practices established by the WCSMO and shall require the issuance of a **Stormwater Management Permit** prior to the approval of any subdivision or property development, with the exception of those development activities that are specifically exempted by the WCSMO. By virtue of this Article the Village of Park Forest is codifying the applicable requirements of the WCSMO and introducing some additional stormwater management practices and requirements that must also be met to secure a Stormwater Management Permit.

- A. All development that affects the volume, flow rate, flow conveyance capacity, drainage pattern, or composition of stormwater shall meet the design and performance requirements specified for the following stormwater management elements:
 - 1. General stormwater requirements (§§XI-4 through XI-12),
 - 2. Site runoff requirements (§§XI-13 through XI-22),
 - 3. Soil erosion and sediment control requirements (§§XI-38 through XI-42), except as exempted in §XI-38(B),
 - 4. Performance security and maintenance (§§XI-83 through XI-91).

- B. Subdivisions and development sites that affect the volume, flow rate, flow conveyance capacity, drainage pattern, or composition of stormwater which exceed prescribed minimum areas applicable to land use shall be subject to site runoff volume and rate controls with the exception of development activities that are limited to demolition.
 - 1. Site volume control BMP requirements (§§XI-23 through XI-27),
 - 2. Site runoff storage (detention) requirements (§§XI-28 through XI-37).

- C. When present within the 100-feet of the development parcel boundary, all development shall meet the design, regulatory, and protection requirements for the following floodplain, floodway, wetland, and buffer elements:
 - 1. Floodplains and floodways (§§XI-43 through XI-52);
 - 2. Streams and wetlands (§§XI-53 through XI-66);

- D. Exceptions:
 - 1. Will County retains Stormwater Management Permit authority for development activities in unincorporated areas of Will County within the Village's 1.5-mile extra-territorial jurisdictional planning limits.
 - 2. MWRD retains Stormwater Management Permit authority for development activities in unincorporated areas of Cook County within the Village's extra-territorial jurisdictional planning limits.
 - 3. Development activity within the Village corporate limits to install, renovate, or replace a septic system that serves an existing habitable structure shall remain subject to applicable Will County or Cook County sewage disposal system ordinances when Village sanitary sewer is not available within 300-feet of a single-family residence or within 1000 feet for a multi-family, commercial or industrial establishment which shall require a service connection.

§ XI-5 Stormwater Management Plan Required

An applicant for a Stormwater Management Permit shall provide a Stormwater Management Plan that defines existing drainage conditions and documents conformance to all requirements of this Article

which are determined to be applicable to the site. The Stormwater Management Plan shall incorporate all the submittal requirements as defined in §§XI-67 through XI-92 of this Article for applicable site permitting conditions as distinguished in §XI-4 (Stormwater Management Permit Applicability).

- A. No person, firm, corporation, or governmental agency shall commence any development regulated by this Article on any lot or parcel of land without first obtaining approval of the Stormwater Management Plan from the Park Forest Zoning Administrator.
- B. A Stormwater Management Plan will be approved if the proposed development meets the requirements of this Article, as well as all Federal, State, and applicable jurisdictional WCSMO or MWRD WMO requirements.

§ XI-6 Other Applicable Requirements

No person, firm, corporation, or governmental agency shall commence any development regulated by this Article on any lot or parcel of land without first providing the following:

- A. A Section 404 permit or Letter of Jurisdictional Determination from the ACOE for work affecting ACOE-jurisdictional wetlands that may be present on the site or affected by the proposed site development, and/or
- B. Applicable IDNR/OWR permits, herein identified as State Floodway Permits, as required pursuant to 17 Illinois Administrative Code (Il. Adm. Code) Part 3700 Administration Rules for Construction in Floodways of Rivers, Lakes, and Streams applicable to those developments involving floodplains having a tributary area of 640 acres for which a floodway has not been designated.
- C. Applicable IDNR/OWR permits, herein identified as State Floodway Permits, as required pursuant to 17 Il. Adm. Code Part 3708 Administrative Rules for Floodway Construction in Northeastern Illinois applicable to those developments that include proximate streams which have modeled and mapped Designated Floodways.
- D. An IDNR/OWR Dam Safety Permit, if required for proposed design conditions pursuant to 17 Il. Adm. Code Part 3702.
- E. Threatened and Endangered Species. All developments shall conform to the requirements set forth in the federal Endangered Species Act and ILCS Ch. 520, Act 10 &11, which states that a consultation with the Illinois Department of Natural Resources shall be undertaken to evaluate whether actions proposed by the development are likely to jeopardize the continued existence of listed endangered or threatened species or are likely to result in the destruction or adverse modification of the designated essential habitat of such species.
 - 1. Final disposition of any disagreement not resolved by non-local laws, ordinance, etc. will be made by the Village Board.
- F. A WMO Permit from the MWRD for those applicable projects in Cook County for which the Village has not been delegated permit authority. Applicable projects in Cook County requiring a WMO Permit are as follows:

1. Those developments involving a direct outfall connection to Thorn Creek. (This WMO Permit requirement does not apply to channelized tributaries of Thorn Creek.)
- G. A long-term maintenance plan which establishes the maintenance schedule for permitted stormwater management features, responsible parties, and provides financial security to assure perpetual performance in accordance with §XI-84 (Stormwater Management System Maintenance Schedule and Funding) and §§XI-86 through XI-91 (Long Term Maintenance) of this Article as required per the WCSMO. A similar long-term maintenance plan for onsite wetlands shall be provided pursuant to §XI-66 (Long-Term Wetland Maintenance, Management, and Operation) and §XI-91 (Funding of Long-Term Maintenance of Stormwater and Wetland Facilities).

§ XI-7 Building Permit and Occupancy Prerequisites

- A. Building Elevation Certification.
1. A FEMA Elevation Certificate shall be required for all new buildings, as well as for horizontal or vertical additions and substantial improvements of existing buildings that are located on parcels within floodplain as defined in §XI-44.B (Base Flood Elevation (BFE) and Designated Floodway or Regulatory Floodplain Locations) of this Article. This includes the MWRD mapped inundation areas of Thorn Creek Tributary D.
 2. A FEMA non-residential building floodproofing certificate shall be required for all existing buildings when horizontal or vertical additions or other substantial improvements are proposed for buildings located on parcels within the floodplain as defined in §XI-44.B (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations) of this Article. This also includes the MWRD mapped inundation areas of Thorn Creek Tributary D.
- B. Building Permit Prerequisites.
1. Existing buildings that do not conform to the requirements of this Article shall not be substantially improved or replaced unless such substantial improvements or replacements conform to the requirements of this Article.
 - a) The Elevation Certificate shall be used as an elevation check to determine if an existing building is actually within the regulatory floodplain by comparing the lowest adjacent grade to the BFE.
 - b) If within the regulatory floodplain, the building must be elevated or floodproofed to the Flood Protection Elevation (FPE) or lesser protection elevations that are applicable only to attached garages, accessory structures, and unique conditions as defined in §XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas) of this Article.
 - c) If the existing building is outside the horizontal limits of the regulatory floodplain and has a basement with lowest floor elevation that is beneath the BFE, the basement drainage system must incorporate a sump pump with a minimum ¼-horsepower that includes a back-up power supply which shall be included as a requirement of the substantial improvement. The pump must be rated at four times the estimated seepage rate and discharge to drain away from the building. The drainage pumping system must also be equipped with a means of preventing backflow.
 2. Stormwater facilities shall be functional before building permits are issued for residential and non-residential structures within subdivided property.
 3. Stormwater facilities shall be functional where practicable for single parcel developments before building construction begins.
 4. A foundation only building permit may be issued by the Village in conjunction with a preliminary site grading plan which incorporates storage for both runoff and volume control for qualifying non-

residential sites which are outside of floodplain and wetland protection areas pursuant to the approval of a temporary stormwater management plan by the Zoning Administrator that includes a construction staging plan that protects offsite properties from potential flood damage due to runoff from the project site.

- a) The Zoning Administrator may impose terms and conditions for the issuance of the interim permit as deemed necessary to protect the interests of the Village.
 - b) Stormwater volume control storage and detention facilities shall be constructed as part of any advanced earthwork construction that is permitted for a pending building site.
 - c) All construction pursuant to a foundation only building permit shall be entirely at the risk of the site developer.
 - d) The issuance of the full building permit shall be dependent upon the approval of the final stormwater management plan.
5. For those developments requiring a LOMR, construction as necessary to change the Regulatory Floodplain may proceed after receipt of a CLOMR according to the permitted grading elements of the plan. However, no building permits for a building with the lowest floor below the FPE may be issued in the area affected by the CLOMR until any as-built floodway change has received IDNR/OWR concurrence and a final LOMR is received from FEMA.
- C. Building Occupancy Prerequisites. No development site shall be occupied, no certificate of occupancy shall be issued, and no subdivision or other development shall be accepted by the Village unless and until all provisions of this Article are met, including the issuance of a final FEMA Letter of Map Revision, where appropriate.

GENERAL STORMWATER REQUIREMENTS

§ XI-8 Requirements Applicable to All Development

- A. No development shall:
1. Result in any new or additional expense to any person other than the developer for flood protection.
 2. Increase flood elevations or decrease flood conveyance capacity upstream or downstream of the area under the ownership or control of the developer. This requirement shall not prohibit the removal or reduction of built obstructions to flow, such as increasing culvert capacity or lowering roadway or other pavement elevations.
 3. Increase runoff rates (from the 10-year event up to the 100-year event) to any downstream properties unless the developer can demonstrate that the increased runoff rates can be safely conveyed via storm sewers, ditches (if allowed), or overland flow paths to the next downstream receiving stream, lake, or pond. If the developer is significantly raising runoff rates to downstream properties and cannot demonstrate downstream conveyance capacity, some amount of on-site stormwater management may be required to reduce the proposed runoff rate down to existing runoff rates.
- B. All developments shall preserve natural depressional storage.
1. The function of existing natural non-riverine on-site depressional storage shall be preserved to receive and attenuate both on-site and off-site tributary flows to the extent that post-development runoff volume and routed runoff peak overflow rates tributary to the outlet from the depressional area do not exceed natural conditions for the base flood as determined from the inflow

- hydrograph of runoff from a 100-year 72-hour storm event, including an allowance for future climate change precipitation amount and intensity as prescribed in §XI-32.G.8. (Detention Within Depressional Storage Areas).
2. When depressional storage is removed, compensatory depressional storage volume shall be provided for in the site runoff storage facility at a 1 to 1 ratio provided that offsite areas tributary to the existing depressional storage area are routed through the site runoff storage facility. This depressional storage volume is in addition to the site runoff storage volume calculated in §XI-30 (Detention Storage Volume Determination).
 3. Natural depressional volumes that exceed stormwater storage demand may be reduced to not less than 125 percent of the above computed base flood demand generated by the natural undeveloped condition.
- C. All developments shall provide a stormwater drainage system that consists of a minor drainage system, a major drainage system, and an emergency overland flow route.
1. The storm sewer system shall be entirely separate from the sanitary sewer system.
 2. The storm sewer system shall be extended through the proposed development to serve upstream properties in the natural drainage area. The storm sewer system should reflect the ultimate development of the drainage area. The depth of the sewer should facilitate the future extension of the storm sewer system through the upstream watershed as determined by the Village Engineer.
 3. All storm sewers shall use materials and shall be installed in the manner meeting or exceeding the requirements, standards, and specifications contained in the “Standard Specifications for Water and Sewer Main Construction in Illinois,” the most current edition as amended, supplemented, and amended by the Village Engineer.
 4. Inlets on local roadways shall be located as necessary to collect surface water but spacing shall not exceed a maximum of 400 feet. Catch basins shall be placed before a storm sewer enters a manhole, waterway, or storage facility. Manholes shall be located at the junction of two or more storm sewer pipes or at any change in grade, alignment, or size of pipe. Maximum spacing of manholes shall be 400 feet.
 5. If a subdivision proposal or other proposed new development is in a flood-prone area, any such proposals shall adhere to the design parameters of §XI-52 (Subdivision Requirements Involving Floodplain Areas):
 - a) All such proposals are consistent with the need to minimize flood damage within the flood-prone area; and
 - b) All public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage; and
 - c) Adequate drainage is provided to reduce exposure to flood hazards; and
 - d) Streets, blocks, lots, parks, and other public grounds shall be located and laid out in such a manner as to preserve and utilize natural streams and channels. Wherever possible, the floodplains shall be included within parks or other public grounds.
- D. The engineering plans shall have a certification by a registered professional engineer as follows:
- “I, _____, hereby certify that adequate stormwater storage and drainage capacity has been provided by this development, such that surface water from the development will not be diverted onto and cause damage to any property for storms up to and including the one hundred (100) year event, and that the design plans are in compliance with all applicable federal, state, county, and village laws and ordinances.”

§ XI-9 Overland Flow Paths

- A. The development shall have an overland flow path at the downstream limit of the property that will pass the base flood flow without increasing damage to structures or property.
1. Overland flow paths internal to the site shall be considered as part of the major stormwater system and shall be designed for conveyance of the base flood (critical duration) and shall be a minimum of one cfs per tributary acre without damage to structures. In regulatory floodplain, Zones AO and AH, overland flow paths are provided around all buildings on sloped ground to guide water away from the buildings.
 2. Stormwater runoff from areas tributary to the property shall be considered in the design of the property's drainage system. Whenever practicable, flows from upstream areas that are not to be detained should be routed around the basin being provided for the site being developed.
 - a) Areas tributary to the applicant's property, not meeting the storage and release rate requirements of this Article, shall be identified. Conveyance of the 100-year runoff from all tributary areas, developed conditions, shall be routed through or around the proposed site.
 - b) When there are areas which meet the storage and release rate requirements of this Article, tributary to the applicant's property, the upstream flows shall be bypassed around the applicant's detention basin or be routed through the applicant's detention basin if this is the only practicable alternative, and the addition of flows will not cause an adverse impact on the period of inundation within the proposed detention facilities. Storage needed for the applicant's property shall still be computed as described in Sections §§XI-28 to XI-37 (Site Runoff Storage Requirements). However, if the Village decides to route tributary area flows through an applicant's basin, the final design stormwater releases shall be based on the combined total of the applicant's property plus tributary areas. It must be shown that at no time will the runoff rate from the applicant's property exceed the allowable release rate for the applicant's property alone.
 3. If the storm sewer pipes and inlets sized for the base flood can be constructed in lieu of providing an overland flow path as a part of the major drainage system, then the overland flow path shall be considered an emergency overland flow path and it shall not be considered a part of the major stormwater system but must still meet the protection of buildings criteria in §XI-12 (General Protection of Buildings).
- B. For all overland flow routes, whether a part of the major drainage system or an emergency overland flow route, the water surface elevation for determining the FPE (flood protection elevation) shall be calculated assuming that storm sewers smaller than 18 inches are inoperable.
- C. The location of overland flow paths and the associated base flood elevation along the overland path shall be coordinated with the involved public utilities to ensure that potential flood damage to facilities is avoided or minimized.
- D. Neither structures nor obstructive landscaping shall be permitted in overland flow paths draining more than 20 acres, unless the structures are otherwise permissible and certified by a professional engineer or professional landscape architect that the proposed structure will not cause any adverse upstream impacts due to blocking or impeding the flow of stormwater. A fence, if permitted, shall conform to the Village's fence ordinance provisions of Article III-4.C.6 (Fence or Wall) of the UDO. All fences built across a swale within a drainage easement shall be either:
1. Open to allow the flow of surface water; or
 2. Have the bottom of the fence at least six inches above grade to allow the unobstructed flow of surface water.

- E. An overland flow path from an upstream property into a site under construction shall not be blocked or obstructed in a manner that results in any increase of flood levels on the upstream property.
- F. All principal buildings on parcels containing or adjoining an overland flow path or other high-water level designation shall have a lowest adjacent grade elevation:
 1. At least 0.5 feet above the overflow water surface elevation for tributary areas of 20 acres or less.
 2. At least one foot above the overflow water surface elevation for tributary areas greater than 20 acres.

§ XI-10 Design Criteria for Storm Sewers and Surface Swales

A. Storm Sewer

1. Storm sewers shall be designed for all onsite and offsite tributary areas using Manning’s Formula with 0.013 as the roughness coefficient unless otherwise approved by the Village Engineer. A 10-year storm shall be used for design purposes. Storm sewers shall typically be designed to flow full and have a minimum velocity of 2.5 feet per second and shall not exceed 10 feet per second. If a storm sewer is designed with a constantly submerged outfall or is utilized as the major drainage system, i.e. conveying the 100-year storm, the sewer shall be designed using the “hydraulic gradient” with a maximum upstream allowable water level elevation at the top of the street curb while utilizing a tail water at the downstream end of the 10-year water level or crown of the pipe, whichever is more restrictive.
2. The rational method shall be employed when computing storm runoff from small tributary watersheds not greater than 20 acres with limited offsite undeveloped tributary areas and absent depressional storage. The runoff coefficient used in the rational method shall be the weighted average for the proposed tributary watershed based on a c-value of 0.95 for all impervious areas (paved or hard surfaced areas of all types and buildings) and a c-value of 0.45 for all pervious areas.
3. Time of concentration shall be calculated using TR-55 Worksheet 3. Rainfall and rainfall intensity data for storm sewer sizing shall be applied as interpolated from Table XI-10-A which is derived from ISWS Bulletin 75 rainfall:

Table XI-10-A. Rainfall Data for Storm Sewer and Surface Swales

Time of Concentration (min)	10-year Rainfall (in)	10-year Intensity (in/hr)	100-Year Rainfall (in)	100-year Intensity (in/hr)
5	0.62	7.44	1.03	12.36
10	1.13	6.78	1.89	11.34
15	1.39	5.56	2.32	9.28
30	1.91	3.82	3.17	6.34
60	2.42	2.42	4.03	4.03
120	2.99	1.50	4.97	2.49

4. In areas where curb and gutter and storm sewers are approved, storm structures shall be installed so that each storm inlet shall drain a maximum street gutter length of 300 feet. Where the storm structure is located at a low point, additional storm structures may be required by the Village Engineer. Storm structures shall be so located that storm water runoff will not “pond” greater than

the top of the street curbs. Depressed street crowns to facilitate drainage will not be permitted. A six-foot long, four-inch diameter perforated underdrain tile shall be installed leading to catch basins at all street sag locations for purposes of subgrade drainage.

5. Yard storm structures shall be placed where required by the Village Engineer. Storm structures shall be placed at least every other lot line when rear lot line slopes are less than 1.5 percent.
 6. The minimum size storm sewer shall be 12 inches in diameter, and the minimum size inlet connection shall be 10-inches in diameter. Pipe materials shall meet Village standards.
 7. Unless otherwise approved by the Village Engineer, storm sewers shall be reinforced concrete pipe conforming to ASTM C76 minimum Class III with O-ring joints conforming to ASTM C443. All storm structure connections shall be concrete sewer pipe, ASTM C14 for extra strength pipe. When a sewer is 20 feet or more below finished grade, structural strength design is required.
 8. Minimum cover shall be generally three feet zero inches for all storm sewers and sump pump connection lines unless special precautions are taken to protect the pipe, as approved by the Village Engineer.
 9. All manholes, inlet manholes, inlets and catch basins, and headwalls shall be designed in accordance with the standard details of the Village. A two-inch wide non-hardening butyl rubber mastic of minimum thickness one-quarter of an inch shall be installed between all manhole sections and adjusting rings for all storm sewer structures lying in pavement. All manhole covers shall be stamped "Storm Sewer". Structures with two-foot diameter shall be limited in depth to allow accessibility for maintenance (four foot maximum). At least one catch basin shall be provided on storm sewer runs for sediment collection or as required by the Village Engineer. Rim elevations shall be higher than downstream storage facility design high water elevations or waterway floodplain elevations.
 10. Storm drain connections to sanitary sewers or existing agricultural drainage systems (tiles) will not be permitted for any new developments. All developments will utilize separate drainage systems to avoid disruption or overloading of the existing agricultural tile drainage system. Any field tile systems cut during the process of land development must be reconnected or rerouted as approved by the Village. Field tile investigations are required in accordance with the WCSMO wherever offsite agricultural areas drain toward a development site.
 11. Storm sewer shall be located a minimum of 10 feet from any building.
 12. Back flow preventers or mechanical type storm water devices are not permitted unless approved by the Village Engineer.
 13. Grate capacity calculations shall be provided for all 100-year storm sewer and those 10-year storm sewer structures conveying one acre or more. At no time shall ponding exceed nine inches in paved areas or exceed 12 inches in grassed areas that are outside of stormwater storage facilities.
- B. Culverts. Culverts shall meet the following minimum standards:
1. Sizing of culverts shall consider entrance and exit losses as well as tailwater conditions on the culvert. Culverts across driveways shall be sized for a minimum design recurrence interval of 25-years (an event having a 4 percent chance of occurring in any given year). The minimum size for driveway culverts shall be 12 inches.
 2. Corrugated metal pipe (CMP) shall be hot-dipped galvanized steel or aluminum steel conforming to AASTO M36. Provide 16-gauge CMP for pipe diameter 21 inches and smaller. Provide 12-gauge CMP for pipe diameters 24 inches and larger.
 3. Reinforced concrete pipe (RCP) shall conform to ASTM C76, minimum Class III.
 4. HDPE pipe may be used beneath driveways when a minimum of 12-inch cover is provided; however, associated end sections for HDPE pipe must be aluminized steel or reinforced concrete.

5. Culvert grates shall be provided in accordance with IDOT specifications where required for vehicle and pedestrian safety,
 6. Culvert slope and invert elevations shall match the ditch slope and invert elevations.
 7. Minimum cover at driveways shall be six inches when in public right-of-way.
- C. Swales/Ditches. A manmade ditch system shall not be permitted unless authorized by the Village Engineer. Natural waterways should be preserved, where feasible. Manmade swales shall meet the following minimum standards:
1. Longitudinal swale slopes should reflect the swale's design purpose.
 - a) Bio-swales should have at least 0.4 percent gradients.
 - b) Grassed swales having a length greater than 60 feet should have at least a 1.5 percent gradient.
 - c) Short-grassed swales should have at least a 1.0 percent gradient.
 - d) Swales that convey sump pump discharges should have at least 2.0 percent gradients.
 2. The storm system shall be designed with "hydraulically positive street drainage between successive profile crests" together with swale drainage such that in the event of a complete storm system failure, storm water runoff will be directed overland to the storm water detention area in a manner to minimize property damage due to flooding. Emergency overland flow paths shall be provided in drainage easements, which cannot be obstructed.

§ XI-11 Grading Plans

- A. All grassed areas should have a minimum slope of 2 percent and a maximum slope of 20 percent. Where slopes of 2 percent are not practicable, additional inlets may be used while maintaining 1 percent minimum slope.
- B. Residential subdivision plans shall include sufficient information (house outline, spot elevations, contours, etc.) such that the rear yards do not exceed a 10 percent slope and side yards do not exceed 25 percent.
- C. Drainage easements shall be provided on residential lots to convey the 100-year storm, with minimum widths of five feet on side yards and 7.5 feet on rear yards. Wider easements may be required by the Village Engineer when warranted by required flow capacity or maintenance accessibility.
- D. The use of retaining and landscape walls is discouraged. Walls in excess of 2.5 feet height and/or 50 feet length must be approved by the Zoning Administrator. Where retaining walls are permitted with height 2.5 feet or more, drawings and calculations shall be provided, signed, and sealed by an Illinois licensed Structural Engineer, as well as a geotechnical report by an Illinois licensed Civil Engineer.
- E. Lot Grading. The location and top of foundation elevation for all proposed structures shall be shown on the engineering drawings. Generally, the top of foundation of any structure must be constructed at least 18 inches above the centerline (or back of curb) of the abutting street. Where foundations are lower than the street centerline, or in the case of depressed driveways, alternate means of surface drainage diversion must be shown to avoid structure flooding. Sufficient finished grade elevations must be shown on the drawings to ensure positive drainage away from each structure.
- F. Base flood elevation data shall be included for all lots within 100 feet of a regulatory floodplain, as well as along overland flood routes.

- G. Any proposed walk-out and look-out basement foundations must be designated on the plans. The Village of Park Forest will not issue individual building permits for lots that deviate from the approved plan in a manner that unduly increases the flood risk to the proposed structure or an adjacent property.
- H. Lowest Basement Floor Elevations shall be identified on subdivision lots adjacent to wet bottom ponds, wetland bottom ponds, dry-bottom detention basins, and within 100 feet of a regulatory floodplain or mapped inundated area.
- I. For all proposed buildings, the elevation of the lowest floor (including basement), walk-out and look-out elevations and locations shall be shown on the submitted plan for a building permit together with finished ground elevations adjacent to the foundation wall at critical locations.

§ XI-12 General Protection of Buildings

- A. For buildings located outside the regulatory floodplain, all habitable space in new buildings or additions to existing buildings must be designed so that the lowest opening is at least one foot above the calculated base flood (critical duration 100-year flood event) of any major stormwater system, site runoff storage facility, or overland flow path that is adjacent to or hydraulically connected to the permitted site. When such buildings have basements and are located adjacent to a runoff storage facility, the building shall be designed to ensure that the basement is reasonably safe from both overland and seepage flooding according to the criteria established for basement foundations in FEMA Federal Insurance Administration Technical Bulletin 10.
- B. All new or substantially improved buildings within regulatory floodplains and floodways shall be protected from flood damage below the FPE as defined in §XI-44 (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations). The application and criteria of building protection within all floodplain areas as established by FEMA shall be as defined in §XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas). The lot grading shall include drainage paths around buildings on slopes to guide water away from the buildings
- C. All manufactured homes and travel trailers placed within the regulatory floodplain shall be installed using methods and practices which minimize flood damage, as defined in §XI-43B General Floodplain Development Performance Standards and §XI-51.E. (Recreational Vehicles) and §XI-51.F. (Accessory Structures).

SITE RUNOFF REQUIREMENTS

§ XI-13 Stormwater Facility Discharges

Stormwater facilities shall be required and designed so that runoff exits the site at a point where it previously exited the subject development and such that flows will not increase flood damage to adjacent property except when otherwise approved by the Zoning Administrator. Concentrated discharges from new developments must enter conveyance systems capable of carrying the design flow rate without increasing flood damages or maintenance costs downstream.

§ XI-14 Minor Stormwater System Criteria

Minor stormwater systems shall be sized to convey runoff from the tributary watershed under fully developed conditions for the 10-year storm event with a hydraulic grade line that is entirely within the pipe. Minor stormwater systems shall be enclosed systems (e.g. storm sewers) unless otherwise approved by the Zoning Administrator. Minor storm sewers and outfalls shall be designed to at least function at their design capacity during the 10-year flood condition of a receiving stream, body of water, or detention storage facility.

§ XI-15 Major Stormwater System Criteria

Major stormwater systems shall be sized to carry the base flood (critical duration 100-year flood event) without causing additional flood damage.

- A. Maximum flow depths shall be nine inches for parking spaces in parking lots and one foot for driveways and access aisles, except that parking lots and driveways intended for use only by commercial trucks may permit maximum flow depths of 12 inches.
- B. Maximum flow depths for new transverse stream crossings shall not exceed the crown of the road by more than six inches during the base flood condition. The maximum flow depth on a roadway shall not exceed nine inches at the edge of pavement for flow parallel to the roadway. For flow parallel to a new roadway the product of the flow depth (in feet) and velocity (in feet per second) shall not exceed 4.0 for the base flood condition. At any location where a roadway pavement will be completely covered with water, appropriate reflective markings shall be provided along the back of curb to guide drivers.
- C. The maximum depth of flow in non-paved drainage easements shall be 12 inches unless authorized by the Village Engineer for low velocity safe-guarded conditions.
- D. The tail water used for the major drainage system shall be the 10-year water surface elevation in the receiving system or, in the case of stormwater detention facilities the two-year design water surface elevation plus one foot.
- E. Velocities throughout the surface drainage system shall be controlled to safe levels taking into consideration rates and depths of flow.

§ XI-16 Existing Sub-Surface and Surface Drainage Systems

- A. Stormwater systems shall properly incorporate and be compatible with existing subsurface and surface drainage systems including agricultural systems. Designs shall not cause damage to the existing drainage system(s) or the existing adjacent or tributary land including those with agricultural uses.
- B. The following principles and requirements shall be observed in the design:
 - 1. Off-site outfall. Agricultural subsurface and surface drainage systems shall be evaluated with regard to their capacity and capability to properly convey low flow groundwater and site runoff storage facility release without damage to downstream structure and land use on the adjacent property. If the outfall drain-tile and surface drainage systems prove to be inadequate it will be necessary to

modify the existing systems or construct new systems which will not conflict with the existing systems and will not impact the existing agricultural land use.

2. On-site. Agricultural drainage systems shall be located and evaluated on-site. All existing on-site agricultural drain tile not serving a beneficial use shall be abandoned by trench removal prior to other development and recorded on record plans. If any existing drain tiles continue to upland watersheds the developer must maintain drainage service during construction until new sewers can be installed for a permanent connection.
3. Off-site tributary. Existing drainage systems shall be evaluated to address both existing capabilities and reasonable future expansion capacities. All existing tributary drain tiles shall be incorporated into the new conduits including observation structures located at the property limits, shall provide a free flow discharge, and shall not allow surface runoff to enter the system.
4. New roadway construction shall preserve existing sub-surface systems within the right-of-way. Inspection wells shall be placed at the right-of-way (ROW) and tiles found to not be flowing between inspection wells at the end of the construction shall be replaced.

§ XI-17 Design Runoff Rate

Design runoff rates for conveyance (i.e., pipe design) may be calculated using the Rational Method if the total drainage area at the point of design is 20 acres or less. For drainage areas greater than 20 acres the Zoning Administrator may require the use of event hydrograph models.

§ XI-18 Design Rainfall

- A. The design runoff rate calculation method for determining detention storage volumes and flow conveyance shall use the data presented in Table XI-18.1 (Illinois State Water Survey (ISWS) Bulletin 75 for Northeast Illinois Rainfall Depths and Intensities).

Table XI-18.1 ISWS Bulletin 75 for Northeast Illinois Rainfall Depths and Intensities

Duration	Frequency													
	2-year		5-year		10-year		25-year		50-year		100-year		500-year	
	(in)	(in/hr)	(in)	(in/hr)	(in)	(in/hr)	(in)	(in/hr)	(in)	(in/hr)	(in)	(in/hr)	(in)	(in/hr)
5 min	0.40	4.80	0.52	6.24	0.62	7.44	0.77	9.24	0.90	10.80	1.03	12.36	1.35	16.20
10 min	0.73	4.38	0.95	5.70	1.13	6.78	1.42	8.52	1.65	9.90	1.89	11.34	2.47	14.82
15 min	0.90	3.60	1.16	4.64	1.39	5.56	1.74	6.96	2.03	8.12	2.32	9.28	3.04	12.16
30 min	1.24	1.24	1.59	1.59	1.91	1.91	2.39	4.78	2.78	2.78	3.17	3.17	4.16	8.32
1 hour	1.57	0.789	2.02	1.01	2.42	1.21	3.03	3.03	3.53	1.765	4.03	2.015	5.28	5.28
2 hour	1.94	0.647	2.49	0.83	2.99	0.997	3.74	1.87	4.35	1.45	4.97	1.657	6.52	3.28
3 hour	2.14	0.357	2.75	0.458	3.30	1.10	4.13	1.377	4.80	0.80	5.49	0.915	7.20	2.40
6 hour	2.51	0.209	3.23	0.269	3.86	0.322	4.84	0.807	5.63	0.469	6.43	0.536	8.43	1.405
12 hour	2.91	0.162	3.74	0.208	4.48	0.249	5.61	0.468	6.53	0.363	7.46	0.414	9.78	0.815

18 hour	3.14	0.131	4.04	0.168	4.84	0.202	6.06	0.337	7.05	0.294	8.06	0.336	10.57	0.587
24 hour	3.34	0.696	4.30	0.896	5.15	0.107	6.45	0.269	7.50	0.156	8.57	0.179	11.24	0.468
48 hour	3.66	0.051	4.71	0.065	5.62	0.078	6.99	0.146	8.13	0.113	9.28	0.129	12.10	0.252
72 hour	3.97	0.033	5.08	0.042	6.05	0.050	7.49	0.104	8.64	0.072	9.85	0.082	12.81	0.178
120 hour	4.42	0.018	5.63	0.024	6.68	0.278	8.06	0.067	9.39	0.039	10.66	0.044	13.81	0.115
240 hour	5.60	0.233	7.09	0.030	8.25	0.034	9.90	0.041	11.26	0.047	12.65	0.053	16.00	0.067

- B. Rainfall Intensity Curves as published in Bulletin 75 may be used to facilitate interpolation of rainfall depths for other modeled durations.
- C. Adjustments to the time distributions of heavy rainfall shall be incorporated to reflect the critical duration of the rainfall event according to its Circular 173 (1990) median time distribution (Huff quartiles) of rainfall as shown in Table XI-18-2. These distributions are based on the size of the basin and expressed as cumulative percentages of storm duration and rainfall depth. The distributions are categorized as 1st, 2nd, 3rd, or 4th-quartile storms depending on whether the greatest percentage of the storm rainfall depth occurred during the first, second, third or fourth quarter of the storm period. The appropriate quartile for a particular storm duration is shown in Table XI-18.3.

Table XI-18.2 MEDIAN TIME DISTRIBUTION OF RAINFALL

Cumulative Percent of Storm	Area < 10mi ²				10mi ² < Area < 50 mi ²			
	Quartile				Quartile			
	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd	4 th
05	16	03	03	02	12	03	02	02
10	33	08	06	05	25	06	05	04
15	43	12	09	08	38	10	08	07
20	52	16	12	10	51	14	12	09
25	60	22	15	13	62	21	14	11
30	66	29	19	16	69	30	17	13
35	71	39	23	19	74	40	20	15
40	75	51	27	22	78	52	23	18
45	79	62	32	25	81	63	27	21
50	82	70	38	28	84	72	33	24
55	84	76	45	32	86	78	42	27
60	86	81	57	35	88	83	55	30
65	88	85	70	39	90	87	69	34
70	90	88	79	45	92	90	79	40
75	92	91	85	51	94	92	86	47
80	94	93	89	59	95	94	91	57
85	96	95	92	72	96	96	94	74
90	97	97	95	84	97	97	96	88
95	98	98	97	92	98	98	98	94

Table XI-18.3 QUARTILE FOR STORM DURATION

Quartile	1 st				2 nd	3 rd		4 th			
Storm Duration	1-hr	2-hr	3-hr	6-hr	12-hr	18-hr	24-hr	48-hr	72-hr	120-hr	240-hr

D. Antecedent Moisture: Computations of runoff hydrographs which do not rely on a continuous accounting of antecedent moisture conditions shall assume an antecedent moisture condition of two as a minimum.

§ XI-19 Stormwater System Easements

- A. For subdivision projects, the minor, major, and emergency stormwater systems shall be located within easements or rights-of-way explicitly providing for public access for maintenance of such facilities. For all other projects requiring a permit, easements are required for public access for maintenance of stormwater facilities only for new construction or modifications involving components of a drainage system that conveys runoff from off-site properties.
- B. Easements and rights-of-way shall be of sufficient width. Storm sewers shall be installed at such locations therein as to permit open cut installation, maintenance, and repair within the confines of the easement or right-of-way without relocation or other unreasonable interference with other public utilities located therein, and shall meet the following minimum standards:
 1. 15 feet in width for storm sewers less than or equal to 24-inch diameter.
 2. 20 feet in width for sewers having diameters from 24-inch to 48-inch.
 3. Sewers with diameters of 54-inches or greater or that are installed at depths greater than 15- feet may require additional width as determined by the Zoning Administrator.
- C. Easements for major drainage routes shall encompass the full width of the needed conveyance channel in cases where the required conveyance channel is wider than an easement required for an underlying storm sewer.
- D. Proof of flooding rights (fee simple ownership or flood easement) shall be provided for all lands within the flood pool or impoundment created by the construction of an earthen berm or dam across a waterway or by the raising of an outlet elevation from a natural depressional area. The limit of the flooding right shall fully include the BFE of the impoundment to encompass all land areas affected by raised water elevation.

§ XI-20 Diversion of Flow to Another Watershed

Transfers of waters between watersheds (diversions) shall be prohibited except when such transfers will not violate the provisions of §XI-8 (Requirements Applicable to All Development) of this Article which preclude an increase in flood elevations or decrease in flood conveyance capacity upstream or downstream.

- A. Watersheds within Will County for purpose of regulation under this section shall be the major watershed divides as defined in the Will County Plan, subject to clarification by local topographic mapping or field survey of ridge locations and controlling elevations. At no time shall the minor

transfer exceed 10 percent of the total natural tributary area or five acres, whichever is more restrictive.

- B. Watersheds within Cook County shall reflect currently constructed complex conditions that reflect both topographically mapped ridges and primary storm sewer and waterway outlets that cross sub-watershed ridges separate from overland flow routes and include inter-basin overflow during peak conditions.

§ XI-21 Best Management Practices Requirements

- A. The Village endorses the utilization of the Best Management Practices (BMP) regarding the design of a Storm Water Management System. The developments are encouraged to incorporate the following:
 - 1. All best management practices as may be required pursuant to the United States Clean Water Act, 33 U.S.C. § 1251 et seq., as amended.
 - 2. Manage parcels as unified sites by incorporating watershed-based planning.
 - 3. Create designs that promote a healthy aquatic ecology, provide for sustainability, and minimize maintenance and human intervention.
 - 4. Treat stormwater as a multiple-use resource. The drainage system should incorporate multiple uses where practicable. Uses considered compatible with stormwater management include open space, aesthetics, aquatic habitat, recreation (boating, trails, playing fields), wetlands, and water quality mitigation. The applicant should avoid using portions of the property exclusively for stormwater management.
 - 5. The drainage system should be designed to minimize adverse water quality impacts upstream, downstream and on the property, itself. The drainage system should also be designed to minimize increases in runoff volumes and rates. The applicant’s drainage plan shall include valuations of site design features that are consistent with the following hierarchy:
 - a) Minimize impervious surfaces on the property, consistent with the needs of the project;
 - b) Infiltrate rainfall and generated runoff on-site;
 - c) Attenuate flows by the use of topsoil preservation measures, open vegetated swales, natural depressions, and preservation of existing natural stream channels;
 - d) Provide volume control storage;
 - e) Provide wet basin retention facilities;
 - f) Provide dry stormwater detention facilities that facilitate infiltration as well as attenuate runoff rates;
 - g) Provide dry stormwater detention structures that attenuate flow;
 - h) Construct perforated underdrains as required for underground aggregate storage system reliability; and
 - g) Construct storm sewers.
- B. The Village reserves the right to require stormwater quality best management practices at a particular site if the Zoning Administrator deems that the discharge is to a sensitive ecological area or that the intended use of an industrial use property produces runoff having a particularly detrimental water quality. The Village may also modify the above hierarchy as required based on an evaluation of the site conditions.
- C. Runoff rate control storage design approach priorities.
 - 1. Detention basins shall incorporate design features to capture stormwater runoff pollutants. Designers shall give preference to wet basin designs in locations adjacent or near existing wetlands

or in other areas where they are suitable and acceptable to the Village and all flows from the development shall be routed through the basin (i.e., low flows should not be bypassed around the detention facility).

2. Dry basins with low flow bypasses may be preferred in certain developments to enhance multiple uses where suitable and acceptable to the Village.
3. Retention and infiltration of stormwater shall be promoted throughout the property's drainage system to reduce the volume of stormwater runoff and to reduce the quantity of runoff pollutants.

D. Infiltration Practices - To effectively reduce runoff volumes, infiltration practices including basins, trenches, and porous pavement should be located on soils in hydrologic soil groups "A" or "B" as designated by the U.S. Soil Conservation Service. Infiltration basins and trenches designed to recharge groundwater shall not be located within 75 feet of a water supply well. Where less permeable hydrologic soil groups "C" or "D" form the natural soil profile, soil enhancements may be necessary to improve the desired rainfall infiltration function.

1. The bottom of infiltration facilities shall be a minimum of 24 inches above seasonally high groundwater and bedrock.
2. Topsoil shall be installed according to the depths, compost amendment requirements and methods prescribed in §XI.21.G (Topsoil Preservation and Infiltration Measures).
3. A sediment-settling basin shall be provided to remove coarse sediment from stormwater flows that are directly tributary to an open waterway, and also preferably before they reach infiltration basins unless waived for extenuating circumstances by the Village Engineer.
4. Stormwater shall not be allowed to stand more than 72 hours over 80 percent of a dry basin's bottom area for the maximum design event to be ex-filtrated. (See XI-32.G.3 for Dry Detention Basin Design requirements.)
5. When planting beds with deepened topsoil for shrubs and perennials are placed adjacent to a foundation for a basement, the excavated opening for the foundation shall be sealed with compacted clay sloped to drain away from the wall and extending from the foundation face to two-feet beyond the edge of the trench wall.

E. Rain Gardens, Vegetated Filter Strips and Bioswales - To effectively filter stormwater pollutants and promote infiltration of runoff, sites should be designed to maximize the use of bio-retention BMP's such as rain gardens, and vegetated filter strips or bioswales that are designed to optimize rainfall absorption while removing and treating carried contaminants using a deep, functionally designed soils medium and deep rooted fibrous vegetation which optimize rainfall absorption into the underlying soil and promote evapotranspiration of the absorbed moisture into the air. Wherever practicable, runoff from impervious surfaces should be directed into a rain garden or onto filter strips and swales before being routed to a storm sewer or detention basin. See Table XI-30.C (Runoff Curve Numbers for Urban Areas) for CN values associated with various types of Green Infrastructure.

F. Compaction Minimization Measures – Recognizing that well-compacted surface and subsurface soils limit rainfall infiltration, the development design documents shall incorporate means and methods to limit and/or mitigate the compaction of site soils during construction. The following site elements shall be addressed on the permit documents:

1. Soil Protection Zones shall be established to protect site areas of natural soils that are intended to be protected from compaction by heavy equipment during construction such as for the protection of trees, wetland, and riparian areas. The Soil Protection Zone shall be provided by installing temporary fencing that is placed prior to the commencement of any construction activities that result in soil compaction.

2. The soils immediately beneath the bottom of excavated volume control storage facilities, detention facilities, vegetated filter strips and other like green infrastructure that are designed for the purpose of facilitating ground infiltration shall be rototilled to a four-inch depth following the placement of the initial two-inches of installed topsoil for vegetated areas.
3. Lawn turf areas, planting beds and the root zone areas for trees shall be rototilled to a four-inch depth following the placement of the initial two-inches of topsoil.
4. The compacted soils immediately beneath underground stormwater management facilities shall be scarified to a six-inch depth prior to the placement of aggregates for the facility.
5. Subgrade compaction shall be limited via design and construction monitoring in site areas that are to be vegetated or landscaped. The plan documents shall incorporate measures to mitigate impermeable clay caps and barriers, or compaction zones created by construction equipment during construction activities. Such measures may include deep ripping, augering, or tilling depending on the condition and depth.
6. Topsoil shall be placed and spread to finished grade without excessive compaction that results in increased runoff.

G. Topsoil Preservation and Infiltration Measures

1. The following Topsoil Preservation and Infiltration BMP measures shall be incorporated into all development sites subject to a Stormwater Management Permit:

Table XI-21-G. Topsoil Preservation and Infiltration BMP Measures

Landscape Type/Area	Minimum Topsoil Depth
Lawn Areas and Parkways	6-inches of amended topsoil
Perennial/Groundcover Areas	8-inches of amended topsoil
Shrub Areas	18-inches (10-inches amended)
Tree Areas	30-36 inches as required for rootball depth and 18-inches for remaining root zone (See G7 and G8) (10-inches amended topsoil)
Landscape Islands	24-inches for plantings; 36-inches for trees (10-inches amended topsoil)

2. Additional topsoil depths are encouraged to be placed within swale areas, non-recreational lawn areas, and perennial/groundcover areas on an incentive basis to facilitate enhanced infiltration and reduce irrigation needs. See §XI-22 (Topsoil Preservation Runoff Reduction Incentive).
3. Native topsoil that is stripped from a development site and re-used for lawn areas and the upper 10-inches of topsoil within tree planting areas and landscape islands shall be amended with a mixture of thoroughly decomposed compost matter that is mixed with the native topsoil to promote runoff infiltration.
 - a) The initial two inches of topsoil that is placed within all vegetated areas shall be mechanically roto-tilled into the upper four inches of the subgrade soil.
 - b) The compost shall be of a quality as defined in §XI-3 (Definitions).
 - c) The amount of compost shall be equivalent to 8 percent of the installed topsoil depth (1/2-inch for 6-inch topsoil depth) up to a maximum compost depth of 13/16-inch for 10-inches of topsoil depth.
 - d) The compost shall be placed on top of the installed topsoil and shall be considered as part of the fully installed amended topsoil depth.
 - e) The compost shall be roto-tilled into the topsoil.

4. The requirement that existing site topsoil must be amended with compost may be waived by the Zoning Administrator if documentation of native site soils demonstrates that they have an organic content that exceeds 8 percent by weight. However, the installation must still incorporate rototilling the initial two inches of topsoil into the underlying subsoil.
5. Amended topsoil placement depths may be proportionately reduced when the topsoil is placed as fill onto minimally disturbed natural topsoil. To preserve the pore texture of the underlying natural soil, the added topsoil should preferably not be rototilled into the underlying topsoil. However, if the underlying topsoil has a crusted surface, the surface must be broken in the course of the topsoil placement work. The application of an herbicide is preferable to stripping the existing vegetation.
6. When topsoil for landscape plantings must be imported, the imported soil mixture shall meet the requirements as defined in §XI-3 (Definitions) for Imported Topsoil.
 - a) The contractor shall certify the organic content of the imported topsoil.
 - b) If the organic content of the imported topsoil is less than 6 percent by weight, it shall be amended with compost.
 - c) The amount of compost shall be equivalent to 4 percent of its installed topsoil depth (1/4-inch for 6-inch topsoil depth) up to a maximum compost depth of 3/8-inch for the upper 10-inches of installed topsoil depth.
 - d) The imported topsoil shall be installed in the same manner as stock-piled topsoil.
7. Topsoil shall be graded to achieve finished grade elevations as shown on the grading plans, giving appropriate consideration for the thickness of sod when sod is to be placed for surface vegetation. Topsoil compaction should be limited to no greater than an 88 percent Standard Proctor Density (which corresponds to natural soil density) to preserve the infiltration potential of the soil.
8. The minimum volume of topsoil provided to surround each tree planted within disturbed soils that are compacted in the course of land development shall be dependent upon the extent of the ultimate canopy spread and associated root zone of the selected species as needed to allow the tree to reach its maturity size, lifespan, and evapotranspiration objective. Ultimate expected canopy spread shall be determined premised upon the Morton Arboretum categorization for Northern Illinois Tree Species List.
 - a) Per the landscape provisions of this ordinance, the volume of topsoil shall be as follows:
 - (1) 1000 CF (minimum) for a large street tree
 - (2) 750 CF (minimum) for a medium street tree
 - (3) Additional topsoil shall not be required beyond the required rootball planting radius when a tree is planted in locations that include the full depth and adequate volume of natural topsoil.
 - b) The topsoil placement for an individual tree shall extend at least two-feet beyond the rootball in all directions at depths required for rootball placement.
 - c) Wherever the natural soils are disturbed by development the topsoil required for tree planting shall extend at a minimum depth of 18-inches for an area sufficient to meet the volume requirements for the ultimate natural canopy spread of the selected species.
 - d) Adjacent spaced trees may overlap the topsoil volume for the root zone of each tree by 25 percent of the distance separating the trees, thereby using the same volume of topsoil within the overlapped areas toward the volume requirement of each tree.
 - e) Where a modular suspended pavement system is required beneath pavements, the topsoil depth may be reduced to 16-inches consistent with the vertical dimensions typical of modular systems.
 - f) The topsoil limits shall be determined by supportive documentation and shown on the landscaping plans that accompany the development.

- g) The site grading plan shall purposefully introduce an appropriate volume of runoff into the root-zone topsoil by methods such as slightly depressing the parkway to capture runoff volumes that are proportionate to the created root-zone topsoil void capacity.
 - h) Topsoil placement depths may be proportionately reduced when the natural “B” horizon of the soil profile is minimally disturbed by the excavation performed on the site, the site area is protected from compaction during construction, and the initial two-inches of topsoil is rototilled into the “B” horizon sub-soils.
9. A modular suspended pavement system that uses soil volumes to support mature tree growth, especially for large street trees, shall be provided as necessary to accommodate the required topsoil volume when the planting medium must extend beneath a sidewalk or asphalt pavement or non-public roadway curb. The locations and design of the modular suspended pavement system shall be shown on the landscaping plans that accompany the development.
10. Positive drainage of the landscape island sub-soil shall be provided via either a perforated underdrain leading to an outlet storm sewer or an eight-inch diameter augered “dry-well hole” lined with a filter fabric and filled with an open graded aggregate that extends completely through any compacted fill that may have been imported to a minimum of 36 inches into the non-compacted native soil beneath the landscape island. A single eight-inch diameter augered “dry-well hole” will be considered sufficient to infiltrate up to a surrounding 10-foot radial area. The subgrade shall be graded to drain toward the perforated underdrain or augered “dry-well hole”.

§ XI-22 Topsoil Preservation Runoff Reduction Incentive

- A. The purpose of the topsoil preservation runoff reduction incentive is to promote sustainability by preserving the natural functions of topsoil within pervious areas of a development site to reduce stormwater runoff, enhance water quality, and promote thriving landscape vegetation.
- B. Beyond the principle of good topsoil and environmental stewardship, the developer economic incentive is realized through development design benefits of reduced site rainfall runoff flow accommodation, significantly reduced stormwater runoff storage volume (detention) requirements, and significantly reduced long-term landscape water demand. The public benefits include reduced stormwater runoff onto neighboring properties and downstream waterways, as well as healthier, longer-lived parkway trees.
- C. Topsoil Function. Topsoil with appropriate levels of organic nutrients is recognized to provide the following functions:
 - 1. Nutrient Cycling. Topsoil provides the organic nutrients needed to support vegetative growth through the biogeochemical process of nutrient cycling. Soil stores, moderates the release of, and cycles nutrients as well as other elements, facilitating their transformation into plant available forms.
 - 2. Water Partitioning. Well-functioning soil facilitates the infiltration, percolation flow, and storage of water along with dissolved solutes such as nitrogen, phosphorus, pesticides, and other nutrients or chemical compounds for both groundwater recharge and use by plants and inhabiting animals. The use of water by plants results in transpiration.
 - 3. Enables Soil Respiration. Topsoil supports the growth of a wide variety of plants and animals, including micro-organisms to provide a diverse physical, chemical, and biological habitat by enabling soil respiration—the carbon dioxide release from the soil structure needed for healthy vegetative growth.

4. Filtering and Buffering. Topsoil acts as a filter to protect the quality of water, air, and other resources. Toxic compounds or excess nutrients can be degraded or otherwise be made unavailable to plants and animals.
 5. Physical Stability and Support. Topsoil should maintain its porous structure to allow passage of both air and water. Soil texture is essential to facilitate and structurally support root growth while resisting erosive forces.
- D. Topsoil Functional Sustainability. The extent of organic matter and the topsoil depth are recognized as the primary contributing factors to the level of functional sustainability of an overall soil profile for thriving vegetation because:
1. Shallow topsoil inhibits soil respiration.
 2. Shallow topsoil limits nutrient storage potential.
 3. Shallow topsoil limits rainfall infiltration and storage potential.
 4. Shallow topsoil inhibits root growth.
 5. Lowered organic content within topsoil limits its functional sustainability for each of the above functions.
- E. Diminished organic content within topsoil:
1. Limits pore materialization,
 2. Reduces soil absorption capacity,
 3. Fosters surface crusting of clay and sand within many soil mixes during drought conditions,
 4. Resulting in increased runoff, increased topsoil erosion, reduced topsoil depths, and further increased runoff.
- F. Stormwater Management Benefit. Stormwater management is benefitted by well-functioning deepened topsoil by:
1. Improved permeability and infiltration in proportion to organic content and topsoil depth associated with rooted vegetative cover which provide channels for water and air movement.
 2. Increased infiltration resulting in reduced peak runoff to the extent that voids in the topsoil are available to temporarily store the infiltrated rainfall. The lessened generated runoff from pervious site areas reduces the volume of detention storage that is required on a site associated with its development.
- G. Increased Topsoil Depth Incentive Basis. An incentive to provide increased topsoil depths beyond the six-inch depth for lawns and parkways required by Article VI (Landscape Standards) of the UDO is desirable premised upon the following observations:
1. An inch of silty topsoil or silty clay topsoil commonly found in Illinois has a void ratio that is approximately 0.70 greater than the underlying inorganic soil.
 2. Topsoil is recognized as between six and ten times more permeable than the underlying inorganic soil.
 3. If one assumes a conservative antecedent moisture condition for which 60 percent of the topsoil voids are already filled (typical of an upper range Type II antecedent moisture condition), then the remaining 40 percent of the topsoil voids are available to absorb and store infiltrating water.
 4. This condition suggests that of rainfall may be absorbed for every additional inch of topsoil that is installed compared to an underlying inorganic soil for the assumed antecedent moisture condition.
 5. A comparison of the runoff and absorption that occurs for a major 24-Hour storm event for differing Runoff Curve Numbers (CN) reveals that roughly an additional 0.10 to 0.12 inches of infiltration into the lower soil profile horizon occurs for each CN unit reduction.

6. It is reasonable to roughly correlate a CN reduction of 1.75 units for each additional inch of topsoil subject to the following conditions:
 - a) The topsoil must be placed beneath a well-vegetated or mulched surface with roots that penetrate the topsoil surface.
 - b) The lowest level of the topsoil must be at least one foot above the seasonal high-water table to allow positive downward infiltration drainage of the topsoil voids and help limit the impact of upward capillary action.

- H. Runoff Reduction Benefit. Peak site runoff volume can be significantly reduced by reducing the Runoff Curve Number (CN). NRCS studies have recognized the following logarithmic correlation:
 1. A 5 percent runoff volume reduction results from a 1 percent lower CN.
 2. A 10 percent runoff volume reduction results from a 2 percent lower CN.
 3. A 25 percent runoff volume reduction results from an 8 percent lower CN.
 4. A 50 percent runoff volume reduction results from a 17 percent lower CN.
 5. Higher CN values correspond to similar logarithmic increases of runoff volume.

- I. Established Topsoil Preservation CN Reduction Incentive for Increased Topsoil Depth. The Village of Park Forest hereby recognizes the stormwater management benefits of reduced site runoff and reduced detention requirement associated with the installation of additional amended topsoil depths beyond the six-inch depth required by the Best Management Practice requirements of §XI-21.G (Topsoil Preservation and Infiltration Measures) by offering the following incentive applicable to development sites:
 1. Each additional inch of amended topsoil (beyond the six inches of required amended topsoil) placed within a pervious landscaped area shall entitle the owner to a CN unit reduction of 1.75 applicable to the area where the topsoil is placed. Applied Topsoil Preservation BMP CN Values for varying depths of amended topsoil shall be as presented in Table XI-30.C (Runoff Curve Numbers for Urban Areas).
 2. Although more than 10 inches of total topsoil may be placed, the maximum CN unit reduction that is allowed shall be limited to 7.0 CN units. This limitation reflects percolation delay relative to rainfall peaks during extended duration storm events.
 3. Compaction of the topsoil should not exceed 88 percent of the Standard Proctor Soil Density to preserve the voids within the soil.
 4. The reuse of native topsoil from a development site is encouraged. However, the above CN Reduction Incentives are contingent upon amending natural clay and silt-clay predominated native topsoil with a compost mixture which amounts to at least 8 percent of the overall topsoil volume (roughly equivalent to ½ inch of a six-inch total topsoil depth) applied to the upper 10-inches of the topsoil which is placed. When non-native topsoil is imported for use on a development site, its soil composition shall meet the topsoil quality as required per the definition of Imported Topsoil as provided in §XI-3 (Definitions). Imported topsoil shall also be amended on-site with compost as prescribed above in §XI-21G.4 unless documented as unnecessary.

- J. Topsoil Installation. Topsoil placement shall conform to the requirements of Article VI (Landscape Standards of the UDO which require the first six inches of topsoil to be placed in two layers with the first two inches of topsoil rototilled into a 4-inch minimum depth of the underlying subgrade prior to placement of the second layer of topsoil. When the topsoil must be amended, the supplemental organic compost material shall be placed on top of the graded topsoil at a uniform depth and then rototilled into the overall depth of the placed topsoil prior to finish grading and placement of the vegetative or mulch cover.

- K. Enforcement. Agreed supplemental topsoil depths and limits as shown on approved site development plans shall be affirmed by site inspection prior to the placement of finished landscaping.
 - 1. Documentation of the topsoil source and soil composition shall be provided and approved by the Village prior to its placement.
 - 2. The locations of installed temporary fencing shall be inspected before the contractor is authorized to proceed with construction activities that disturb natural soils.
 - 3. An inspection of the site subgrade that includes the initial two-inches of topsoil rototilled into the underlying subsoil shall be required before the contractor is authorized to proceed with the placement of topsoil.
 - 4. The depth of specified compost for amended topsoil placement shall be verified by inspection prior to being rototilled into the underlying topsoil.
 - 5. The Development Security shall not be released unless the contractor has complied with all topsoil placement work requirements and the inspection thereof.

- L. Established Topsoil Preservation CN Reduction Incentive for Soil Compaction Avoidance and Mitigation. The runoff reduction through improved infiltration benefit realized by the use of the compaction minimization measures as defined in XI-21.F. (Compaction Minimization Measures) and the amended topsoil installation methods as applied to mitigate subsoil compaction shall entitle the use of the CN value of the native hydrologic soil classification in the computation of required site runoff storage (detention) rather than the lowered hydrologic soil classification associated with development due to compaction.
 - 1. This aspect of the Topsoil Preservation CN Reduction Incentive shall be applicable to the following portions of developed site conditions:
 - a. Defined Soil Protection Zones,
 - b. Pervious areas with amended topsoil depths that exceed six-inches, except as precluded below,
 - c. Pervious areas where topsoil is added on top of native soil with light-weight construction equipment, and
 - d. Paved surfaces with underlying underground vault, pipe, and permeable pavement detention systems.
 - 2. This aspect of the Topsoil Preservation CN Reduction Incentive for Soil Compaction Mitigation shall not be applicable to the following portions of a development site:
 - a. Areas requiring construction of a building pad or encompassed by a building foundation,
 - b. Pavements outside underground stormwater storage (detention) systems, and
 - c. Landscape islands within parking lots.

SITE VOLUME CONTROL BMP REQUIREMENTS

§ XI-23 Applicability

- A. Volume Control Best Management Practices are generally required on-site to treat stormwater runoff for pollutants of concern and reduce runoff volume generated with new impervious development. The requirements of this section shall apply to any of the following when a Stormwater Management Permit is required under §XI-67 (Stormwater Management and Other Permits Required) of this Article.
 - 1. Residential subdivision development on sites totaling one acre or more.
 - 2. Multi-family residential development on sites totaling one-half of an acre (0.5 acre) or more.
 - 3. Non-residential development on sites totaling one-half of an acre (0.5 acre) or more.
 - 4. Right-of-way development totaling one acre or more of new impervious area, where practicable.

- B. On-site Volume Control BMP's are waived for the following developments:
1. Qualifying right-of-way developments defined as follows:
 - a) The development of an existing roadway that is limited to the resurfacing or reconstruction of 5,000 square feet or less of net new impervious area per quarter mile being added compared to the pre-development condition.
 - b) The replacement of an existing culvert or bridge.
 - c) The development is limited to the resurfacing or reconstruction of an existing roadway which may also include the replacement of an existing bridge or culvert that drains to an appropriately sized and functional Volume Control BMP.
 2. The proposed development is a Regional Stormwater Management Development or a Flood Control development.
 3. The development is a stream bank stabilization, natural area restoration, or off-site wetlands mitigation.
 4. The development is limited to the construction or reconstruction of a pedestrian walkway/bike path in which the path width does not exceed 12 feet and the path is being constructed for general public use.
 5. The development is limited to the modification of an existing stormwater management facility to incorporate Best Management Practices.
 6. The development is a Water or Sewer Improvement development.
 7. The development is limited to construction or maintenance of an underground conduit or overhead utility line with supports and appurtenances.
- C. Upon a documented finding by the Zoning Administrator that providing Volume Control BMP's on-site is impractical, then an administrative variance Fee-in-lieu of Onsite Volume Control BMP Storage shall be paid by the applicant in lieu of providing on-site Volume Control BMP's. See §XI-123 (Site Volume Control BMP Storage Variance Fee Program).
- D. The following are excluded from the requirements to provide on-site Volume Control BMP's, but are required to pay an equivalent Fee-in-lieu of Volume Control BMP Storage if the requirement to provide the Volume Control BMP is not already waived in above Sections §XI-23.B.1-7.
1. Fueling and vehicle maintenance areas.
 2. Areas within 400 feet of a known community water system well or within 100 feet of a known private well associated with runoff infiltrated from commercial, industrial, or institutional land uses. The applicant shall provide documentation of its efforts to research such well locations.
 3. Areas where contaminants of concern, as identified by the USEPA or the IEPA prior to development are present in the soil through which infiltration would occur. For sites with a No Further Remediation (NFR) letter from the USEPA or IEPA, the applicant shall determine whether or not structural barriers are part of the mitigation strategy and account for such measures in the design.
 4. Development over soils with groundwater table within two feet of the surface.

§ XI-24 Volume Control BMP Storage Determination

The first 0.5 inch of runoff from the impervious area of development on the site shall be the Volume Control BMP Storage. Volume Control BMP Storage is required for all development with impervious area greater than or equal to 0.10 acre. Development with impervious area less than 0.10 acre shall provide volume control storage where practicable. Whenever an existing agricultural land use is present downstream and adjacent to the development site, the depth of the runoff for which volume control

BMP storage is applied shall be increased to 0.75 inches from the impervious area of development as required by the WCSMO.

- A. The volume calculated for Volume Control BMP Storage shall be in addition to any volume of site runoff (detention) storage that is also required.
- B. The Volume Control BMP shall be sized to retain and infiltrate the calculated Volume Control BMP storage.
- C. The preferred method of discharge from the Volume Control BMP Storage facility is through infiltration or evapotranspiration. The facility shall be designed to draw down in not greater than 96 hours or as may be limited by the survivability of selected species of surface vegetation, when present. Where soils are inappropriate for timely infiltration, a means of positive conveyance, such as a perforated drain may be used, provided that the facility does not draw down in less than 48 hours. The underdrain may not be set with an invert below the midline of the trench or other excavation.
- D. A minimum four-inch perforated drain shall be used where volumes are very small and conveyance designs become impractical to implement, even if that causes drawdown times to be less than 48 hours.

§ XI-25 Volume Control Practices, Requirements, and Design Criteria

Volume Control BMP practices shall provide treatment of the volume control storage. The Volume Control BMP practices shall be designed according to the following hierarchy:

- A. Retention-based practices with quantifiable storage capacity shall be the primary form of water quality treatment. Retention-based practices shall be provided onsite and shall:
 - 1. Be prioritized such that runoff from impervious surfaces used by automobiles is given preference when present on a development site.
 - 2. Include, not be limited to infiltration trenches, porous pavement, bio-retention systems, dry wells, open channel practices fitted with check dams, retention storage below the outlet of a detention basin or a site runoff storage facility that have quantifiable storage.
 - a) When a trench or other excavation is used, the expected void space (Typically no greater than 36 percent) within the uniformly graded stone, sand, or aggregate portion of the fill material may be included in the volume calculation. Silt sized particles (1/16 mm) or smaller may not be used to complete this calculation.
 - b) If testing is completed on samples of the proposed aggregate fill material which indicates a higher level of porosity, the applicant may submit the analysis completed on the material along with the storage calculations.
 - c) The bottom/invert of the trench shall be set at least six inches above the expected seasonal groundwater elevation.
 - d) The design shall incorporate measures to protect the void space from long-term deposition of fine sediments.
 - 3. Provide pretreatment measures to protect functionality of retention-based practices where necessary. Flow-through practices may be used to meet the pretreatment requirement where appropriate. Flow through practices shall:
 - a) Be used to filter the volume control BMP storage as it passes through the structure.

- b) Include, but not be limited to vegetated filter strips, bioswales, constructed wetlands, catch basin inserts, and oil and grit separators.
 - 4. Be located outside the Regulatory Floodway.
 - 5. Be located a minimum of 10-feet from any basement that is not waterproofed. This restriction requires that the waterproof status of basements adjacent to a development site is documented and that the documentation is included within the stormwater management design calculations for the project.
- B. If all practicable means of providing volume control storage onsite have been exhausted, offsite volume control BMP practices may be constructed on immediately adjacent downstream parcels if all of the following conditions are met:
- 1. The applicant demonstrates that eligible site constraints prevent the development from providing the full volume of the volume control BMP storage onsite.
 - 2. The adjacent offsite volume storage facility is designed and constructed with sufficient capacity to meet the volume control BMP storage for both (or all) involved adjacent tributary sites.
 - 3. The applicants provide a written agreement in the form of a contract between the co-permitting parties that is also acceptable to the Zoning Administrator which ensures perpetual existence, function, and prescribed maintenance of the volume control facility and obligates the parties' successors and assigns to perpetually maintain the offsite volume control practice.
 - 4. The volume control facility is functional before the permittee requests final inspection of the development.
- C. If all practicable means of providing onsite or adjacent offsite retention-based practices have been exhausted and documented, and a qualifying site constraint exists that prevents the use of retention-based practices to retain the volume control BMP storage in full, the following compliance alternatives shall be available:
- 1. The applicant or the cooperating adjacent offsite applicant may reduce the volume control storage by 25 percent for every 5 percent of reduced impervious area.
 - 2. Sites for which detention is not required pursuant to §XI-27 (Volume Control Storage with Maintenance Plan) and which outlet to an existing storm sewer shall provide a detention facility for the equivalent required volume control BMP storage.
 - 3. Sites tributary to a perennial stream, lake, or pond via either a direct connection or a storm sewer shall be required to provide flow-through practices. Such flow through practices shall:
 - a) Be sized to filter the volume control storage as it passes through the structure; and
 - b) Includes, but not be limited to vegetated filter strips, bio-swales, constructed wetlands, catch basin inserts, and oil and grease separators.

§ XI-26 Excess Volume Control for Future Development

Excess volume control storage may be installed for future anticipated tributary impervious development. A concept plan must be provided to appropriate the excess volume control toward anticipated development.

- A. Future development will be subject to the volume control requirements in effect as of the date the future permit application is submitted.

- B. If the excess volume control storage does not sufficiently meet the then existing requirements for the complete future development, then additional volume control storage will be required to make up the difference under the future Stormwater Management Permit for the future development.

§ XI-27 Volume Control Storage Maintenance Plan

The stormwater management plan shall include a maintenance plan which specifically addresses the short-term regular and long-term maintenance tasks and responsibilities with respect to the volume storage control components of the stormwater management plan. The maintenance plan shall consist of the assignment of maintenance responsibility together with the development of a detailed schedule of maintenance tasks. No permits will be issued unless the maintenance plan is approved.

- A. Long-term maintenance responsibility shall be established in accordance with §XI-86 (Long-Term Maintenance) of this Article.

SITE RUNOFF STORAGE (DETENTION) REQUIREMENTS

§ XI-28 Applicability of Site Runoff Storage (Detention) Requirements

- A. All developments shall comply with the site runoff storage requirements provided in §§XI-28 through §XI-37 (Site Runoff Storage Requirements) of this Article in which:
 - 1. More than two single-family structures are to be constructed on a site five acres or more in size;
 - 2. Multi-family structures are to be constructed on a site more than one acre in size;
 - 3. Non-residential structures are to be constructed on a site more than one acre in size;
 - 4. Existing multi-family or non-residential land uses on an existing developed parcel on which new development of impervious surfaces after January 1, 2020, creates either an additional 5,000 square feet of additional impervious area or results in an over-all aggregate impervious surface exceeding 25,000 square feet.
- B. The developer of a commercial or industrial redevelopment may request an administrative variance from providing site runoff storage (detention) and instead be allowed to pay a Fee-in-lieu of Site Runoff Storage (Detention) pursuant to in §XI-124 (Site Runoff Storage Variance Fee Program), provided all the following are demonstrated to the sole satisfaction of the Zoning Administrator:
 - 1. The drainage plan will not increase existing flood damages.
 - 2. The drainage plan provides a net benefit in water quality compared to the existing development.
 - 3. A project within Cook County that involves a direct connection to Thorn Creek is not eligible.
- C. Contiguous property. In order to preclude inappropriate phasing of developments to circumvent the intent of this Article, when a proposed development activity will occur on a lot or parcel of land that has continuous lots or parcels of lands owned by the same property owner, then the criteria as defined in this section will be applied to the total land area compiled from aggregate ownership parcels.
- D. Developments located within the Cook County portions of the Village of Park Forest, or its 1.5-mile jurisdictional planning authority may be subject to the WMO Permit requirements from the MWRD. Such a WMO Permit is required for those applicable projects in Cook County for which the Village has not been delegated permit authority. Applicable projects in Cook County are as follows:

1. Those involving a direct outfall connection to Thorn Creek. (This requirement does not apply to channelized tributaries of Thorn Creek.)
- E. Site runoff storage is not required under the following circumstances:
1. Roadway developments in rights-of-way under the ownership or control of the Village or County when the contiguous area of new roadway construction (excluding previously paved areas) does not exceed two acres.
 2. Minor subdivision of a single-family zoned parcel.
 3. Construction of a single-family residence, an addition to an existing single-family residence, and/or construction of an accessory structure where the cumulative impervious area does not exceed 25,000 square feet on an existing legal lot or parcel.
 4. Bike trails, pedestrian trails, and multi-purpose trails on State or County right-of-way, Village right-of-way or property, or School District property when the trail is designed so as to not further concentrate stormwater flows from the existing condition onto a downstream parcel nor constructed in a manner that could result in the impoundment of stormwater onto another property. The trails shall not exceed 12 feet in width to be exempt from the site runoff storage requirements. BMP's can be used to help mitigate discharge rates.

§ XI-29 Release Rate

- A. The drainage system for a property shall be designed to control the peak post-development rate of discharge from the property for the two-year, 24-hour and 100-year, critical duration events 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. If no release rate is specified in an adopted watershed plan, then sufficient flood storage shall be provided so that the site will not discharge at a rate greater than 0.15 cfs/acre of development during and after a rainfall event with a 100-year frequency. Sites shall not discharge at a rate greater than 0.04 cfs/acre of development during and after a rainfall event with a two-year frequency.
- B. For sites where depressional storage having a storage volume of 0.75 acre-feet or more for the base flood exists and where the existing runoff rate from the development is less than the allowable release rate as defined above, then the allowable release rate and the corresponding detention facility volume shall be based on the existing release rate. The existing release rate shall be established using event hydrograph methods as approved by the Zoning Administrator.
- C. The area of hydrologic disturbance on the site shall be used to calculate the required site runoff storage volume. The on-site watershed area tributary to the point of discharge shall be used to calculate the allowable release rate for the site runoff storage facility, which shall be the maximum release rate allowed considering only the on-site watershed area runoff.
- D. When all runoff from a development is not captured in the detention facility, the unrestricted flow shall be addressed by:
 1. Demonstrating that the unrestricted flow does not cause offsite damage; and
 2. Providing for the unrestricted flow by one of the following methods:
 - a) Diverting an equivalent upstream tributary area where detention is not provided to the detention facility; or

- b) Calculating the unrestricted flow rate using the methods in §XI-30 (Detention Storage Volume Determination) of this Article and reducing the required site runoff release rate such that the total developed release rate from the development site equals the allowable release rate; or
- c) Planting the unrestricted flow area with native deep-rooted vegetation approved by the Zoning Administrator. Unrestricted flow areas shall be placed in an easement and maintained as native planting conservation areas in perpetuity. The allowable release rate for the development shall be based on the development area tributary to the detention facility.

§ XI-30 Detention Storage Volume Determination

- A. The design maximum storage to be provided in a detention basin shall be based on the runoff from the 100-year, critical duration event. Event hydrograph routing methods shall be used to calculate design runoff volumes for site runoff facilities.
 - 1. The design of detention basins for development sizes larger than five acres shall be by the following Runoff Hydrograph Methods:
 - a) HEC-1, (SCS methodology),
 - b) HEC-HMS,
 - c) WINTR-20 with an antecedent moisture condition = 2, or
 - d) TR-55 tabular method with Type II Rainfall Distribution.
 - 2. For sites of 40 acres or more, sites involving more than 40 acres of tributary watershed leaving the site, and for sites involving displaced or modified regulatory floodplains the hydrograph methods used must be acceptable to FEMA.
 - 3. The Modified Rational Method may be used for detention storage computation from development sites less than 5-acres in area; however, the volume calculated using Illinois State Water Survey Bulletin 75 rainfall shall be multiplied by a factor of 130 percent to derive the volume for which the storage must be provided.
- B. Event methods shall incorporate the following assumptions:
 - 1. Rainfall: Unless a continuous simulation approach to drainage system hydrology is used, all design rainfall events shall be based on the Illinois State Water Survey's Bulletin 75. A critical duration analysis for the two-year and 100-year storms of 1, 2, 3, 6, 12, 18, 24,48, 72, 120, and 240-hours duration shall be prepared in accordance with generally accepted engineering principles. Reference Table XI-18.1 (Illinois State Water Survey Bulletin 75 Northeast Illinois Rainfall Depths and Intensities).
 - 2. Appropriate Huff rainfall distribution shall be as presented in the ISWS Bulletin 75.

Table XI-30-A. Runoff Curve Numbers for Urban Areas

Cover Type & Hydrologic Condition	C	D
Fully developed urban areas (vegetation established)		
Impervious Areas (Roads, roofs, sidewalks, etc)	98	98
Pervious Area (Open Space, mostly grassed areas)	74	80
Wooded Area (Undisturbed soil texture)	70	77
Gravel (Railroad yards, roads parking lots)	89	91
Water Surface	100	100
Newly Graded Areas (pervious areas only, no vegetation)	91	94
Native Plantings	70	77

Wetlands	91	94
Synthetic Turf Fields	91	91
Green Infrastructure:		
Non-Compacted Gravel Areas	89	91
Porous/Permeable Pavement	89	91
Bioswale	63	70
Rain Garden	63	70
Topsoil Preservation BMP Incentive Values:		
6" Amended Topsoil	74.0	80
7" Amended Topsoil	72.25	78.25
8" Amended Topsoil	70.50	76.50
9" Amended Topsoil	68.75	74.75
10" Amended Topsoil	67.0	73.0
Green Roof:		
Media Depth – 0 Inches	98	
Media Depth – 2 Inches	94	
Media Depth – 4 Inches	90	
Media Depth – 6 Inches	85	
Media Depth – 9 Inches	79	
Media Depth – 12 Inches	72	
Media Depth – >12 Inches	63	

§ XI-31 Downstream Water Surface Elevations

All hydrologic and hydraulic computations must utilize appropriate assumptions for downstream water surface elevations, from low flow through the base flood elevation, considering the likelihood of concurrent flood events. Backwater on the outlet structure from the downstream drainage system shall be evaluated when designing the outlet.

§ XI-32 Site Runoff Storage Facility Design Requirements

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

- A. The site runoff storage facility shall provide one foot of freeboard above the design high water elevation.
- B. The storage facilities shall be accessible and easily maintained. The Zoning Administrator may require that access roads or paths on the top of berms be provided with an H10 design load rating and meet Village design criteria to facilitate maintenance of the outlet control structure.
- C. Storage facilities shall facilitate sedimentation and catchment of floating material. Unless specifically approved by the Zoning Administrator, concrete lined low-flow ditches shall not be used in detention basins. A stilling/sedimentation basin should be constructed at each major inlet to a wetland and wetland bottom pond. The volume of the basins should be at least 500 cubic feet per acre of impervious surface in the drainage area. Side slopes of the basins shall be no steeper than a ratio of three horizontal to one vertical and basin depths should be at least three feet to minimize resuspension of accumulated sediment.

- D. Storage facilities shall be designed such that the existing conditions pre-development peak runoff rate from the 100-year, critical duration rainfall will not be exceeded assuming the primary two-year low flow restrictor is blocked.
- E. Outlet Condition Assessment: Where facilities outlet to defined drainage system (storm sewer, swale, etc.) available capacity shall first be verified. Where facilities do not outlet to a defined drainage system, the flow shall be converted from point discharge to resemble the existing flow type (i.e. sheet flow) so not to cause adverse impacts to downstream property. Energy dissipation shall be provided at all pond inlets and outlets.
- F. Minimum Detention Outlet Size: Where a single pipe outlet or an orifice plate is to be used to control discharge, the pipe shall have a minimum diameter of six inches. If design release rates necessitate a smaller outlet, structures such as perforated risers, or flow control orifices shall be used. The orifice shall be constructed in the downstream invert of a catch basin that is accessible to facilitate maintenance.
- G. The following criteria are proposed as moderately conservative standards for design of stormwater basins within the Village. If a developer wishes to exceed the standards, their landscape contractor/designer shall bear the burden of proof that the landscape will be successful. The indicated limits of acceptable fluctuation and drawdown times are based on best professional judgment for landscape treatments typical to wet bottom ponds, naturalized wetland bottom basins, and dry stormwater basin designs.
1. **Wet bottom ponds** shall be designed to remove stormwater pollutants, enhance water quality, be safe, be aesthetically pleasing, and as much as feasible to be available for recreational use. A professional shall prepare a detailed landscaping plan in compliance with the Article VI (Landscape Standards). Wet bottom ponds shall meet the following design criteria:

Table XI-32-A. Wet Bottom Pond Design Criteria

Minimum Area	One acre at normal water level (NWL)
Maximum Area	Permanent water surface area shall not exceed 10 percent of the tributary drainage area
Depth	Depths below the normal water level shall be at least three feet deep, excluding near shore banks and safety ledges. If fish habitat is to be provided, the facility shall be at least ten feet deep over twenty-five percent of the bottom area to prevent winter freeze-out.
Permanent Pool Volume	The permanent pool volume in a wet basin at normal depth shall be equal to or greater than the runoff volume from its watershed for the two-year event.
Maximum Bounce	100-year: Four feet for residential; industrial/commercial not adjoining schools may be greater based on approval of the Zoning Administrator. Two-year: One foot
Maximum Drawdown Time	100-year: From Design High Water Elevation to 0.5 feet above NWL within 72 hours Two-Year: To 0.5 feet above NWL within 36 hours Compute draw-down time for 2, 5, 10, and 100-year (24-hour duration) storms
Safety Shelf	0.5 to 1.5 feet inundation at NWL, 10.0 feet average width (variable 8.0 to 12.0 feet) with 25 percent of the shoreline two feet shorter than the maximum width
Maximum Slopes	Freeboard elevation to two-year water level: 4:1 Two-year water level to NWL: 8:1 NWL to 1.5 feet below NWL: 20:1 (safety shelf) >1.5 feet below NWL: 2:1

Shoreline Protection	Flood tolerant natural vegetation shall be used for shoreline protection above the normal waterline and emergent species for plants growing at or below the shoreline to prevent erosion from wave action unless otherwise approved; select vegetation according to inundation tolerance; armoring may be considered conditioned upon Village review and approval; biotechnical stabilization may be allowed depending on site-specific conditions; erosion control measures
Water Quality Enhancements	Maximize distance between inlets and outlets; no low-flow channel to be provided; energy dissipation measures at outlets below the normal water level; measures such as aerators, cascading streams, waterfalls, etc. are recommended for aesthetic appeal to promote cooler water temperatures and water circulation. Mechanical aeration shall be required unless waived by the Village Engineer.
Landscape Options	Native grasses, ornamental cultivars, sedges, low maintenance turf, and turf-grass (appropriate to the inflow-outflow hydrograph, drawdown durations associated with the survivability of the respective species and adjacent/adjoining land uses); public access via stone outcroppings, groomed areas, etc. are recommended. A professional shall prepare a detailed landscaping plan in compliance with Article VI (Landscape Standards).

2. Naturalized wetland bottom basins shall be designed to remove stormwater pollutants, enhance water quality, be safe, be aesthetically pleasing, and as much as feasible to be available for multiple uses.

Table XI-32-B. Naturalized Wetland Bottom Basin Design Criteria

Minimum Area	8,000 square feet at normal water level (NWL)
Maximum Area	No maximum
Depth	Depths shall range from 0.5 feet to 5.0 feet (average 3.0 feet); at least 5 percent of the area below NWL having pockets up to 5.0 feet
Maximum Bounce	100-year: 5.0 feet for residential; Industrial/Commercial may be greater based on approval of the Zoning Administrator. Two-year: One foot
Maximum Drawdown Time	100-year: From Design High Water Elevation to 0.5 feet above NWL within 72 hours Two-Year: To 0.5 feet above NWL within 36 hours Compute draw-down time for 2, 5, 10, and 100-year (24-hour duration) storms
Maximum Slopes	Freeboard elevation to two-year water level: 4:1 Two-year water level to NWL: 8:1 0.5 ft. to 1.5 feet below NWL: variable 8:1 to 12:1 safety ledge >1.5 feet below NWL: 2:1
Shoreline Protection	Flood tolerant natural vegetation shall be used for shoreline protection above the normal waterline and emergent species for plants growing at or below the shoreline to prevent erosion from wave action unless otherwise approved; select vegetation according to inundation tolerance; biotechnical stabilization (depending on site-specific conditions); erosion control measures
Water Quality Enhancements	Maximize distance between inlets and outlets; no low-flow channel to be provided; energy dissipation measures at outlets below the normal water level; measures such as aerators, cascading streams, waterfalls, etc. are strongly recommended for aesthetic appeal to promote cooler water temperatures and water circulation. Mechanical aeration shall be required unless waived by the Village Engineer when other measures are deemed sufficient.

Landscape Options	Native grasses, ornamental cultivars, sedges, low maintenance turf (appropriate to the inflow-outflow hydrograph drawdown duration associated with the survivability of the respective species; public access via stone outcroppings, groomed areas, etc. are recommended. The selected plants and planting methods shall conform to the soils, hydrology, and water quality conditions present in such facilities, with plants being tolerant of highly variable hydrologic conditions and degraded water quality (e.g., high turbidity and salinity content). A planting and maintenance report provided by a qualified wetlands firm must be submitted and approved.
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3. **Dry Detention Basin Design** - In addition to the other requirements of this Article, dry basins shall be designed to remove stormwater pollutants, to be safe, to be aesthetically pleasing, and as much as feasible to be available for multiple uses. Dry detention basins shall be designed to also facilitate volume control storage requirements.
- a) Dry Basin Design Details - To prevent soil erosion and weed problems, dry detention basins must be landscaped including the establishment of a ground cover over all unpaved areas through sodding or other means which result in a quality of ground cover comparable to that obtained through sodding. Dry detention facilities must be designed so that the cross slope is at least 2 percent. A bottom slope of less than 2 percent requires special approval with consideration of low flows. The bottom of the facility shall be provided with an underdrain unless Hydrologic Soil Types A or B are present. The underdrain shall be a minimum six-inch diameter perforated pipe covered on all sides with a minimum of six inches of crushed stone conforming to ASTM C33, Size No. 67. The underdrain shall be installed to drain the basin below grade during periods of low flow and shall connect to a storm sewer outfall pipe. Grading plans shall clearly distinguish the wet/wetland portion of the basin bottom from the dry portion.
 - b) Dry Basin Maximum Area: None.
 - c) Dry Basin Maximum 100-year Bounce: four feet.
 - d) Maximum Drawdown Time for the 100-year storm: No more than 20 percent of the basin with standing water for more than 72 hours. The planting materials for the bottom and side slopes of the dry detention basin shall be selected with consideration of the intended uses of the basin and the species survival during periods of inundation. Planting materials will be reviewed and deemed suitable by the Village.
 - e) Dry detention facilities shall be designed with side slopes not steeper than 4 to 1 (horizontal to vertical).
 - f) Velocity Dissipation: Velocity dissipation measures shall be incorporated into dry basin designs to minimize erosion at inlets and outlets and to minimize the resuspension of pollutants.
 - g) Dry Basin Inlet and Outlet Orientation: To the extent feasible, the distance between detention inlets and outlets shall be maximized. If possible, they should be at opposite ends of the basin. There should be no low flow bypass between the inlet and outlet and paved low flow channels shall not be used.
4. **Underground Detention Vaults** -- Detention vaults are usually precast reinforced concrete tanks constructed below grade; however, other materials may be used with approval of the Village Engineer. The vaults are provided with restrictors to limit release rates. Most vaults permanently retain water to dissipate energy, settle out large solid particles, and act as an oil separator. However, the provision of an open bottom to encourage infiltration in areas of permeable soil is also an option. This option may be used to satisfy volume control requirements, but above-ground naturalized infiltration facilities are preferred. Detention vaults are appropriate for development sites where space is limited, or surface ponding is not feasible. The following design guidelines are applicable:

- a) Detention vaults under buildings designed only for a 10-year storm capacity shall be provided with means to safely accommodate 100-year overflows.
 - b) Buildings with underground storage vaults (with less than 100-year capacity) must have plans (with backup calculations) sealed by a licensed architect or structural engineer to safeguard against structural failure of floor foundations and downspouts due to hydrostatic pressures during sewer surcharges.
 - c) Proper ventilation of underground vaults for buildings must be provided, as applicable, to equalize interior downspout pressures and to prevent siphoning effects through the piping and sewer systems.
 - d) Vaults must be designed to be water-tight unless used for groundwater infiltration purposes or unless the bottom of the vault is at least seven feet above the groundwater table.
 - e) For vaults using infiltration, soil must have at least a 0.5 inches/hour infiltration rate or greater and the bottom of the vault must be at least 3.5 feet above the groundwater table when connected to a combined sewer and at least 2.0 feet above the groundwater table when connected to a separate sewer system. Means to control sediment and/or debris from entering the vault must be provided. Pretreatment measures are required for all infiltration vaults.
 - f) If the outlet from a vault is lower than the crown of the outlet sewer, a check valve must be installed to prevent backflow up into the vault.
5. **Underground Oversized Pipes** -- Oversized pipes are designed like storm sewers. Oversized pipes serve as both detention and conveyance structures. They are very commonly used at small developments to fulfill detention requirements. To serve as a storage structure, the oversized pipe requires a flow restrictor at the downstream end of the pipe to limit the capacity of the sewer outlet to the required release rate. In this way, when inflow into the sewer is greater than the release rate, stormwater is stored in the pipe behind the restrictor. Oversized pipes offer a feasible alternative to detention basins when a site has limited space; however, oversized pipes do not provide volume control or water quality benefits. The following design guidelines are applicable:
- a) Locking manhole covers shall be provided for pipe diameters four feet and larger in areas when determined necessary by the Zoning Administrator.
 - b) Structures for oversized pipe must be properly sized.
 - c) Ample conveyance through catch basin grates and the structure outlet piping must be provided between the surface and underground storage system.
 - d) The system design must include the means to clean-out accumulated sediment within the underground system.
6. **Permeable Paving Storage Design Guidelines**
- a) Subsoils must have at least a 0.5 inches/hour infiltration rate or greater. Otherwise, an underdrain system must be used if soil infiltration rates do not meet this requirement.
 - b) The bottom of the aggregate shall be at least two feet above the groundwater table or bedrock.
 - c) Permeable pavement or infiltration systems must be situated at least 10 feet down gradient from buildings that are not water-proofed against basement seepage.
 - d) Minimum and maximum slopes on permeable paving shall be 0.5 percent and 5 percent, respectively.
 - e) The aggregate storage section shall be tiered, consisting of CA-1 to the variable depth needed to meet storage requirements, four-inch CA-7, and capped with a 1.5-inch CA-16 paver setting bed. The void ratio for the CA-1 and CA-7 shall not be less than 0.36.
 - f) A free-draining geotextile fabric shall be placed beneath the CA-1 and either the native soil or underdrain trench.
 - g) When using an underdrain system, the water level within the underlying stone base may not rise to within eight inches of the permeable pavement surface for a 10-year storm event.

- h) The underlying CA-7 portion of the aggregate base must be designed to drain within 48 hours of a storm event.
 - i) When using an underdrain system, any impermeable subsoil material must be graded with a minimum 1 percent slope to such system, and the top three inches of impermeable soil must be mixed with at least three inches of sand.
 - j) If permeable concrete pavement is used, the permeable concrete pavement must have signage placed on the property that states, "This surface is pervious concrete pavement. No sealcoat or overlay material is to be used on this pavement. Call Village Engineer before treating this pavement with any material."
 - k) When an area of conventional impervious pavement drains toward permeable pavement, a maximum ratio of 3:1 impervious to permeable is allowed.
7. **Parking Lot Storage:** The maximum stormwater ponding depth in any parking area shall not exceed nine inches for more than four hours unless otherwise approved by the Village Engineer for remote parking areas. Ponding shall not be higher than one inch above the top of curb.
8. **Detention within Depressional Storage Areas:** The function of natural depressional areas to limit the volume of site runoff shall not be diminished by the proposed development.
- a) The potential storage volume of natural depressional areas located outside of regulatory floodplains may be used for both Volume Control BMP Storage and Site Runoff Detention Storage providing that the resulting facility within a depressional area includes an excess volume that is equivalent to 25 percent of the volume of runoff that was tributary to the natural depression in its pre-development state to mitigate against possible increased runoff impacts from future climate change.
9. **Detention in Wetland Areas:** Standard and High-Quality Isolated Wetlands shall be protected from damaging modifications and adverse changes in runoff quality and quantity associated with land developments.
- a) Neither US ACOE jurisdictional wetlands nor High-Quality Isolated Park Forest wetlands shall be modified for the purposes of detention. Buffer strip widths and other protections for US ACOE jurisdictional wetlands shall be provided as required by the ACOE Section 404 permit.
 - b) Existing Standard Isolated Park Forest wetlands shall not be modified for the purposes of stormwater detention unless it is demonstrated that the proposed modifications will maintain or improve its habitat and ability to perform beneficial functions. Existing release rate and storage characteristics of wetlands shall be maintained.
 - c) Existing Low-Quality Isolated Park Forest wetlands (FQI of 12.0 or lower) may be modified for purposes of stormwater detention.
 - d) The function of natural depressed wetland areas to limit the volume of site runoff shall not be diminished by the proposed development. If an existing wetland is modified to accommodate site runoff storage, the resulting facility shall meet the storage volume parameter established above for §XI-32.G.8 (Detention within Depressional Storage Areas).
 - e) Site drainage patterns shall not be altered to substantially decrease or increase the existing area tributary to those wetlands that are identified as standard or high-quality wetlands.
 - f) Sediment control: Quality wetlands shall be protected during construction by appropriate soil erosion and sediment control measures and shall not be filled. 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. The basin shall be constructed before property grading begins. In addition, the grading hierarchy defined in §XI-21.A.5 (Best Management Practices Requirements) should be followed to minimize runoff volumes and rates being discharged into the wetland.

- g) The vegetative planting mix associated with the use of an existing wetland for detention purposes shall be designed by a wetland specialist. Species selection shall reflect the hydraulic design of the facility with respect to fluctuating water levels expected at varying frequencies and duration of inundation.
 - h) A vegetated buffer strip vegetated with native plant species shall be maintained or restored around the periphery of the wetland. Required buffer widths shall vary dependent upon the quality of the aquatic resources of the wetland as prescribed in §XI-54 (Wetland Status Certification).
- H. Safety Considerations - The drainage system components, especially all detention basins, shall be designed to protect the safety of any children or adults who come in contact with the system during runoff events. Driver safety shall also be addressed.
- 1. Overflow Structures: All stormwater detention basins shall be provided with an overflow structure capable of safely passing excess flows at a stage at least one foot below the lowest foundation grade, including basement floor elevations, in the vicinity of the detention basin. The design flow rate of the overflow structure shall be equivalent to the 100-year inflow rate based on a fully developed condition of all upstream areas. Provide slope stabilization in overflow locations when slope exceeds 4:1 and where flows occur with velocity five feet per second or higher.
 - 2. Top of berms shall be 10 feet wide minimum to access the outlet control structure. Top of berms shall be five feet wide minimum for remaining portions.
 - 3. All stormwater detention storage basins that are proximate to a State or County highway or a Village street shall conform to Section 9-115.1 of the Illinois Highway Code which governs any excavation or fill activities within the vicinity of the right-of-way. (This may affect any facility within 15+/- feet of the right-of-way). This standard shall apply to all Village rights-of-way unless waived by the Village Engineer.
 - 4. A barrier analysis shall be performed according to current AASHTO Guidelines to determine the potential extent of need for guardrail for vehicle and pedestrian protection for all above grade detention storage facilities located within 40 feet of the edge of the roadway travel lane. Calculations supporting the design shall be included in the submittal.
- I. Future right-of-way improvement accommodation.
- 1. The owner of a parcel being developed adjacent to a State or County highway right-of-way shall notify the proper highway authority in writing of the proposed development.
 - 2. The owner shall request that the proper highway authority provide, at the cost of the highway authority or as otherwise provided by law, the amount of additional capacity in any stormwater detention facility to be constructed in the development for the future availability of the highway authority for meeting stormwater detention requirements of any future public construction on the highway.
- J. Retaining Walls: The use of retaining and/or landscape walls in detention basin design is discouraged due to long-term maintenance repair and replacement challenges. Walls on four sides of a basin will be permitted only when their height is less than or equal to 2.5 feet. Walls exceeding 2.5 feet in height will be permitted on only one side of the detention basin. If walls exceeding 2.5 feet in height are desired by the applicant, they must be approved by the Village of Park Forest Planning and Zoning Commission as a variation pursuant to Article XIII-3.F (Variation). Where retaining walls are permitted with height exceeding 2.5 feet, drawings and calculations shall be provided, signed and sealed by an Illinois Licensed Structural Engineer, as well as a geotechnical report by an Illinois Licensed Civil

Engineer. Appropriate pedestrian and/or vehicular safety provisions must also be incorporated. Long-term retaining wall maintenance costs shall be appropriately addressed.

- K. 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 applicant before project completion to maintain the design volume of the facilities. Pre-sedimentation basins shall be included, where feasible, for localizing sediment deposition and removal. Access for heavy equipment shall be provided.

§ XI-33 Detention Storage Facility Maintenance Plan

Detention storage facilities shall be designed to minimize and facilitate maintenance. The storage facility owner shall be obligated to monitor and manage storage facility operational performance and perform the required maintenance as prescribed by the maintenance schedule to preserve the stormwater management function of the facility.

- A. Turfed side-slopes shall be designed to allow lawn-mowing equipment to easily negotiate them.
- B. 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.
- C. Underground Detention Vault & Oversized Pipe Maintenance Guidelines
 1. As Needed: Removal of sediment and debris from subsurface vault sedimentation chamber or oversized pipes when the sediment zone is full as well as from inlet and outlet pipes. Sediments should be tested for toxicants in compliance with applicable disposal requirements if land uses in the catchment include commercial or industrial zones, or if indications of pollution are noticed.
 2. Quarterly: Floating debris should be removed.
 3. Once Per Year: Inspection of subsurface vault, control structures, and oversized pipe.
- D. Permeable Paver Maintenance Guidelines
 1. As Needed:
 - a) Do not use sand during the winter months.
 - b) Keep landscaped areas well-maintained and prevent soil from being transported onto the pavement.
 - c) Monitor regularly to ensure that the paving surface drains properly after storms.
 - d) Ensure that surface is free of sediment by regularly sweeping away flower petals, seeds, grass clippings and leaves during the non-winter months.
 - e) Remove vegetation established in gravel spaces in pavement.
 - f) Upon observation that surface ponding or bird baths are present more than one-half inch deep one minute after a rainfall event the ponding permeable pavement shall be vacuumed with a regenerative vacuum, replenishing the joint aggregate as needed.
 2. Twice Per Year:
 - a) Broom, blow, rotary brush, or sweep entire surface (alternate – vacuum entire surface).
 - b) Replenish joint aggregate material after cleaning.
 - c) Clean out inlet structures within or draining to the subsurface bedding beneath surface.

3. Once Per Year: Inspect surface for signs of deterioration or settling.
4. Every Five Years: Vacuum or power-wash the entire surface and refill joint aggregate material.

E. Permeable Asphalt or Permeable Concrete Maintenance Guidelines

1. As Needed:
 - a) Do not use sand during the winter months.
 - b) Keep landscaped areas well-maintained and prevent soil from being transported onto the pavement.
 - c) Monitor regularly to ensure that the paving surface drains properly after storms.
 - d) Ensure that surface is free of sediment by regularly sweeping away flower petals, seeds, grass clippings and leaves during the non-winter months.
 - e) Upon observation that surface ponding or bird baths are present more than one-half inch deep one minute after a rainfall event, the ponding permeable pavement area shall be vacuumed with a regenerative vacuum, replenishing the joint aggregate as needed.
2. Twice Per Year:
 - a) Vacuum the entire surface with a “regenerative vacuum”.
 - b) Clean out inlet structures within or draining to the subsurface bedding beneath surface.

§ XI-34 Site Runoff Storage Facility Requirements within the Regulatory Floodplain

Detention in Floodplains - The placement of detention basins within the floodplain is strongly discouraged because of questions about their reliable operation during flood events. However, the stormwater detention requirements of this Article may be fulfilled by providing detention storage outside of the Regulatory Floodway but within flood fringe areas on the project site provided the following provisions are met. Storage facilities located within the Regulatory Floodplain shall:

- A. Conform to all applicable requirements specified in §§XI-43 through XI-49 (Floodplains and Floodways) of this Article which include compliance with applicable IDNR/OWR Part 3700 and 3708 regulations.
- B. Store the required amount of site runoff to meet the release rate requirement under all stream flow and backwater conditions in the receiving stream up to the 10-year flood elevation.
- C. The placement of a detention basin in a flood fringe area shall require compensatory storage for 1.25 times the volume below the base flood elevation displaced by the detention basin including any berms. The release from the detention storage provided shall still be controlled consistent with the requirements of this section. The applicant shall demonstrate its operation for all streamflow and floodplain backwater conditions. The design of the compensatory storage shall be hydraulically equivalent to the displaced floodplain as defined in §XI-46.A. (Compensatory Storage Volume Standards). All compensatory storage excavations shall be constructed to drain freely and openly to the watercourse.
- D. Detention volume provided by enlarging existing Regulatory Floodplain storage without providing a structure controlling discharge (on-stream detention) will be allowed only as a variation as set forth in §§XI-103 through XI-110 (Stormwater Management Variations) of this Article. The applicant must demonstrate that flood damage is not increased, and that the development will not increase flood flows for both the two-year and base floods on the stream with developed conditions on the site pursuant to WCSMO requirements.

- E. The Zoning Administrator may approve designs which can be shown by detailed hydrologic and hydraulic analysis to provide a net watershed benefit not otherwise realized by strict application of the requirements in divisions A through D above.

§ XI-35 Site Runoff Storage Facility Requirements within the Regulatory Floodway

Storage facilities located within the Regulatory Floodway shall:

- A. Require a permit from IDNR/OWR; and
- B. Meet the requirements for locating storage facilities in the Regulatory Floodplain; and
- C. Comply with applicable IDNR/OWR Part 3708 regulations when floodways are designated or Part 3700 regulations when the tributary watershed exceeds 640 acres and the floodways have not been modeled and designated by FEMA; and
- D. Be evaluated by performing hydrologic and hydraulic analysis consistent with the standards and requirements for any adopted watershed plans; and
- E. Provide a “net watershed benefit;” and
- F. Stormwater runoff from areas tributary to the property shall be considered in the design of the storage facility and, if not capable of being bypassed around the facility, shall be routed through the proposed basin. The final design stormwater release shall be based on the combined total of the applicant’s property plus tributary areas. It must be shown that at no time will the runoff rate from the applicant’s property exceed the allowable release rate for the property alone.

§ XI-36 Off-Site Facilities

If it is not demonstratively practicable to provide a detention facility onsite, site runoff storage facilities may be located on an immediately downstream off-site parcel if the following conditions are met:

- A. The off-site runoff storage facility meets all the requirements of §§XI-4 through XI-32 (Requirements for Stormwater Management) of this Article; and
- B. The adjacent offsite runoff storage facility is designed and constructed with sufficient capacity to meet the volume control storage for both (or all) involved adjacent tributary sites for which Site Runoff Storage and Volume Control BMP Storage has not been separately provided; and
- C. The development includes means to convey the 100-year storm event to the off-site storage facility; and
- D. The offsite facility is separately permitted with its own Stormwater Management Permit; and
- E. The offsite facility is functional for developments before building and road construction begins; and

- F. Detention sites should be functional before occupancy permits are issued for residential and non-residential subdivisions; and
- G. The applicants provide a written agreement in the form of a contract between the co-permitting parties that is also acceptable to the Zoning Administrator which ensures perpetual existence, function, and prescribed maintenance of the volume control facility and obligates the parties' successors and assigns to perpetually maintain the offsite volume control practice. The agreement shall be recorded as tied to the deeds of both properties.

§ XI-37 Cross-Stream Structures for Site Runoff Storage Facilities

Structures constructed across the channel to impound water to meet detention requirements shall be prohibited on any perennial, intermittent, or ephemeral stream or creek unless part of a public flood control project with substantial evidence of a net watershed benefit to the aquatic system. Those streams appearing as blue on a USGS Quadrangle map shall be assumed perennial unless better data is obtained.

- A. All cross-stream structures for the purpose of impounding water to provide detention in all cases on perennial and intermittent streams must demonstrate that they will not cause short-term or long-term stream channel instability.
- B. An ACOE Section 404 permit shall be obtained when applicable as a condition of approval for such structures.

SOIL EROSION AND SEDIMENT CONTROL REQUIREMENTS

§ XI-38 Soil Erosion and Sediment Control General Requirements

- A. No person shall accomplish any grading, stripping, or undertake any earth change unless a valid Stormwater Management Permit has been issued by the Zoning Administrator for the development site.
 - 1. All projects shall incorporate soil erosion and sediment control practices.
 - 2. Primary emphasis should be placed on erosion control practices as they are preventative source controls, while sediment control practices are secondary measures designed to contain certain eroded soil after it is transport.
 - 3. For all projects that discharge directly to ACOE Jurisdictional Wetlands or Isolated Wetlands of Park Forest, the hydrologic design of the soil erosion and sediment control plan shall be designed for a storm event equal to or greater than a 25-year, 24-hour storm event.
- B. Exemptions from Stormwater Management Permit requirements may be considered by the Zoning Administrator for the following activities, provided that such activities are not conducted within a special flood hazard, riparian or wetland area:
 - 1. An excavation below finished grade for single units for tanks, vaults, tunnels, retaining walls, swimming pool, or an accessory building authorized by a valid building permit issued by the Village. This exemption does not absolve the person responsible for the excavation to dispose of the excavated material in such a manner so as to not impair existing surface drainage, present a potential erosion hazard, or act as a source of sedimentation on an adjacent property.

2. Installation or repair of utilities by public utility companies as provided for in the pertinent section of Chapter 106 of the Municipal Code as long as the vegetation on any disturbed areas is promptly restored.
 3. Grading as a maintenance measure or for landscaping purposes on an existing developed parcel, provided that all of the following requirements are satisfied:
 - a. The aggregate of areas affected or stripped at any one time does not exceed 5,000 square feet of pervious surface and does not contain an intermittent watercourse or overland drainage path,
 - b. The grade change does not exceed 12 inches and does not alter the existing drainage pattern,
 - c. All bare earth is promptly seeded, sodded, or otherwise effectively protected from erosion; and
 - d. The grading does not involve a quantity of material in excess of 100 cubic feet.
 4. Where the Zoning Administrator certifies in writing that the planned work and the final structures or topographical changes will not result or contribute to soil erosion or sedimentation and will not interfere with any existing drainage course in such a manner as to cause damage to any adjacent property or result in the deposition of debris or sediment on any public way and will not damage the development of a watershed.
- C. Although a Stormwater Management Permit is not required pursuant to above subsections B.1. through B.4. of this Section, those operations and activities which are exempted from obtaining the permit must still comply with the performance requirements of §§XI-8 through XI-12 (General Stormwater Requirements), §§XI-13 through XI-37 (Site Runoff Requirements), and §§XI-38 through XI-42 (Soil Erosion and Sediment Control Requirements) of this Article.
- D. Soil erosion and sediment control features shall be considered as part of any development's initial site planning process as established by Article VIII-3.B (Site Plan Review). Soil erosion and sediment control related measures are required to be constructed and maintained for any land disturbance activity. The following factors shall be addressed:
1. The susceptibility of existing soils to erosion
 2. Existing native and mature vegetation
 3. Existing natural or established drainage ways
 4. The natural contours of the land
 5. Development phasing
 6. Emphasis first on erosion control, then sediment control
 7. Winter shutdown
- E. Temporary erosion and sediment control measures shall be functional and consistent with this Article and the IEPA NPDES Stormwater Permit in effect prior to initiating land disturbance activities.
1. All projects that will result in the development of one acre or more shall be required to obtain coverage under an appropriate NPDES permit. The permittee shall certify to the Village that all required permits, plans and inspections have been prepared and maintained in accordance with the NPDES permit. Specifically, the permittee shall prepare, and adhere to a Stormwater Pollution Prevention Plan (SWPPP) prepared for the development project that shall meet of the conditions in the permit for SWPPPs. A copy of such plan shall be maintained on the construction site at all times that workers are present, and a copy of the permit, SWPPP, and/or inspection logs, shall be provided to the Village upon request. Failure to obtain an NPDES permit or to comply with the conditions of an NPDES permit for the construction activity shall constitute a violation of this Article.

2. The applicant with land disturbing activities greater than one acre shall provide a statement that the site complies with the requirements of the most current IEPA NPDES ILR 10 permit.

§ XI-39 Soil Erosion and Sediment Control Plan Requirements

All applications for a Stormwater Management Permit shall include Soil Erosion and Sediment Control Plans that designate a series of practices which shall be implemented either at the direction of the permittee or the permittee's representative or at the direction of the Zoning Administrator or designee should an inspection of the site indicate a deficiency in soil erosion and sediment control measures. In planning the development site, the applicant shall consider the susceptibility of existing soils to erosion and topographic features such as steep slopes and stream corridors or wetlands which must be protected to reduce the amount of sediment and erosion which occurs. At a minimum the Soil Erosion and Sediment Control Plans shall specifically include the following:

- A. Detailed construction phasing plan identifying sediment and erosion control measures to be in place for each phase shall be submitted prior to stripping the site of existing vegetation or cover. The proposed phasing of development of the site, including stripping and clearing, rough grading and construction, and final grading and landscaping should identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas, and the sequence of installation of temporary sediment control measures (including perimeter controls), clearing and grading, installation of temporary soil stabilization measures, installation of storm drainage, paving streets and parking areas, final grading and the establishment of permanent vegetative cover, and the removal of temporary measures.
- B. Permanent stabilization measures shall be indicated on a separate plan.
 1. Permanent soil erosion control measures for all slopes, channels, ditches, or any disturbed land shall be completed within 15 calendar days after final grading, or the final earth change has been completed.
 2. When it is not possible to permanently stabilize a disturbed area after an earth change has been completed or where significant earth change activity ceases, temporary soil erosion control measures shall be implemented.
- C. The expected two-year and 10-year runoff rates from all off-site areas draining into the site shall be identified on the plan. Also provide 25-year runoff rates when direct project discharge to wetlands is present.
- D. Flow conveyance methods through the site during construction shall be indicated. Any temporary or permanent facility designed and constructed for the conveyance of water around, thru, or from the earth change area shall be designed to limit the water flow to a non-erosive velocity. All such features must be stabilized during construction. When new waterways are constructed, they shall be stabilized to the extent practicable prior to their use to convey flood flows.
- E. Soil erosion and sediment control measures to be installed initially prior to stripping existing vegetation or mass grading shall be indicated on the plans with specific stipulation as to the relative installation timing of the measures.
- F. All earth changes shall be designed, constructed, and completed in such a manner so that the exposed area of any disturbed land shall be limited to the shortest possible duration.

- G. Where appropriate, existing vegetation shall be protected from disturbance during construction by fencing or other means. The extent of protection limits shall reflect consideration of design objectives to minimize soil compaction to preserve soil permeability.
- H. Soil disturbance shall be conducted in a manner that minimizes erosion. Areas of the development site that will not be graded shall be protected from construction traffic or other disturbance until stabilization of the disturbed areas has been completed.
 - 1. For projects that involve phased construction, existing land cover for those areas not under current development shall be addressed. If existing land cover does not consist of an appropriate ground cover, then these phases shall be planted temporarily to reduce erosion from idle land.
 - 2. In planning the soil erosion and sediment control strategy, preference shall be given to reducing soil erosion rather than controlling sediment. The plan must carefully consider the construction sequence of the phases so that the amount of land area exposed to erosive forces is the minimum consistent with completing construction. In no case shall more than 20 acres of ground cover be disturbed at one time without permanent or temporary stabilization unless authorized by the Zoning Administrator.
- I. Soil stabilization measures shall include the use of temporary or permanent measures.
 - 1. Temporary erosion control practices are stabilization measures that include, but are not limited to, protection of existing vegetation, establishment of new vegetation such as seeding and sod stabilization, mulches and soil binders, geotextiles, erosion control blankets, plastic covers and mats, wind and dust control measures, stormwater conveyance channels or diversion swales, and velocity dissipation measures.
 - 2. The location and description of all soil stabilization and erosion control measures, including seeding mixtures and rates, types of sod, method of seedbed preparation, expected seeding dates, type and rate of lime and fertilizer application, kind and quantity of mulching for both temporary and permanent vegetative control measures, and types of non-vegetative stabilization measures shall be addressed on the plans.
- J. Sedimentation control elements shall be provided as necessary to capture eroded or otherwise displaced soils generated via construction activities. Such measures may include, but not be limited to silt fences, sedimentation basins, sedimentation traps, and filter devices for inlets and catch basins.
 - 1. Water which is pumped or otherwise discharged from the site during construction dewatering shall be filtered and a means provided to reduce erosion caused by the pumped discharge.
- K. Measures shall be provided to prevent soil from being tracked or deposited onto public or private roadways. Alternative measures may consist of the following:
 - 1. A stabilized construction entrance of aggregate underlain with filter cloth; or
 - 2. A graveled road, access driveway, or a parking area of sufficient width and length; and/or
 - 3. Wash down facilities for vehicles.
- L. Any soil reaching a public or private roadway shall be removed immediately, or as warranted, and transported to a controlled sediment disposal area.
- M. The applicant shall provide adequate receptacles for the disposition of all construction debris generated during the development process. The applicant shall not cause, or permit the dumping, depositing, dropping, throwing, blowing, discarding, or leaving of construction debris upon or into any

development site, channel, pond, lake, wetland, or buffer. The applicant shall maintain the development free of uncontrolled construction debris. Construction site operators shall implement appropriate soil erosion and sediment control, and shall control waste such as building materials, chemicals, litter, and sanitary waste that may cause adverse impacts to water quality.

- N. Concrete washout stations shall be shown on the plans together with applicable basin details and signing.
- O. Material Storage. Stockpiles of soil and other erodible or floatable building materials (sand, limestone, etc.) shall not be located within floodplains, overflow routes, or areas subject to frequent inundation.
 - 1. Fuel and chemicals shall be relegated to specific locations as shown on the plans. Any spill shall be documented, and the contaminated soils shall be disposed off-site as special waste.
 - 2. To the extent possible, soil stockpile locations shall be shown on the soil erosion and sediment control plan.
 - 3. Stockpiles of soil and other erodible or floatable building materials (sand, limestone, etc.) shall not be located within a drainageway, floodplain area, overflow routes, areas subject to frequent inundation or a designated buffer, unless otherwise approved under specific conditions to be established by the Zoning Administrator.
 - 4. Stockpiles to remain in place for more than three days shall be provided with soil erosion and sedimentation control measures.
- P. All temporary soil erosion and sediment control measures shall be removed within 30 days after final stabilization is achieved. Trapped sediment and other disturbed soils resulting from temporary measures shall be properly disposed of prior to permanent stabilization.
- Q. A maintenance schedule of each measure used shall be indicated on the plan. As a minimum, all sediment and erosion control measures on-site shall be inspected by the applicant's designee both weekly and/or after a 0.5 inch or greater rainfall event and any required repairs shall be made to keep these measures functional as designed. All repairs and modifications shall be reviewed by the Zoning Administrator or designee.
- R. It shall be the responsibility of the permittee to notify the Zoning Administrator of any significant changes which occur in the site development schedule after the initial soil erosion and sediment control plan has been approved.

§ XI-40 Soil Erosion and Sediment Control Plan Design Criteria

- A. Specifications for erosion control measures shall be in accordance with standards and specifications contained in the "Illinois Urban Manual", as amended, as well as the current IDOT standard specifications for Road and Bridge Construction. Sediment and erosion control planning shall be in accordance with "Procedures and Standards for Urban Soil Erosion and Sedimentation Control in Illinois" (revised July 1988) by the Urban Committee of the Association of Illinois Soil and Water Conservation Districts (The "Green Book") Chapters 1-5. Where the Illinois Urban Manual supersedes sections of The Green Book, the Illinois Urban Manual shall prevail.
 - 1. Other design criteria, standards, and specifications may be considered subject to the prior written approval from the Zoning Administrator.
 - 2. Earthen embankments with constructed side slopes steeper than 3H:1V must be constructed with appropriate stabilization as approved by the Zoning Administrator.

- B. Channels and adjoining properties shall be protected from erosion and sedimentation.
 - 1. The runoff from disturbed areas shall not leave the development site without first passing through sediment control facilities. This requirement shall apply to all phases of construction and shall be an ongoing process of implementation of those measures during the construction season and any construction shutdown periods.
 - 2. Where concentrated flow leaves a development site, effective energy dissipation shall be placed onsite at discharge locations.
- C. Erosion control blanket shall be required on all interior site runoff storage facilities side slopes between normal water level and high-water level.
- D. Erosion control blanket to be placed in wetland or buffer shall be 100 percent biodegradable unless an alternative material is approved by the Zoning Administrator. This requirement does not include turf reinforcement mats or other structural materials necessary for high erosion or scour areas.
- E. Land disturbance activities in streams shall be avoided, where possible. If disturbance activities are unavoidable, the following requirements shall be met:
 - 1. All temporary stream crossings shall be coordinated with the US ACOE for determination of potential wetland impacts. The Developer shall provide the Zoning Administrator with the Letter of Determination provided by ACOE. The Village shall not issue any stormwater management permit prior to the issuance of an ACOE Section 404 permit when such permit is required.
 - 2. Temporary stream crossings of intermittent and perennial streams used only for and during construction shall be designed to convey a two-year flood (minimum) or other flood event approved by the Zoning Administrator or designee without overtopping.
 - 3. Temporary stream crossings shall be constructed of non-erosive material.
 - 4. The time and area of disturbance shall be kept to a minimum. The stream and banks shall be re-stabilized within 48 hours after channel disturbance is completed.
 - 5. Restoration shall incorporate appropriate vegetation consistent with the adjacent existing vegetation prior to construction or in accordance with a restoration plan approved by the Zoning Administrator.
- F. Soil erosion and sediment control measures shall be placed where there is a potential for erosion and sized appropriately for the tributary drainage area. Disturbed areas draining less than one acre shall, at a minimum, be protected by a filter barrier (including filter fences, which at a minimum, shall meet the applicable sections of AASHTO Standard Specification 288-00, or equivalent control measures) to control all off-site runoff from disturbed areas. When required, the filter barrier shall be designed in accordance with the following:
 - 1. The use of straw bales as a filter barrier or ditch check is prohibited.
 - 2. Silt fences can be used to intercept sheet flow only. Silt fences cannot be used as velocity checks in ditches or swales, nor can they be used where they will intercept concentrated flows.
 - 3. Ditch checks shall be constructed using non-erodible materials or prefabricated devices. Straw or hay bales are not acceptable.
 - 4. Reinforced silt fences (normal silt fences reinforced with woven wire fencing) can be used to intercept sheet flow runoff from disturbed areas greater than one acre.
 - 5. All undisturbed wetland, waters, and buffer areas shall, at a minimum, have a barrier of protection. The barrier shall be placed at the limits of soil disturbance or a minimum of one foot outside the wetland, waters, and buffer areas where an approved impact is taking place consisting of either:

- a) A dual row of silt fence, and a row of orange construction fence, or
 - b) A dual silt fence barrier, with one of the fences being of a high visibility material.
 - c) Alternative practices to avoid impact may be used where applicable. Fencing should be placed a minimum of one foot outside the delineated boundary.
 - d) Additional soil erosion and sediment control measures may be required to adequately protect these sites.
- G. The hydraulic and hydrologic design of major erosion control measures (those whose tributary area is greater than three acres) such as sediment traps, diversions, and the like, the design frequency shall be commensurate with the risk of the design event being exceeded. The following design frequencies shall be regarded as minimum design frequencies for the construction period:
- 1. For those projects whose construction period is less than six months, the storm event having a 50 percent chance (two-year event) of being exceeded in any year shall be used for design purposes;
 - 2. For those projects whose construction period is greater than six months but less than one-year, the design frequency for major sediment basins shall be a rainfall event with a 20 percent (five-year event) chance of being exceeded in any one year; and
 - 3. For those construction projects expected to last more than one year, the design frequency for major sediment basins shall be designed for a rainfall event with a 10 percent (10-year event) chance of being exceeded in any one year.
- H. Disturbed areas with drainage areas of one acre and fewer than five acres shall, at a minimum, be protected by a sediment trap or equivalent control measure at a point downslope of the disturbed area.
- I. Disturbed areas with drainage areas more than five acres shall, at a minimum, be protected with a sediment basin in accordance with §XI-40.K with a perforated filter riser pipe or equivalent control measure at a point downstream of the disturbed area.
- J. Temporary diversions shall be constructed, as necessary, to direct all runoff through an effective sediment control measure (e.g., sediment trap, sediment basin, or other appropriate measure).
- K. Sediment basins shall have both a permanent pool (dead storage) and additional volume (live storage).
- 1. Each volume shall be equal to the runoff amount of a two-year, six-hour event over the onsite hydrologically disturbed tributary drainage area to the sediment basin.
 - 2. The available sediment volume below normal water level, in addition to the dead storage volume, shall be sized to store the estimated sediment load generated from the site over the duration of the construction period.
 - a) For construction periods exceeding one year, the one-year sediment load and a sediment removal schedule may be submitted.
 - b) If the site runoff storage basin for the proposed development condition of the site is used for the sediment basin, the above volume requirements will be explicitly met.
 - c) Until the site is finally stabilized, the basin's permanent pool of water shall meet the above volume requirements and have a filtered perforated riser protecting the outflow pipe.
- L. All storm sewers, storm drain inlets, and culverts that are or will be functioning during construction shall be protected by sediment control measures which shall be maintained until the site is stabilized.

1. Onsite and adjacent offsite storm sewer inlets, catch basins, and manholes with open lid grates that may receive runoff from disturbed areas or from an access driveway serving a development site shall be protected with manufactured filtration devices developed to prevent sediments from entering the drainage system.
 2. Silt screens, straw bales, and filter fabrics under storm grates are not allowed.
- M. All temporary and permanent stormwater conveyance channels, including ditches, swales, diversions, and the outlets of all channels and pipes shall be designed and constructed to withstand velocities that have the potential to cause damage or soil erosion.
1. To the extent practicable, proposed ditches and waterways which are to convey off-site flows through the site shall be stabilized upon construction.
 2. Where new waterways are constructed, they shall be stabilized to the extent practicable prior to their use to convey flood flows.
- N. Construction Dewatering. Water which is pumped or otherwise discharged from the site during construction dewatering shall be filtered and a means provided to reduce erosion.
1. Pumping sediment laden water into any drainageway or stormwater facility that is not designated to be a sediment trap, or to an offsite area either directly or indirectly without filtration is prohibited.
 2. Water removed from traps, basins and other water holding depressions must first pass through a sediment control or filtering device. When dewatering devices are used, discharge locations shall be protected from erosion. Discharges shall be routed through an effective sediment control measure (e.g., sediment trap, sediment basin, or other appropriate measure).
 3. All discharges to undisturbed area, stabilized area, or watercourse shall be designed at a non-erosive velocity corresponding to the soil and vegetative cover of the undisturbed area.

§ XI-41 Extended Construction Shutdown Periods

The condition of the construction site for the winter shut down period shall address proper sediment and erosion control early in the fall growing season so that slopes and other bare earth areas may be stabilized with temporary and/or permanent vegetative cover. All open areas that are to remain idle throughout the winter shall receive temporary erosion control measures including temporary seeding, mulching, and/or erosion control blanketing prior to the end of the fall growing season. The areas to be worked beyond the end of the growing season must incorporate soil stabilization measures that do not rely on vegetative cover such as erosion control blankets and heavy mulching. In no case shall requirements less than those required by current IEPA NPDES Permitting regulations apply to projects disturbing more than one acre.

§ XI-42 Inspections

- A. Inspections, remedial work, and record keeping for all soil erosion and sediment control related work shall be performed and documented by the applicant in accordance with the requirements of the Illinois Environmental Protection Agency General NPDES Permit No. ILR 10 for sites that fall within its jurisdiction.
1. The Zoning Administrator or persons designated by the Administrator shall be permitted on the site to inspect the erosion and sediment control measures and records related to the NPDES permit at any time.

2. IEPA NPDES monitoring personnel shall be accorded access to the property and the site's Stormwater Pollution Prevention Plan (SWPPP) upon request.
- B. Upon development closeout, a complete SWPPP report shall be provided to the Village by the responsible site engineer as designated on the SWPPP which documents the contractor's compliance throughout the duration of the construction.

PROTECTION OF SPECIAL MANAGEMENT AREAS

FLOODPLAINS AND FLOODWAYS

§ XI-43 General Application and Agency Coordination

- A. §§XI-43 through XI-52 (Floodplains and Floodways) of this Article set forth requirements for developments within floodplains and floodways in compliance with FEMA NFIP regulations, IDNR/OWR Floodway Part 3708 Rules, IDNR/OWR Regulatory Floodplain Part 3700 Rules, the WCSMO, and Village of Park Forest stormwater management regulations. The following provides generalized guidance concerning the coordination involvement with FEMA and/or IDNR/OWR for various floodplain and floodway development conditions, activities and uses. Table XI-43-A (Agency Floodway and Floodplain Permitting Authority) provides a summary of FEMA and IDNR/OWR agency involvement for various permit review tasks for construction activities within Designated Floodways and Regulatory Floodplains.
1. All development within the floodway, floodplain and flood fringe requires a Stormwater Management Permit from the Village.
 2. The Village will check the interpretation of FIRM/FIS flood boundaries and elevations (see Article §XI-44 (Base Flood Elevation and Designated Floodway or Floodplain Locations)).
 3. The Village will review appropriate uses and activities as appropriate in each type of flood area.
 4. The Village will review compensatory storage provisions (see Article §XI-46 (Compensatory Storage Volume Standards)).
 5. The Village will review building protection standards for all types of flood areas (see Article §XI-50 (General Public Health and Safety Standards Applicable to All Floodplain Areas)).
 6. The Village will review those work activities within the Designated Floodway and acceptable uses within the Regulatory Floodplain which are considered by IDNR/OWR to be of a minor nature.
 7. The IDNR/OWR shall authorize construction of changes of conveyance, velocity and/or storage within a Designated Floodway as defined in §XI-47 (Occupation and Use of Designated Floodways) or within a Regulatory Floodplain Areas and also as defined in §XI-48 (Occupation and Use of Floodplain Areas Where Floodways Are Not Identified) shall be reviewed and authorized by IDNR/OWR by evidence of an IDNR/OWR Floodway Permit or alternatively with written documentation from IDNR/OWR that no permit from IDNR/OWR is required as a pre-requisite for securing a Stormwater Management Permit for the development from the Village. Activities involving the IDNR/OWR coordination include all culvert and bridge construction or replacement and grading changes affecting flood conveyance for drainage structures having tributary areas of 640 acres or greater.
 8. Construction authorization for work within a Floodway of a minor nature that does not involve changes of conveyance, velocity and/or storage has been already authorized by IDNR/OWR Regional Permit #3 (Authorizing Construction of Minor Projects in Northeastern Illinois Regulatory Floodways). However, a Stormwater Management Permit must be secured from the Village in concert with the full context of development activities on the parcel. Such minor work authorized by IDNR/OWR Regional Permit #3 is limited to underground and overhead utilities; playground

equipment; athletic fields (excluding fences), sidewalks and patios constructed at or below existing grades; shoreline and streambank protection; and non-commercial boat docks. The work must also conform to the specific terms and conditions of the Regional Permit.

9. Construction authorization for work within a Regulatory Floodplain of a minor nature that does not involve changes of conveyance, velocity, and/or storage has already been authorized by IDNR/OWR by various Statewide Permits. See Article §XI-48 (Occupation and Use of Floodplain Areas Where Floodways Are Not Identified). The Village reviews such development as part of its issuance of the Stormwater Management Permit.
10. FEMA coordination is required for construction authorization that involves a change in the FEMA FIRM or published flood profile. Such changes shall require FEMA approval of a Conditional Letter of Map Revision (CLOMR) as a pre-requisite for securing a Stormwater Management Permit. (See §XI-47. D. (Engineering and Mitigation Criteria for Appropriate Uses within the Designated Floodway)) Affected developments shall be reviewed and approved by IDNR/OWR prior to their submittal to FEMA. When CLOMR's are issued, the proposed floodplain and floodway grading work must be completed per verified design plan elevations as a condition for submittal of a Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) to IDNR/OWR for initial affirmation prior to submittal to FEMA. An issued LOMR is a pre-requisite for a building permit for the parcel when FIRM revisions are required. (See §XI-7. B. 5 and §XI-44. C. 4. c.)
11. All work involving the construction of a dam or on-stream impoundment across a waterway shall be initially evaluated by the Village with respect to the potential need for an IDNR/OWR Class III Small Size Dam Permit in accordance with IDNR/OWR 3702 Rules. IDNR/OWR coordination and permitting will be required according to the parameters presented in Article §XI-113.T.2.
12. Prior to the commencement of any construction, modification, or removal of a dam (as defined by 17 Il. Adm. Code 3702), the developer shall obtain an IDNR/OWR permit or a letter indicating a permit is not required.
13. If the development is located within a public body of water, as defined by IDNR/OWR and pursuant to 17 Il. Adm. Code 3704, a permit or a waiver of a permit must also be received from IDNR/OWR.

TABLE XI-43A. Agency Floodway and Floodplain Permitting Authority

PERMIT REVIEW TASK	FLOOD FRINGE	DESIGNATED FLOODWAY PART 3708 RULES (2014)	REGULATORY FLOODPLAIN PART 3700 RULES ZONE A & TRIB D (FIRM SHADED X AREAS NORTH OF SAUK TRAIL)	FIRM SHADED ZONE X AREAS SOUTH OF SAUK TRAIL AND DEPRESSIONAL FLOODPLAIN
	Non-Delegated Community	Non-Delegated Community	Non-Delegated Community	For Watersheds < 640 Acres
Interpret FIRM/ FIS Base Flood Boundary Location and Elevation	Local Agency	Local Agency	Local Agency	Local Agency

PERMIT REVIEW TASK	FLOOD FRINGE	DESIGNATED FLOODWAY PART 3708 RULES (2014)	REGULATORY FLOODPLAIN PART 3700 RULES ZONE A & TRIB D (FIRM SHADED X AREAS NORTH OF SAUK TRAIL)	FIRM SHADED ZONE X AREAS SOUTH OF SAUK TRAIL AND DEPRESSIONAL FLOODPLAIN
	Non-Delegated Community	Non-Delegated Community	Non-Delegated Community	For Watersheds < 640 Acres
BFE Determination when not on FIRM or FIS	N/A	N/A	Best available information subject to IDNR approval/ Temporarily Use MWRD Inundation Maps/ FEMA Issuance required for floodway designation)	Local Agency
Appropriate Use and Activity Authorization	Local Agency SWM Permit	Local Agency SWM Permit	Local Agency SWM Permit as Authorized by Statewide Permits	Local Agency SWM Permit
Building Protection Standards	Local Agency SWM Permit	Local Agency SWM Permit	Local Agency SWM Permit	Local Agency SWM Permit
Compensatory Storage Authorization	Local Agency SWM Permit	Local Agency SWM Permit	Local Agency SWM Permit	Local Agency SWM Permit
IDNR Statewide Permits (Except #'s 9, 11 & 12)	N/A	N/A	Local Agency SWM Permit (Unless Exempted)	N/A
IDNR/OWR Regional Permit #3	N/A	Local Agency SWM Permit (Unless Exempted)	N/A	N/A
Bridge or Culvert and Stream Hydrology and Hydraulics	N/A	State Floodway Permit/ Local Agency SWM Permit	IDNR Authorization Letter or State Permit required when authorization is not granted for projects that do not meet Statewide Permit #9, 11, or 12 conditions/ Local Agency SWM Permit	Local Agency SWM Permit

PERMIT REVIEW TASK	FLOOD FRINGE	DESIGNATED FLOODWAY PART 3708 RULES (2014)	REGULATORY FLOODPLAIN PART 3700 RULES ZONE A & TRIB D (FIRM SHADED X AREAS NORTH OF SAUK TRAIL)	FIRM SHADED ZONE X AREAS SOUTH OF SAUK TRAIL AND DEPRESSIONAL FLOODPLAIN
	Non-Delegated Community	Non-Delegated Community	Non-Delegated Community	For Watersheds < 640 Acres
Building Flood Damage Source Review of Existing Bridge or Culvert	N/A	IDNR Submittal Review and Determination	IDNR Verification of Determination by P.E. As Required for Statewide Permit #12	Local Agency
Floodway Hydraulic Modifications	N/A	State Floodway Permit/ Local Agency SWM Permit	State Floodway Permit or waiver required for all non-qualifying Statewide Permit conditions/ Local Agency SWM Permit	Local Agency SWM Permit
CLOMR/LOMR	FEMA Issuance	IDNR Approval/ FEMA Issuance	IDNR Approval/ FEMA Issuance	N/A
Floodway Dam or On-stream Impoundment	N/A	State Dam Permit/ Local Agency SWM Permit	State Dam Permit/ Local Agency SWM Permit	Local Agency SWM Permit (subject to depth limitations)

B. General Floodplain Development Performance Standards. The following general performance standards are applicable to all development in a Designated Floodway, Regulatory Floodplain, and in any areas of inundation resulting from the Base Flood Elevation as determined in Section §XI-44 (Base Flood Elevation and Designated Floodway, and Regulated Floodplain Locations) of this Article, as well as for residential development within 100-feet of the floodplain. The standards of this section apply except when superseded by more stringent requirements in the subsequent sections.

1. No development (except as specifically permitted subject to limiting restrictions in §XI-47. C. (Appropriate Uses within a Designated Floodway) pertaining to new construction, reconstruction, or modification of bridges and culverts together with their approaching roadways), shall be allowed in Designated Floodways and Regulatory Floodplains that singularly or cumulatively creates an increase in flood stage or velocity off-site; or a damaging or potentially damaging increase in flood heights or velocity on-site; or creates a threat to public health, safety, and welfare.

2. For all projects involving a channel modification, fill, stream maintenance, or a levee, the flood conveyance and storage capacity of the Regulatory Floodplain shall not be reduced.
3. If the proposed development would result in a change in the designated floodplain or BFE, the applicant shall obtain a LOMR from FEMA. If the development will result in a cumulative increase in the BFE of more than 0.10 foot in the Regulatory Floodplain, a CLOMR must be obtained before any work is performed in the Regulatory Floodplain. No buildings may be built in the existing or proposed designated floodplain until the LOMR receives concurrence from IDNR/OWR and is issued by FEMA and unless the building meets all the building protection standards as prescribed in Section §XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas) of this Article. Proposed changes to the Designated Floodway delineation and the BFE must be submitted to IDNR/OWR for concurrence.
4. For public flood control projects, the floodplain management standards will be considered met if the applicant can demonstrate to IDNR/OWR that each of the following conditions are met:
 - a) Demonstrate by hydraulic and hydrologic modeling that the proposed project will not singularly or cumulatively result in increased flood heights outside the project site or demonstrate that any increases will be contained in easements for all flood events up to and including the base flood event.
 - b) Demonstrate that the project will be operated and maintained by a public agency.
 - c) Demonstrate that the project will reduce flood damage to an existing building or structure.
 - d) These standards do not preclude the design, engineering, construction, or financing, in whole or in part of a public flood control project by persons who are not public agencies.
5. These standards do not preclude the design, engineering, construction, or financing, in whole or in part of a public flood control project by persons who are not public agencies.

§ XI-44 Base Flood Elevation (BFE) and Designated Floodway or Regulatory Floodplain Locations

- A. This Article’s protection standard is based on the FIS for Cook County dated August 19, 2008, and the FIS for Will County dated February 15, 2019, and such amendments or revisions to such studies and associated FIRMs, as well as MWRD and WCSMC flood studies, all as may be prepared from time to time.
- B. The BFE shall be delineated onto the site topography to establish the regulatory floodplain area limits for regulation under this Article. Regulatory Floodplains shall be delineated onto the site map from the current FEMA FIRM, FIS 100-year flood profiles, LOMR or the MWRD Inundation Mapping where defined as applicable in this Article. The Village of Park Forest maintains copies of records of the historical and currently effective FIS and FIRM panels as well as LOMA’s, and LOMR’s for the community and adjacent unincorporated area in both Will County and Cook County.
 1. If a BFE or 100-year frequency flood elevation is not available for a particular site, then the protection standard shall be according to the best existing data available from federal, state, or other sources. For properties in Cook County within the Thorn Creek Tributary D Watershed, this source is the MWRD inundation mapping.
 2. When a party disagrees with the best available data, they shall submit a detailed engineering study needed to replace existing data with better data and submit it to IDNR/OWR and FEMA for review and consideration prior to any development of the site.
 3. These are the waterways with Designated Floodways for which the Village maintains FIS records: Thorn Creek, Deer Creek, Butterfield Creek, and the East Branch of Butterfield Creek.

4. The Designated Floodways and Regulatory Floodplains are delineated as SFHA's on the following maintained FIRM panels:
 - a) For incorporated Park Forest within Cook County: 17031C0739J, 17031C0743J, 17031C0802J, 17031C0806J, and 17031C0807J, of the Countywide FIRM for Cook County prepared by FEMA and dated August 19, 2008, and such amendments or revisions to such study or maps as may be prepared from time to time.
 - b) For incorporated Park Forest within Will County: 17197C0354G and 17197C0358G, of the Countywide Flood Insurance Rate Maps of Will County prepared by FEMA and dated February 15, 2019, and such amendments or revisions to such study or maps as may be prepared from time to time.
 - c) For unincorporated Cook County within the extraterritorial jurisdiction of the Village that may be annexed into the Village: 17031C0738J, 17031C0739J, 17031C0743J, 17031C0801J, 17031C0802J, 17031C0806J, and 17031C0807J of the Countywide FIRM for Cook County prepared by FEMA and dated August 19, 2008, and such amendments or revisions to such studies or maps as may be prepared from time to time.
 - d) For unincorporated Will County within the extraterritorial jurisdiction of the Village that may be annexed into the Village: 17197C0353G, 17197C0354G, 17197C0358G, 17197C0359G and 17197C0362G, of the countywide FIRMs of Will County prepared by FEMA and dated February 15, 2019, and such amendments or revisions to such study or maps as may be prepared from time to time.
5. When two floodway maps exist for a waterway, the more restrictive floodway limit shall prevail.

C. The BFE shall be:

1. For FEMA delineated SFHA "AE Zones", the BFE shall be the elevation of the base flood profile corresponding to the location of the development as indicated in the flood profiles in the FEMA FIS referenced above.
2. For FEMA delineated SFHA "AH Zones", the BFE shall be the base flood, or 100-year frequency flood elevation as noted on the FIRM panels referenced above.
3. For FEMA delineated SFHA "AO Zones", the BFE shall be the depth number shown on the FIRM panels referenced above added to the highest adjacent grade, or at least two feet above the highest adjacent grade if no depth number is provided; or
4. The BFE for each of the remaining delineated SFHA "A Zones" on the FIRM panels referenced above shall be according to the best existing data available from federal, state, or other sources. Should no other data exist, a site-specific floodplain study by a professional engineer using appropriate and acceptable hydrologic and hydraulic models must be financed by the applicant to determine applicable discharges and BFEs.
 - a) When the tributary watercourse drains more than 640 acres it is subject to the regulatory authority of the IDNR/OWR.
 - (1) The hydrologic and hydraulic model selection must be FEMA approved and shall be coordinated with IDNR/OWR to affirm its appropriateness for the watershed conditions considering compatibility with prior downstream modeling that may have been performed by others.
 - (2) The above analysis of the determined discharges and BFEs for the project site shall be submitted to the IDNR/OWR for concurrence.
 - b) When the tributary watercourse of a delineated SFHA "A Zone" is less than 640 acres, the review of applicable discharges and BFEs is coordinated through the Zoning Administrator.

- (1) Acceptable hydrologic models for determining peak flood discharges include: HEC-HMS, HEC-I, WinTR-20 or other techniques approved by the Zoning Administrator with acknowledged IDNR/OWR concurrence.
 - (2) Acceptable hydraulic backwater models include HEC-RAS, HEC-II, or WSP-2. Use of a dynamic model may be approved by the Zoning Administrator with acknowledged IDNR/OWR concurrence.
 - c) If the results of a SFHA 'Zone A' BFE determination result in the alteration of a delineated SFHA floodplain or floodway boundary on the applicable FIRM, the detailed study shall be submitted to IDNR/OWR and FEMA for review and consideration prior to development of the site.
5. The shaded Zone X flood-prone area indicated for Thorn Creek Tributary D north of Sauk Trail on the FIRM for Cook County exceeds 640 acres and shall be permitted as Regulatory Floodplain Part 3700 Rules governing the Occupation and Use of Floodplain Areas Where Floodways Are Not Identified. (See Article XI-48). The tentative conservative BFEs modeled on behalf of the MWRD and shown on the MWRD flood inundation mapping may be used to facilitate permitting on an interim basis until such time that model results using corrected reduced tributary watershed boundaries and Bulletin 75 flows have been accepted by IDNR and FEMA to reflect partial upstream tributary area flow diversion directly to Thorn Creek, as well as Tributary D inter-basin overflow to Butterfield Creek.
 6. When no base flood elevation exists for developments outside of a mapped Special Flood Hazard Area which is not subject to IDNR/OWR authority or FEMA regulations, the BFE shall be determined by a professional engineer using an appropriate model or techniques as defined above in C.4.b.
 7. For riverine flood-prone areas with greater than one hundred (100) acres of tributary drainage area, non-riverine flood-prone areas with greater than twenty (20) acres of tributary area, and non-riverine natural depressional areas with tributary areas less than 20 acres, the BFE determination shall be submitted to the Zoning Administrator for approval prior to issuance of a Stormwater Management Permit. BFE determinations shall be based on the critical duration event.
- D. The location of the Designated Floodway shall be as delineated on the FIRM as specified in § XI-44. B. The location of the Designated Floodway boundary shall be scaled onto the site plan using references common to both the map and the plan (typically the centerlines of adjacent roadways). Where an interpretation is needed to determine the exact location of the Designated Floodway boundary, IDNR/OWR should be contacted. If the tributary area to the downstream outlet of a site exceeds 640 acres but a floodway boundary has not been designated on the FIRM, the location of Regulatory Floodway shall be shown on the site plan based on either the best available BFE information or an IDNR/OWR approved flood study.
- E. If an area of the site is located within the Designated Floodway which is higher than the BFE, that area is subject to the floodway standards of §XI-47 (Occupation and Use of Designated Floodways), including the appropriate use criteria, until a LOMR is received from FEMA.
- F. Nothing contained herein shall prohibit the application of these regulations to land that can by engineering survey to lie within any Regulatory Floodplain. Conversely, any lands (except those located in a Designated Floodway) that can be demonstrated by a topographic survey certified by a professional engineer or registered land surveyor to lie beyond the Regulatory Floodplain, and show to the satisfaction of the Zoning Administrator, to have been higher than the BFE as of July 16, 1980 (the date of the first floodplain map depicting the site to be within a Special Flood Hazard Area) and as of the date of the current effective FIRM, shall not be considered to be located in the Special Flood Hazard Area.

§ XI-45 Occupation and Use of Flood Fringe Areas

Development in and/or filling of the flood fringe will be permitted if protection is provided against the base flood or 100-year frequency flood by proper elevation, appropriate compensatory storage is provided, and other applicable provisions of this Article are met. No use or defined development activity will be permitted which adversely affects the flood carrying capacity of waterways, drainage facilities or systems so as to increase potential flood damage, nor shall any development in the flood fringe create a threat to public health and safety. Developments located within the flood fringe shall meet the requirements of this section along with the requirements of §XI-50 (General Public Health and Safety Standards Applicable to All Floodplain Areas) and XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas).

A. Stormwater Management Permit

1. No person, firm, corporation, or governmental body not exempted by law shall commence any development in the floodplain without first obtaining a Stormwater Management Permit from the Zoning Administrator.
2. The application for a Stormwater Management Permit shall be made on a form provided by the Zoning Administrator.
 - a) The application shall include all the information stipulated in §§XI-70 – §XI-77 pertaining to Stormwater Management Permit Submittal Requirements.
 - b) For all proposed buildings, the elevation of the lowest floor (including basement) and lowest adjacent grade shall be shown on the submitted plans and the development will be subject to the protected buildings and other floodplain area permitting requirements of this Article.
3. Upon receipt of a development permit application, the Zoning Administrator shall compare the elevation of the site and the lowest floor elevations of any existing or proposed buildings on the site to the BFE,
 - a) The Zoning Administrator shall determine the applicability of the FEMA, IDNR/OWR, and Village floodplain and floodway management provisions of this article.
 - b) The Zoning Administrator shall review maintained documentation of the existing ground elevation at the development site and certify that the ground elevation for land proximate to a FIRM SFHA existed prior to July 16, 1980 (the effective date of the floodplain management regulation adopted by the Village).
 - (1) Any development located on land shown to be higher than the BFE of the current FIRM and which has not been filled after July 16, 1980 is not in the floodplain and, therefore, not subject to the requirements of this article except as it may apply to basement flood protection as defined in §XI-7.B.1.c pertaining to Building Permit Prerequisites.
 - (2) Any development located on land shown to be below the BFE that is hydraulically connected to the floodplain, but not shown on the current FIRM, is subject to the provisions of this Article.
4. The Zoning Administrator shall be responsible for obtaining from the applicant copies of all other federal, state, and local permits, approvals, or waivers that may be required for this type of activity. The Zoning Administrator shall not issue a Stormwater Management Permit unless all other federal, state, and local permits have been obtained.
5. Pursuant to FEMA requirements, the Zoning Administrator shall enforce a floodplain development construction schedule that is more restrictive than the schedule allowed for development activities outside the floodplain as defined in §IX.5.A (Construction Security) of the UDO.

B. Placement of Fill within the Floodplain

1. If fill is being used to elevate the site above the BFE of a FEMA Special Flood Hazard Area (SFHA), the applicant shall submit sufficient data and obtain a Letter of Map Revision (LOMR) from FEMA for the purpose of removing the site from the floodplain.
2. The displacement of existing floodplain storage volume shall be mitigated by providing compensatory floodplain storage according to the standards established in §XI-46 (Compensatory Storage Volume Standards).

C. Construction of a Non-residential Building under a LOMR Based on Fill

A person who has obtained a LOMR Based on Fill, which removes a site in the Regulatory Floodplain due to the use of fill to elevate the site above the BFE, may apply for a Stormwater Management Permit from the Village to construct the lowest floor of a non-residential building below the BFE in the Regulatory Floodplain in accordance with the building protection standards of §XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas).

1. The Zoning Administrator shall not issue such a permit unless the applicant has demonstrated that the building will be reasonably safe from flooding.
2. The Zoning Administrator shall require a professional certification from a qualified design professional that indicates the land or buildings to be removed from the SFHA are reasonably safe from both overland and seepage flooding according to the criteria established in FEMA Technical Bulletin (TB) 10. Professional certification may come from a professional engineer, professional geologist, professional soil scientist, or other design professional qualified to make such evaluations.
3. Foundation excavations shall not extend more than five feet beyond the foundation footprint.
4. Backfill for site areas beyond the minimum fill pad does not need to meet the compaction requirements.
5. The proposed fill material and building shall meet the guidelines and requirements set forth in FEMA (TB) 10.
6. The Zoning Administrator shall maintain records, including but not limited to, all correspondence, professional certification, existing and proposed grading, sump pump sizing, foundation plans, Elevation Certificates, compensatory storage calculations, soil testing and compaction data.

The grading plan for the site shall include drainage paths around the building and the finished grade of the ground surface shall slope away from the building.

§ XI-46 Compensatory Storage Volume Standards

- A. The displacement of conveyance capacity and associated lost storage due to the placement of fill within a Designated Floodway shall be compensated as prescribed in Section §XI-47. D.2. (Preservation of Floodway Storage so as not to Increase Downstream Flooding).
- B. Whenever any portion of a Regulatory Floodplain is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the BFE shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the BFE, recognizing that there is no effective storage beneath the OHWM of a stream or pond. The following standards apply within the Regulatory Floodplain:

1. Hydraulically equivalent compensatory storage volume will be required for development in a riverine Regulatory Floodplain and shall be at least equal to the Regulatory Floodplain flood storage volume displaced.
 - a. The storage volume displaced below the existing 10-year frequency flood elevation must be replaced below the proposed 10-year frequency flood elevation, recognizing that there is no effective storage beneath the OHWM. The storage volume displaced above the 10-year existing frequency flood elevation must be replaced above the proposed 10-year frequency flood elevation. Additional storage of not less than 25 percent of the net volume displaced shall be provided based upon the total volume filled below the BFE. The additional 25 percent need not be hydraulically equivalent.
 - b. All such excavation shall be constructed to drain freely and openly to the water course.
 - c. In the case of streams and water courses, such excavation shall be made opposite or adjacent to the areas so filled or occupied.
 - d. The volume of storage lost shall be calculated based on the existing BFE and the volume of compensatory storage shall be calculated based upon the final modeled water surface with the project BFE.
2. Compensatory storage volume for development in a non-riverine Regulatory Floodplain area that is also adjacent to a lake shall be equal to the storage volume displaced. Additional storage of not less than 25 percent of the net volume displaced shall be provided. The volume of storage lost shall be calculated based on the existing BFE and the volume of compensatory storage that is provided shall be calculated based upon the final grading design with the project's proposed BFE.
3. Compensatory storage volume requirements for development in a non-riverine Regulatory Floodplain that is not adjacent to a lake shall be replaced in accordance with the requirements for the loss of depressional storage in §XI-8. B (Requirements Applicable to all Development) of this Article. See also XI-49 (Flood-Prone Area Requirements).
4. Full compensatory storage shall not be required to elevate an existing structure to meet FEMA Building Protection Standards as defined in §XI-51 (Protecting Buildings and Vehicles in Floodplain Areas) for a pad extending 10 feet from the external limits of an existing building for pads that do not obstruct overland flow conveyance provided that the property owner pays the Village an amount equivalent to 200 percent of the amount established in §XI-121 (Site Runoff Storage Variance Fee Program) for "Fee-in-Lieu of Site Runoff Storage (Detention)" for the volume of floodplain displaced by the fill which cannot be reasonably excavated as compensatory storage on the building parcel.
5. The hydraulically equivalent compensatory storage areas shall be designed to drain freely and openly to the channel and shall be located adjacent to the development.
6. A recorded covenant running with the land is required to maintain the compensatory storage volume in areas modified to provide compensatory storage volume.

§ XI-47 Occupation and Use of Designated Floodways

This section applies to proposed development, redevelopment, site modifications or building modification within a Designated Floodway.

A. General Requirements

1. The Designated Floodways shall be as designated on the countywide FIRM of Cook County or Will County as referenced in §XI-44.B. (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations).

2. Permits will only be issued for appropriate uses of the Designated Floodway of which periodic inundation will not pose a danger to the general health and welfare of the user or require the expenditure of public funds or the provisions of public resources or disaster relief services or result in increased flood stages due to singular or cumulative loss of Designated Floodway storage or Designated Floodway conveyance or increases in flood velocities.
3. All Designated Floodway modifications shall be the minimum necessary to accomplish the purpose of the project.
4. The development shall also meet the requirements of Section §XI-50 (General Public Health and Safety Standards Applicable to All Floodplains) and Section §XI-51 (Protecting Buildings and Vehicles in all Floodplain Areas).
5. No permit from IDNR/OWR shall be required if the project meets IDNR/OWR Regional Permit No. 3 which authorizes the construction within Designated Floodway limits of underground and overhead utilities, storm and sanitary sewer outfalls and outlet channels, sidewalks, athletic fields (excluding fences), playground equipment, patios, shoreline and streambank protection, and minor non-commercial boat docks.
6. The repair, remodeling, or maintenance of existing structures, including fences, located within a Designated Floodway, built before November 18, 1987, are exempt from 17 Il. Adm. Code Part 3708, including the more restrictive Appropriate Use standards. Buildings are not exempt from Section §XI-51.A. (Protecting Buildings and Vehicles in All Floodplain Areas. All Buildings), including Substantial Damage and Substantial Improvement requirements, if enlarged, replaced, or structurally altered, and must meet the requirements of 17 Il. Adm. Code Part 3708.

B. State Floodway Permit and Village Stormwater Management Permit

1. No person, firm, corporation, or government body, not exempted by state law, shall commence any development in a floodway without first obtaining a State Floodway Permit from IDNR/OWR and a Stormwater Management Permit from the Village.
2. Applications for permit shall be made by submitting a completed application for permit form for a State Floodway Permit provided by IDNR/OWR. The application shall meet all requirements for a Floodplain/Floodway submittal as set forth in §XI-75 (Applications and Project Overview), those elements of §XI-76 (Stormwater Management Plan Submittal) pertaining to the waterway and its floodway and floodplain, and §XI-79 (Floodplain/Floodway Submittal).
 - a) All development in the Designated Floodway shall require either a State Floodway Permit or a "No Permit Required Determination" from IDNR/OWR and must be in accordance with all provisions of this Article and 17 Il. Adm. Code Part 3708, as a condition for obtaining the Village's Stormwater Management Permit.
 - b) No State Floodway Permit shall be required if the development meets Regional Permit No. 3, which authorizes, for example, underground and overhead utilities, storm and sanitary sewer outfalls, sidewalks, patios, athletic fields, playground equipment and streambank protection activities; and may be permitted without a Professional Engineer's review.
3. If the Designated Floodway delineation or BFE will change due to the proposed project, the application will not be considered complete until IDNR/OWR has indicated conditional approval of the Designated Floodway map change. No buildings may be built until a Letter of Map Revision (LOMR) has been approved by FEMA.
4. The Zoning Administrator shall be responsible for obtaining from the applicant copies of all other federal, state, and local permits and approvals that may be required for this type of activity.

- a) The Zoning Administrator shall not issue the Stormwater Management Permit for the development unless all required federal and state permits (including the State Floodway Permit) have been obtained.
- b) A Professional Engineer under the employ or contract of the Village shall review and approve applications reviewed under this section for the development's Stormwater Management Permit. This review shall affirm project compliance for appropriate uses within the Designated Floodway, building and vehicle protection standards, and compensatory storage, as well as an overview of those hydraulic conveyance elements addressed by IDNR/OWR.

C. Appropriate Uses within a Designated Floodway

1. Appropriate Uses

The only development in a Designated Floodway which will be allowed are appropriate uses which will not cause a rise in the BFE, and which will not create a damaging or potentially damaging increase in flood heights or velocities for all flood events up to and including the base flood. Proposed development within the Designated Floodway shall not create a threat to public health and safety and welfare; or impair the natural hydrologic or hydraulic functions of the floodway or channel; or permanently impair existing water quality or aquatic habitat. Construction impacts shall be minimized by appropriate mitigation methods as called for in this Article. Only those appropriate uses set forth in 17 Il. Adm. Code Part 3708, as amended, and listed below, will be allowed in the Designated Floodway. The approved appropriate Designated Floodway uses are as follows:

- a) Flood control structures, dikes, dams and other public works or private improvements relating to the control of drainage and flooding of existing buildings, erosion, water quality, or habitat for fish and wildlife.
- b) Structures or facilities relating to functionally water dependent uses such as pumping and water treatment facilities; additions, modifications, and improvements to existing wastewater treatment plants (except for additions to habitable structures on the site); facilities and improvements relating to recreational boating; and other functionally water dependent uses. (This does not include new wastewater treatment plants.)
- c) Storm and sanitary sewer outfalls that do not obstruct stream conveyance.
- d) Underground and overhead utilities.
- e) Recreational facilities such as playing fields, open pavilions, gazebos, and trail systems including toilet facilities (four stall maximum) that will not block flood flows nor reduce Regulatory Floodway storage. Associated related fencing must remain at least 50 percent open when viewed from any one direction and be installed parallel to the direction of flood flows (screening restrictions shall not apply to recreational facilities in flood fringe areas that are absent flow velocity).
- f) Detached garages, storage sheds, boat houses, or other non-habitable structures without sanitary facilities that are accessory to existing buildings and will not block flood flows nor reduce floodway storage.
- g) Bridges, culverts and associated roadways, sidewalks, and railways, required for crossing the floodway or for access to other appropriate uses in the floodway and any modification thereto.
- h) Parking lots built at, or below existing grade provided for which either:
 - (1) The BFE is less than nine inches above proposed parking spaces and less than one-foot in parking lot aisles; or

- (2) The parking lot is accessory to short-term outdoor recreational facilities and the owner agrees to restrict access during periods of inundation and agrees to accept liability for all damage caused by vehicular access during flooding events.
 - i) Aircraft parking aprons built at or below ground elevation where the depth of flooding during the Base Flood will not exceed one foot.
 - j) Designated Floodway grading, without fill, to create a positive non-erosive slope toward a channel.
 - k) Floodproofing activities to protect previously existing lawful buildings including the construction of water-tight window wells, elevating buildings, or the construction of flood walls or berms around residential, commercial, or industrial principal buildings where the outside toe of the floodwall shall be no more than 10 feet away from the exterior wall of the existing building, and which are not considered to be substantial improvements to the building.
 - l) The repair, replacement, or reconstruction of a damaged building, provided that the outside dimensions of the building are not increased. However, if the building was damaged to 50 percent of the building's market value as determined before the damage (from any source) occurred, the building will be protected from flooding to the FPE.
 - m) Modifications to an existing building that would not increase the enclosed floor area of the building below the BFE, and which will not block flood flows. Such modifications include fireplaces, bay windows, decks, patios, and second story additions. If the building is improved to 50 percent or more of the market value before the modifications occurred (i.e., a substantial improvement), the building will be protected from flooding to the FPE.
2. Excluded Uses within the Designated Floodway

Appropriate uses do not include the construction or placement of any new buildings, fill, building additions, buildings on stilts, excavation or channel modifications done to accommodate otherwise non-appropriate uses in the floodway. Inappropriate uses also include fencing, as well as landscaping or plantings designed to act as a fence, and storage of materials except as specifically defined above as an appropriate use. The storage of hazardous materials is expressly prohibited, both outdoors and indoors.

D. Engineering and Mitigation Criteria for Appropriate Uses within the Designated Floodway

Construction of an appropriate use within the Designated Floodway will be considered permissible, provided that the proposed project meets the following engineering and mitigation criteria and is so stated in writing with supporting plans, calculations, and data prepared and signed by a professional engineer and provided any building meets the protection requirements of § XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas).

1. Preservation of Flood Conveyance, so as Not to Increase Flood Stages Upstream.

For appropriate uses other than bridge or culvert crossings or on-stream structures or dams, all effective designated floodway conveyance lost due to the development of appropriate uses will be replaced for all flood events up to and including the base flood, per 17 II. Admin. Code 3708. In calculating effective designated floodway conveyance, the following factors shall be taken into consideration:

- a) Designated floodway conveyance, $"K" = (1.486/n) (AR^{2/3})$ where "n" is Manning's roughness factor, "A" is the effective flow area of the cross-section, and "R" is the ratio of the area to the wetter perimeter. (See Ven Te Chow, *Open Channel Hydraulics*, (McGraw-Hill, New York 1959)).
- b) The same Manning's "n" value shall be used for both existing and proposed conditions unless a recorded maintenance agreement with a federal, state, or local unit of government can assure

proposed conditions will be maintained or the land cover is changing from a vegetative to a non-vegetative land cover.

- c) Transition sections shall be provided and used in calculations of effective designated floodway conveyance. The following expansion and contraction ratios shall be used unless an applicant's engineer can prove to IDNR/OWR through engineering calculations or model tests that more abrupt transitions may be used with the same efficiency:
 - (1) When water is flowing from a narrow section to a wider section, the water should be assumed to expand no faster than a rate of one foot horizontal for every four feet of the flooded stream's length.
 - (2) When water is flowing from a wide section to a narrow section, the water should be assumed to contract no faster than a rate of one foot horizontal for each foot of the flooded stream's length.
 - (3) When expanding or contracting flows in a vertical direction, a minimum of one-foot vertical transition for every 10 feet of stream length shall be used.
 - (4) Transition sections shall be provided between cross-sections with rapid expansions and contractions and when meeting the designated floodway delineation on adjacent properties.
 - (5) All cross-sections used in the calculations shall be located perpendicular to flood flows.
2. Preservation of Floodway Storage so as Not to Increase Downstream Flooding.
 - a) Compensatory storage shall be provided for any designated floodway storage lost due to the proposed work from the volume of fill or structures placed and the impact of any related flood control projects as measured above the ordinary high-water mark of the waterway.
 - b) Compensatory storage for fill or structures shall be equal to 1.25 times the volume of the floodplain storage lost.
 - c) Artificially created storage lost due to a reduction in head loss behind a bridge shall not be required to be replaced.
 - d) The compensatory designated floodway storage shall be placed between the proposed normal water elevation and the proposed BFE. All designated floodway storage lost below the existing 10-percent annual chance flood elevation shall be replaced below the proposed 10-percent annual chance flood elevation. All Designated Floodway storage lost above the existing 10-percent annual chance flood elevation shall be replaced above the proposed 10-percent annual chance flood elevation. All such excavations shall be constructed to drain freely and openly to the watercourse.
 - e) If the compensatory storage will not be placed at the location of the proposed construction, the applicant's engineer shall demonstrate through a determination of flood discharges and water surface elevations that the compensatory storage is hydraulically equivalent.
 - f) There shall be no reduction in floodway surface area due to a floodway modification unless such modification is necessary to reduce flooding at an existing structure.
 3. Preservation of Floodway Velocities so as Not to Increase Stream Erosion or Flood Heights.
 - a) For all appropriate uses, except bridges or culverts or on-stream structures, the proposed work will not result in an increase in the average channel or designated floodway velocities or stage for all flood events up to and including the base flood event.
 - b) In the case of bridges or culverts or on-stream structures built for the purpose of backing up water in the stream during normal or flood flows, velocities may be increased at the structure site if scour, erosion, and sedimentation will be avoided by using riprap or other design measures.

4. Construction of New Bridges or Culvert Crossings and Roadway Approaches.
 - a) The proposed structure shall not result in an increase of upstream flood stages greater than 0.1 foot when compared to the existing conditions for all flood events up to and including the base flood event; or the upstream flood stage increases will be contained within the channel banks (or within existing vertical extensions of the channel banks) such as within the design protection grade of existing levees or floodwalls or within recorded flood easements.
 - b) If the proposed construction will increase upstream flood stages greater than 0.1 feet, the developer must contact IDNR/OWR to obtain a permit for a dam or waiver. The Director of the WCSMC shall be copied on all related correspondence.
 - (1) The engineering analysis of upstream flood stages must be calculated using the flood study flows, and corresponding flood elevations for tailwater conditions for the flood study specified in Section § XI-44.C. (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations) of this Article. Bridges and culverts must be analyzed using any commonly accepted FEMA approved hydraulic models.
 - (2) Lost regulatory floodway storage must be compensated for per above Subsection XI-47.C.2.a-f (Preservation of Floodway Storage...).
 - (3) Velocity increases must be mitigated per above Sub-section C3.b (Preservation of Floodway Velocities...).
 - (4) If the crossing is proposed over a public body of water that is used for recreational or commercial navigation, an IDNR/OWR permit must be received.
 - (5) The hydraulic analysis for the backwater caused by the bridge showing the existing condition and proposed regulatory profile must be submitted to IDNR/OWR for concurrence that a CLOMR is not required by Section 702.0. pertaining to
 - (6) All excavations for the construction of the new waterway crossing shall be designed per Section § XI-47. C.8 of this Article.

5. Reconstruction or Modification of Existing Bridges, Culverts, and Approach Roads.
 - a) The bridge or culvert and roadway approach reconstruction or modification shall be constructed with no more than 0.1-foot increase in backwater over the existing flood profile for all flood frequencies up to and including the base flood event if the existing structure is not a source of flood damage.
 - b) The determination as to whether or not the existing crossing is a source of flood damage and should be redesigned must be prepared in accordance with 17 Ill. Adm. Code Part 3708 (Floodway Construction in Northeastern Illinois) and submitted to IDNR/OWR for review, and concurrence must be received before a Stormwater Management Permit is issued by the Village. The Director of the WCSMC shall be copied on all related correspondence.
 - c) If the existing bridge or culvert and roadway approach is a source of flood damage to buildings in the upstream floodplain, the applicant's engineer shall evaluate the feasibility of redesigning the existing bridge or culvert and roadway approach to reduce the existing backwater, taking into consideration the effects on flood stages on upstream and downstream properties.

6. On-Stream Structures Built for the Purpose of Backing Up Water.
 - a) Any increase in upstream flood stages greater than 0.0 foot when compared to the existing conditions, for all flood events up to and including the base flood event shall be contained within the channel banks (or within existing vertical extensions of the channel banks) such as within the design protection grade of existing levees or floodwalls or within recorded flood easements.
 - b) A permit or letter indicating a permit is not required must be obtained from IDNR/OWR for any structure built for the purpose of backing up water in the stream during normal or flood flow.

- c) All dams and impoundment structures, as defined in the broad definition of dams shall meet the permitting requirements of 17 Ill. Adm. Code Part 3702 (Construction and Maintenance of Dams). If the proposed activity involves a modification of the channel or floodway to accommodate an impoundment, it shall be demonstrated that:
 - (1) The impoundment is determined to be in the public interest by providing flood control, public recreation, or regional stormwater detention.
 - (2) The impoundment will not prevent the migration of indigenous fish species, which require access to upstream areas as part of their life cycle, such as for spawning.
 - (3) The impoundment will not cause or contribute to degraded water quality or habitat conditions. Impoundment design should include gradual bank slopes, appropriate bank stabilization measures and a pre-sedimentation basin.
 - (4) A non-point source control plan has been implemented in the upstream watershed to control the effects of sediment runoff as well as minimize the input of nutrients, oil and grease, metals, and other pollutants. If there is more than one municipality in the upstream watershed, the municipality in which the impoundment is constructed should coordinate with upstream municipalities to ensure comprehensive watershed control.
 - (5) The project otherwise complies with the requirements of Section §XI-47 (Occupation and Use of Designated Floodways).
7. Excavation in the Floodway.
- a) When excavation is proposed in the design of bridges and culvert openings, including the modifications to and replacement of existing bridge and culvert structures, or to compensate for lost conveyance or other appropriate uses, transition sections shall be provided for the excavation.
 - b) The following expansion and contraction ratios shall be used unless an applicant's engineer can prove to IDNR/OWR through engineering calculations or model tests that more abrupt transitions may be used with the same efficiency:
 - (1) When water is flowing from a narrow section to a wider section, the water should be assumed to expand no faster than at a rate of one foot horizontal for every four feet of the flooded stream's length; and
 - (2) When water is flowing from a wide section to a narrow section, the water should be assumed to contract no faster than at a rate of one foot horizontal for each foot of the flooded stream's length; and
 - (3) When expanding or contracting flows in a vertical direction, a minimum of one-foot vertical transition for every ten feet of stream length shall be used; and
 - (4) Erosion/scour protection shall be provided in land upstream and downstream of the transition sections.
8. General Criteria for Analysis of Flood Elevations in the Designated Floodway
- a) The flood profiles, flows, and floodway data in the current effective FIS must be used for analysis of the base conditions. If the study data appears to be in error or conditions have changed, IDNR/OWR shall be contacted for approval and concurrence on the appropriate base conditions data to use. The Director of the WCSMC and the Zoning Administrator shall be copied on all related correspondence.
 - b) If the BFE at the site of the proposed development is affected by backwater from a downstream receiving stream with a larger drainage area, the proposed development shall be shown to meet the requirements of this section for the BFE's of the Designated Floodway conditions, as well as for conditions with the receiving stream at its ordinary high-water elevation.

- c) If the applicant is informed by IDNR/OWR, local governments, or a private owner that a downstream or upstream restrictive bridge or culvert is scheduled to be removed, reconstructed, modified, or a regional flood control project is scheduled to be built, removed, constructed, or modified within the next five years, the proposed development shall be analyzed and shown to meet the requirements of this section for both the existing conditions and the expected flood profile conditions when the affecting downstream bridge, culvert, or flood control project is built, removed, or modified as applicable.

9. Public Flood Control Projects

For public flood control projects, the permitting requirements of this section will be considered met if the applicant can demonstrate to IDNR/OWR through hydrologic and hydraulic calculations that the proposed project will not singularly or cumulatively result in increased flood heights outside the project right-of-way or easement for all flood events up to and including the 100-year frequency event.

10. Professional Engineer's Supervision

All engineering analyses shall be performed by or under the supervision of a Professional Engineer, or in the case of a federal project, by the federal agency and shall be so sealed or stated.

E. Letter of Map Revision (LOMR) and Conditional Letter of Map Revision (CLOMR)

If the appropriate use will result in a change in the Designated Floodway location or a change in the BFE, the applicant must obtain a Letter of Map Revision (LOMR) from FEMA. The process initially requires that the applicant obtain a CLOMR.

1. The applicant shall submit the information required to be issued a conditional concurrence of the Designated Floodway change and a CLOMR from IDNR/OWR and FEMA, respectively.
2. A public notice inviting public comment on the proposed change in the BFE, or location of the Designated Floodway may be issued by IDNR/OWR before a CLOMR is issued.
3. In the case of non-government projects, the Village shall concur with the proposed conditional Designated Floodway map revision before IDNR/OWR approval is issued.
4. No filling, grading, dredging, or excavating shall take place until conditional approval from both IDNR/OWR and FEMA is issued in the form of a CLOMR.
5. The receipt of a CLOMR is a pre-requisite for obtaining the Village's Stormwater Management Permit for the overall site development activity, subject to meeting all requirements for the Stormwater Management Permit.
6. After initial filling, grading, dredging, or excavating, no activities shall take place within the current FIRM's designated floodway limits until a final LOMR is issued by FEMA with concurrence from IDNR/OWR.
7. The Designated Floodway map will not be changed by FEMA until as-built plans or record drawings of initial filling, grading, dredging, or excavating activities are submitted and accepted by IDNR/OWR and FEMA. All field surveys shall be conducted under the supervision of a Professional Engineer or Registered Land Surveyor and shall be sealed.
8. No further development activities shall take place in the existing or proposed floodplain until a LOMR is issued by FEMA unless such activities meet all the requirements of §XI-45 (General Floodplain Development Performance Standards) of this Article.
9. The Director of the WCSMC shall be copied on all related correspondence.

F. Permits for Dams.

1. Any work involving the construction, modification or removal of a dam as defined in §XI-3 (Definitions) per 17 Ill. Adm. Code Part 3702 (Rules for Construction of Dams) shall obtain an IDNR/OWR permit prior to the start of dam construction. If the proposed development involves an impoundment, the design shall be assessed for compliance with dam safety requirements. (See §XI-113. T.2 (Duties of the Park Forest Zoning Administrator/Permits for Dams) for Class III Small Size Dam qualifying parameters.)
2. If the Zoning Administrator finds a dam that does not have an IDNR/OWR permit, they shall immediately notify the IDNR/OWR Bartlett office.
3. If the Zoning Administrator finds a dam which is believed to be in unsafe condition, they shall immediately notify the owner of the dam, the IDNR/OWR Bartlett office, and the Illinois Emergency Management Agency.

G. Activities That Do Not Require a Registered Professional Engineer's Review

Regional Permit No. 3 may be permitted without a Professional Engineer's review. For example, such projects include underground and overhead utilities, storm and sanitary sewer outfalls, sidewalks, patios, athletic fields, playground equipment and streambank protection activities. Such activities shall still meet the other requirements of this Article, including the mitigation requirements.

H. Development Activities in the Village within the Designated Floodway Requiring IDNR/OWR Review. As specified in 17 Ill. Adm. Code Part 3708, the following shall not be delegated from the State to the Village and shall be subject to IDNR/OWR review and permits:

1. IDNR/OWR projects, dams (as defined by 17 Ill. Adm. Code 3702) as well as all other applications for projects to be owned or funded by Federal, State, County Highway Department, County Forest Preserve District, the Will County Stormwater Management Commission, MWRD, School Districts, the Village of Park Forest, or other municipal agencies. (Of the above agencies, only the Illinois Department of Transportation has been delegated IDNR/OWR permit review authority for certain qualifying projects.)
2. An engineer's determination that an existing bridge or culvert crossing is not a source of flood damage and the analysis indicating the proposed flood profile, pursuant to above **Section C5.**
3. An engineer's determination that a proposed new bridge, affected by backwater from a downstream receiving stream, may be built with a smaller opening pursuant to above **Section C4.**
4. An analysis of alternative transition sections and hydraulically equivalent storage pursuant to above **Sections C1, C2, and C8.**
5. Projects which revise or establish the floodway and/or flood profiles.

§ XI-48 Occupation and Use of Floodplain Areas Where Floodways Are Not Identified

In IDNR/OWR Regulatory Floodplains (including AE, AH, AO, and Unnumbered A Zones) where no floodways have been identified or no BFEs have been established by FEMA, and which drain more than a square mile, no development shall be permitted unless the cumulative effect of the proposals, when combined with all other existing and anticipated uses and structures, shall not significantly impede or increase the flow and passage of the floodwaters nor significantly increase the BFE. The development shall meet all requirements of 17 Ill. Adm. Code Part 3700 and § XI-43B (General Floodplain Development Performance Standards) of this Article.

- A. The applicant shall obtain a State Floodway Permit for all development in which any portion of the development site is located partially or completely within the Regulatory Floodplain (without a Designated Floodway) with a tributary drainage area of 640 acres or more. Alternatively, the

applicant shall obtain a determination letter stating that a State Floodway permit is not required. The resulting IDNR/OWR decision documentation is a pre-requisite for obtaining a Stormwater Management Permit from the Village for the development.

1. Those projects involving the hydraulic modification of the waterway carrying the full 640-acre tributary watershed such as for bridges, culverts, dams, impoundments, bank stabilization and channel relocation or dredging will typically require an INWR/OWR permit.
2. Those projects adjacent to a waterway that potentially alter the flood carrying capacity of the waterway will likely require an IDNR/OWR permit.
3. Any development determined by IDNR/OWR to be located entirely within a flood fringe area of ineffective flow shall qualify for a determination that an IDNR/OWR permit is not required.
4. If the proposed development would result in a change in the mapped Regulatory Floodplain or BFE on a site, the applicant shall submit sufficient data to FEMA to obtain a Letter of Map Revision (LOMR). IDNR/OWR concurrence is required for changes to the BFE and floodway delineation prior to the submittal to FEMA.

B. No development within a Regulatory Floodplain may commence without obtaining a Stormwater Management Permit from the Village.

1. The application for a Stormwater Management Permit shall meet the requirements of §XI-43. B pertaining to General Floodplain Development Performance Standards.
2. The application content shall include the following elements required for a floodplain/floodway submittal:
 - a) §XI-75 (Applications and Project Overview),
 - b) Those elements of § XI-76 (Stormwater Management Plan Submittal) pertaining to the waterway and its floodway and floodplain,
 - c) §XI-79 (Floodplain/Floodway Submittal).
 - d) §XI-46 (Compensatory Storage Volume Standards),
 - e) §XI-50 (General Public Health and Safety Standards Applicable to All Floodplain Areas),
 - f) §XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas),
 - g) §XI-7. A (Building Elevation Certification),
 - h) A seeding or stabilization plan for the disturbed area in accordance with § XI-38 to § XI-40 (Soil Erosion and Sediment Control Requirements) or as required for wetland preservation, as applicable.
 - i) A Professional Engineer's written certification, accompanied by supporting plans and calculations, stating that the project meets the requirements of Section XI-38.C. (Soil Erosion and Sediment Control Requirements).
3. Based on the best available data according to federal, State of Illinois Water Survey Floodplain Information Repository, or other sources, the Zoning Administrator shall compare the elevation of the site to the BFE.
 - a) Should a BFE information not exist for the site, the developer's engineer shall calculate the BFE according to Section § XI-44 C. (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations).
 - b) Any development located on land that can be shown to have been higher than the BFE prior to the July 16, 1980 date of the initial FIRM for the Village is not in the floodplain and, therefore, not subject to the floodplain development restrictions of this article.
 - c) The Zoning Administrator shall maintain documentation of the existing ground elevations at the development site and certification that this ground elevation existed prior to July 16, 1980.

- d) The Zoning Administrator shall be responsible for obtaining from the applicant copies of all other federal, state, and local permits and approvals that may be required for this type of activity.
 - e) The Zoning Administrator shall not issue the Stormwater Management Permit unless all required federal and state permits (including the State Floodway Permit) have been obtained.
 - f) A Professional Engineer under the employ or contract of the Village shall review and approve applications reviewed under this section for the development's Stormwater Management Permit. This review shall affirm project compliance for appropriate uses within the regulated floodplain, building and vehicle protection standards, and compensatory storage, as well as an overview of those hydraulic conveyance elements addressed by IDNR/OWR.
- C. Engineering and Mitigation Criteria for Appropriate Uses within the Regulated Floodplain
1. No development in the Regulatory Floodplain, where a floodway has not been determined, shall create a damaging or potentially damaging increase in flood heights or velocity or threat to public health, safety and welfare or impair the natural and hydraulic functions of the floodway or channel or impair existing water quality or aquatic habitat. Construction impacts shall be minimized by appropriate mitigation measures as called for in this Article.
 2. Within all riverine floodplains where the floodway has not been determined, the following standards shall apply:
 - a) The developer shall have a professional engineer state in writing and show through supporting plans, calculations, and data meets the requirements for the construction of an appropriate use within a Designated Floodway as prescribed in §XI-46 (Compensatory Storage Volume Standards) and in §XI-47.D. (Engineering and Mitigation Criteria for Appropriate Uses within the Designated Floodway) of this Article as applied for the entire floodplain to the limits and BFE defined in §XI-44 (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations). The documentation will demonstrate that the proposed development will maintain the existing conditions conveyance, will not increase flood velocities, will not increase flood profiles, and will compensate for any lost floodplain storage.
 - i. For the portion of Thorn Creek Tributary D located north of Sauk Trail the BFE shall be as determined in §XI-44.C.5. (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations). This Regulated Floodplain is reliant upon the conservative modeled information used to generate the MWRD Inundation Mapping. It shall be used on a temporary basis until the tributary watershed is remodeled with corrected tributary watershed boundaries and includes inter-basin overflow to Butterfield Creek, which limits maximum attained flood elevations.
 - ii. For other typical delineated SFHA Zone A Regulated Floodplains, the BFE for which the §XI-47.D. (Engineering and Mitigation Criteria for Appropriate Uses within the Designated Floodway) criteria are applied shall be as calculated in §XI-44.C.4. (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations).
 - b) As an alternative, the developer should have an engineering study performed to determine a floodway and submit that engineering study to IDNR/OWR and FEMA for acceptance as a Designated Floodway.
 - c) Upon acceptance of the floodway by IDNR/OWR and FEMA, the developer shall then demonstrate that the project meets the requirements for the construction of an appropriate use within a Designated Floodway as prescribed in §XI-47 (Occupation and Use of Designated Floodways) of this Article.
 3. Permits for Dams.

- a) Any work involving the construction, modification or removal of a Dam as defined in §XI-3 per 17 Ill. Adm. Code Part 3702 (Rules for Construction of Dams) shall obtain an IDNR/OWR permit prior to the start of dam construction. If the proposed development involves an impoundment, the design shall be assessed for compliance with dam safety requirements. (See §XI-113.T.2 for Class III Small Size Dam qualifying parameters.)
 - b) If the Zoning Administrator finds a dam that does not have an IDNR/OWR permit, the Zoning Administrator shall immediately notify the IDNR/OWR Bartlett office.
 - c) If the Zoning Administrator finds a dam which is believed to be in unsafe condition, the Zoning Administrator shall immediately notify the owner of the dam, the IDNR/OWR Bartlett office, and the Illinois Emergency Management Agency.
- D. The following activities characteristic with local municipal conditions may be permitted by the Village without a Professional Engineer’s review or calculation of BFE and Designated Floodway. Such activities shall still meet the other requirements of this Article.
- 1. Aerial utility crossings meeting conditions of IDNR/OWR Statewide Permit No. 4.
 - 2. Minor boat docks meeting conditions of IDNR/OWR Statewide Permit No. 5.
 - 3. Minor, non-obstructive activities meeting conditions of IDNR/OWR Statewide Permit No. 6 activities (not involving fill or positive change in grade) are covered by this permit.
 - 4. Outfall Structures and drainage ditch outlets meeting 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. Authorizing accessory structures and additions to existing residential buildings meeting the conditions of IDNR/OWR Statewide Permit No. 10.
 - 8. Minor maintenance dredging activities meeting conditions of IDNR/OWR Statewide Permit No. 11.
 - 9. Bridge and culvert replacement structures and bridge widenings meeting conditions of IDNR/OWR Statewide Permit No. 12.
 - 10. Temporary construction activities meeting conditions of IDNR/OWR Statewide Permit No. 13.
 - 11. Special Uses of Public Waters meeting conditions of IDNR/OWR Statewide Permit No. 14.C. The flood carrying capacity of any altered or relocated watercourse shall be maintained.
- E. Compensatory storage for displaced floodplain volumes shall be provided as defined in §XI-46 (Compensatory Storage Volume Standards).

§ XI-49 Flood-Prone Area Requirements

The performance standards of this section apply to developments located in flood-prone areas less than 640 acres or in natural depressional storage areas, as specified.

A. Flood Carrying Capacity

The flood carrying capacity shall be provided and maintained for waterways with flood prone areas draining a tributary area of twenty (20) acres or more (Stormwater Conveyance Systems).

- 1. For developments within flood prone areas where the tributary area is one hundred (100) acres or more, the applicant shall submit an engineering study performed by a Professional Engineer which will determine a BFE and demonstrate that the proposed development will maintain existing conditions of conveyance, will not increase flood velocities, will not increase flood profiles and will provide hydraulically equivalent compensatory storage at a ratio of 1.1:1. Such compensation areas shall be designed to drain freely and openly to the channel and be located opposite or

adjacent to fill areas. Exceptions to flood profile and velocity increases may be considered by the Village Engineer if the impacts of the increases can be confined within the development site.

2. For developments within flood prone areas where the tributary area is more than twenty (20) acres but less than one hundred (100) acres, the applicant shall submit an engineering study performed by a Professional Engineer which will determine a BFE for the existing undeveloped condition as well as a BFE for the developed condition demonstrating that the proposed development will maintain the waterway's carrying capacity across the site without reducing its natural storage volume or causing an increase of its flood profile elevation beyond the property boundary.
3. For development sites that include non-riverine natural depressional storage, the applicant shall submit an engineering study demonstrating that the proposed design meets the requirements of §XI-8.B. (Requirements Applicable to All Development) pertaining to the preservation of natural depressional storage.

B. Public Health Protection Standards

The portions of development sites within a flood prone area as defined by the limits of inundation of the proposed BFE shall meet § XI-50 (General Public Health and Safety Standards Applicable to All Floodplain Areas).

C. Building and Vehicle Protection Standards.

1. The building protection standards shall be as required in §XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas); however, the standards shall only be applicable to new construction and shall not be applicable to additions or substantial improvements to buildings within flood prone areas, provided that the BFE of the flood profile as determined for the development is not raised.
2. If the proposed BFE is raised in a manner that causes an existing building to no longer meet the FPE freeboard established for the building, then the existing building shall be elevated or floodproofed as a condition for issuance of the Stormwater Management Permit.
3. Additions to existing buildings that have lowest foundation opening elevations below the FPE may be permitted provided the elevation is above the BFE.
4. Accessory structures and attached garages may be constructed with the lowest floor below the FPE in accordance with the following:
 - a) The building shall not be used for human habitation,
 - b) The structure shall be anchored to prevent flotation, and
 - c) Service facilities such as electrical and heating equipment is elevated, or the structure is flood proofed to the FPE.
5. Vehicle protection is provided as required in §XI-51. I.

§ XI-50 General Public Health and Safety Standards Applicable to All Floodplain Areas

The following public health and safety standards shall be met as requirements for development in flood fringes, Designated Floodways, and floodplains where no floodways have been identified in addition to those specifically addressed in Articles §XI-45 (Occupation and Use of Flood Fringe Areas), §XI-47 (Occupation and Use of Designated Floodways), §XI-48 (Occupation and Use of Floodplain Areas Where Floodways are Not Identified), and §XI-49 (Flood-Prone Area Requirements).

- A.** No developments in the floodplain shall include locating or storing chemicals, explosives, buoyant materials, animal wastes, fertilizers, flammable liquids, pollutants, or other hazardous or toxic materials below the FPE unless such materials are stored in a floodproofed and anchored storage tank and certified by a Professional Engineer or inside a floodproofed building constructed according to the

requirements of this Article. Hazardous materials may be stored indoors above the FPE, subject to applicable fire code regulations.

- B. Public utilities and facilities such as sewer, gas and electric shall be located and constructed to minimize or eliminate flood damage.
- C. Public sanitary sewer systems and water supply systems shall be located and constructed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.
- D. New and replacement water supply systems, wells, sanitary sewer lines may be permitted providing all manholes or other above ground openings located below the FPE are watertight. New or replacement on-site sewer lines and structures shall be located and constructed to avoid impairment to them or contamination from them during flooding.
- E. Where sanitary sewers are not proximately available new onsite waste disposal systems, such as septic systems, are allowed within the regulatory floodplain only if they meet all the following conditions:
 - 1. The invert of any wastewater distribution line shall be a minimum of two-feet above the base flow of any proximate perennial stream.
 - 2. The lateral distance from any ditch, creek, or other riverine source to the wastewater distribution lines shall be a minimum of 75 feet.
 - 3. The elevation of any areas which are to receive wastewater distribution shall be above the OHWM of the stream.
 - 4. The soil of the receiving field shall be of a type suitable for septic fields.
 - 5. The tank shall be placed out of the floodplain with the invert of the outlet above the BFE.
 - 6. Compensatory floodplain storage shall be provided for any displaced floodplain storage required in association with the distribution field installation.
 - 7. Permitting for the on-site waste disposal system shall be separately authorized by the applicable Will County or Cook County Health Department.
- F. All other activities, defined as development, such as pools, fences, filling, paving, etc., shall be designed so as not to alter flood flows or increase potential flood damages.
- G. Carrying Capacity
For all projects involving channel modification, fill, or stream maintenance (including levees), the flood carrying capacity of the watercourse shall be maintained.
- H. Temporary stream crossings during construction for construction vehicles
Construction vehicles shall cross streams by the means of existing bridges or culverts. Where an existing crossing is not available, a temporary crossing that has been issued a permit or waiver by IDNR/OWR and the ACOE shall be constructed in which:
 - 1. The approach roads will be 0.5 feet or less above existing grade.
 - 2. The crossing will allow stream flow to pass without backing up the water above the stream bank vegetation line or above any drainage tile or outfall.
 - 3. The top of the roadway embankment fill within the channel will be at least two feet below the top of the lowest bank. Any fill in the channel shall be non-erosive material, such as riprap or gravel.
 - 4. The access road and temporary crossings will be removed within the time frame established by the terms and conditions of any issued IDNR/OWR or ACOE permit providing that the removal is also

within one year after installation unless an extension of time is granted by the Zoning Administrator.

I. Notification of Adjacent Communities

The Village shall notify adjacent communities in writing 30 days prior to the issuance of a permit for the alteration or relocation of the watercourse.

§ XI-51 Protecting Buildings and Vehicles in All Floodplain Areas

A. All Buildings

All buildings located within a floodplain shall be protected from flood damage below the FPE as established in §XI-3 (Definitions) for individual waterways, floodplains, and stormwater management design conditions within the Village. This building protection criteria applies to the following situations:

1. New construction or placement of a new building or alteration or addition to an existing building by more than 70 square feet.
2. Substantial improvements, including any combination of alteration, repair, rehabilitation, reconstruction, addition, or other improvements made to an existing building that equals or exceeds the market value by 50 percent, or that increases the floor area by more than 20 percent. Alteration shall be figured cumulatively within 10-year periods. If the extent of construction activities constitutes a substantial improvement, the existing building and the addition must meet the flood protection elevation.
3. Any repairs made to a substantially damaged building. Substantial damage shall be figured cumulatively within 10-year period by comparing the cost to repair the building to its pre-damage condition with the market value of the building immediately prior to the damage, for each event in which the building sustains damage, and adding the percentages of damage for each event. If substantially damaged, the entire building must meet the flood protection standards of this section.
4. Repetitive loss to an existing building as defined in Section §XI-3 (Definitions) shall trigger the required building protection compliance.
5. Installing a manufactured home on a new site or a manufactured home on an existing site. (The building protection requirements do not apply when returning a manufactured home to the same site it lawfully occupied before it was removed to avoid flood damage).
6. Installing a travel trailer or recreational vehicle on a site for more than 180 consecutive days (or 180 days in any calendar year); and

B. Residential Buildings

The lowest floor (including basement) of new construction of residential buildings, and substantially improved residential buildings, must be elevated to the FPE, subject to the more specific additional requirements associated with conditions as identified below.

1. On Fill

If fill, including grading to redistribute onsite material to alter existing topography, is used as a means of elevation:

- a) The lowest floor (including basement) shall be at or above the FPE.
- b) The fill shall be placed in layers no greater than six inches before compaction and must extend at least 10 feet beyond the foundation before sloping below the FPE.

- c) The top of the fill adjacent to the foundation shall be above the FPE. However, the 10 foot minimum may be waived if a structural engineer certifies an alternative method to protect the building from damages due to hydrostatic pressures.
 - d) The floor of an attached garage shall be at least 0.2 foot above the BFE.
 - e) The fill shall be demonstrated not to settle below the FPE adjacent to the foundation of a residential structure and not below 0.1 feet above the BFE for an attached garage.
 - f) The fill shall be protected against erosion and scour during flooding by vegetative cover, riprap, or other structural measure.
 - g) The fill shall be composed of clean rock or soil and not include debris or refuse material.
 - h) The fill shall be sloped to drain away from the building face.
 - i) The fill shall not adversely affect the flow of surface drainage from or onto neighboring properties.
2. Elevated by Foundation above Open Space.
- If the building's lowest floor is elevated above ground level with an enclosed or unenclosed area below the lowest floor:
- a) The building shall be elevated on piles, walls, columns, crawlspace, or other foundation that is permanently open to floodwaters.
 - b) All enclosed areas below the FPE shall provide for equalization of hydrostatic pressures by allowing the automatic entry and exit of floodwaters. Each wall must have a minimum of one permanent opening that is below the BFE and no more than one foot above finished grade. The openings shall provide a total net area of not less than one square inch for each one square foot of enclosed area subject to flooding below the BFE, or the design must be certified by a Professional Engineer as providing the equivalent performance in accordance with accepted standards of practice. Refer to FEMA TB 1, 'Openings in Foundation Walls and Walls of Enclosures', for additional guidance.
 - c) All electrical, heating, ventilating, plumbing, and air conditioning equipment and utility meters shall be located at or above the FPE.
 - d) The building, foundation, and supporting members shall be adequately anchored to prevent flotation, collapse, or lateral movement of the building resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, and be designed so as to minimize exposure to current, waves, ice, and floating debris.
 - e) All building components below the FPE shall be constructed of materials resistant to Flood damage.
 - f) Water and sewer pipes, electrical and telephone lines, submersible pumps, and other service facilities may be located below the FPE provided they are waterproofed.
 - g) The area below the FPE shall be used solely for parking or building access and not later modified or occupied as habitable space.
3. Elevation by Crawlspace Construction
- If the floor of any area of a building below the lowest floor is proposed to be below grade on all sides, typical for crawlspace construction, the building shall meet the requirements of this Ordinance and FEMA TB 11 'Crawlspace Construction for Buildings Located in Special Flood Hazard Areas'. The building, while NFIP compliant, will be considered to have a basement for NFIP insurance purposes.
- a) The building shall be designed and adequately anchored to resist flotation, collapse, and lateral movement of the building resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
 - b) All enclosed areas below the FPE shall provide for equalization of hydrostatic pressures by allowing the automatic entry and exit of floodwaters. Each wall must have a minimum of one

permanent opening that is below the BFE and no more than one foot above finished grade. The openings shall provide a total net area of not less than one square inch for each one square foot of enclosed area subject to flooding below the BFE, or the design must be certified by a Professional Engineer as providing the equivalent performance in accordance with accepted standards of practice. Refer to FEMA TB 1, 'Openings in Foundation Walls and Walls of Enclosures', for additional guidance.

- c) Per FEMA TB 11, the crawlspace shall be designed so that:
 - i. The interior grade of the crawlspace floor below the FPE must not be more than two feet below the lowest adjacent grade.
 - ii. The interior height of the crawlspace measured from the interior grade of the crawl to the top of the foundations wall must not exceed four feet at any point.
 - iii. An adequate drainage system must be installed to remove floodwaters from the interior area of the crawlspace within 96 hours after a flood event.
 - iv. The velocity of floodwater at the site shall not exceed five feet per second.
- d) Portions of the building below the FPE must be constructed with materials resistant to flood damage.
- e) Utility systems within the crawlspace must be elevated above the FPE.

C. Non-residential Buildings

The lowest floor (including basement) of new construction of nonresidential buildings, and substantial improvement of nonresidential buildings, must either (1) be elevated to or above the FPE, subject to the more specific additional requirements of Sections B.1 through B.3 above; or (2) be structurally dry-floodproofed (in lieu of elevation), provided a Professional Engineer or architect submits a FEMA Floodproofing Certificate, documenting that the Professional Engineer or architect developed and/or reviewed the structural design, specifications, and plans for construction, and that the engineer or architect certifies that the design and methods of construction are in accordance with accepted standards of practice for meeting the requirements of ASCE 24-14 and the requirements listed below:

1. Below the FPE, the building and attendant utility and sanitary facilities are watertight with walls substantially impermeable to the passage of water and structural components capable of resisting hydrostatic and hydraulic loads and the effects of buoyancy.
2. The building design accounts for flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy, and impact from debris and ice.
3. Floodproofing measures will be incorporated into the building design and operable without human intervention and without an outside source of electricity.
4. The building, utility, and sanitary facilities' design and construction will prevent the effect of sewer backup into the building.
5. Levees, berms, floodwalls, and similar works are not considered floodproofing for the purpose of this Article.

D. Permanent Manufactured Homes

All placement of manufactured homes and/or travel trailers, to be permanently installed on site for more than 180 consecutive days (or 180 days in any calendar year), shall be:

1. Elevated to or above the FPE using a support and anchoring system, designed by a Professional Engineer pursuant to 77 Ill. Adm. Code § 870.110.
2. 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 § 870.220.

E. Recreational Vehicles

Recreational vehicles and/or travel trailers, on site for more than 180 consecutive days (or 180 days in any calendar year), shall meet the elevation requirement and anchoring requirements of above §XI-51.D unless the following conditions are met:

1. The vehicle must be either self-propelled or towable by a light duty truck.
2. The vehicle must not be attached to any permanent additions or external structures, such as decks and porches.
3. The vehicle must be designed solely for recreation, camping, travel, or seasonal use rather than as a permanent dwelling. The vehicle shall not have a total area exceeding 400 square feet measured when all horizontal projections are fully expanded.
4. The vehicle's wheels must remain on axles and have inflated tires.
5. Any air conditioning units must be attached to the frame so as to be safe for movement out of the floodplain.
6. The vehicle must be attached to a site only by quick disconnect type utilities and security devices. Utility connections include, but are not limited to, propane tanks, electrical and sewage.
7. The vehicle must be licensed and titled as a recreational vehicle or park model and must either be entirely supported by jacks, or have a hitch jack permanently mounted, have the tires touching the ground and be supported by block in a manner that will allow the block to be easily removed by use of the jacks/hitch jack.

F. Accessory Structures

1. Detached garages, car ports, or sheds constructed ancillary to an existing residential use may be constructed with the lowest floor below the FPE provided the following conditions are met:
 - a) The building must not be constructed and used for habitation, must not include areas intended or used for living, sleeping, eating, or cooking, and must not include bathrooms, toilet rooms, or shower rooms.
 - b) All areas below the BFE shall be constructed with flood-resistant materials.
 - c) A building permitted as a garage must be used only for the storage of vehicles and tools and cannot be modified later into another use. It may not contain workshops, greenhouses, or other similar uses.
 - d) The building shall be located outside of the designated floodway unless the building can be constructed and placed on a building site so as not to block flood flows nor reduce floodway storage. It shall also meet the appropriate use criteria of §47.B.1 and all other applicable requirements of this Article.
 - e) All electrical lines, switches, receptacles, and fixtures must be located above the FPE except to the minimum extent required by applicable building or life-safety codes. Any switches, receptacles, and/or fixtures required by applicable building or life-safety codes to extend below the FPE shall be rated, or located in enclosures rated, for prolonged submersion.
 - f) No plumbing, heating, or air conditioning shall be permitted in garages, sheds, or other minor accessory structures shall be allowed to be wet floodproofed under this subsection for protection of accessory structures in lieu of elevation.
 - g) The building must have at least one permanent opening on each wall below the BFE and not more than one foot above the finished, outside grade with one square inch of opening for each one square foot of floor area.
 - h) The building shall not exceed 600 square feet and shall not include a basement.
 - i) The building shall be anchored to resist floatation and overturning.

- j) All flammable or toxic materials (gasoline, paint, insecticides, fertilizers, etc.) shall be stored above the FPE.
 - k) The lowest floor elevation should be documented, and the owner advised of the flood insurance implications of building with the lowest flood below the BFE.
2. The above accessory structures, as well as other minor accessory structures such as a gazebo or picnic pavilion constructed ancillary to an existing residential use or public recreational use and having greater size as allowed pursuant to the zoning provisions of the PFUDO may be constructed outside of any designated floodway, including within the horizontal limits of a floodplain, provided the accessory structures are dry-proofed or elevated to an FPE at least 0.5 feet above the BFE.

G. Grading Requirement

In floodplain Zones AO and AH, drainage paths shall be provided around buildings on sloped ground to guide water away from the buildings.

H. Existing Buildings within Designated Floodway

- 1. Existing buildings located within a designated floodway shall also meet the more restrictive appropriate use standards included in §XI-47 (Occupation and Use of Designated Floodways) and the building permit prerequisites established in §XI-7 (Building Permit and Occupancy Prerequisites).
- 2. Non-conforming buildings located in a designated floodway may remain in use and may only be enlarged, replaced, or structurally altered in accordance with §XI-47.B. (State Floodway Permit and Village Stormwater Management Permit).
- 3. A non-conforming building damaged by flood, fire, wind or other natural or man-made disaster may be restored unless the damage exceeds 50 percent of its market value before it was damaged, in which case it shall conform to this Article.

I. Critical Facilities

New construction or substantial improvement of critical facilities shall be located outside the limits of the floodplain. Such facilities should be located to avoid impairment to the facility or contamination of floodwaters during the 0.2 percent flood event. Construction of new critical facilities shall be permissible within the floodplain if no feasible alternative site is available.

- 1. Critical facilities constructed within the SFHA shall have the lowest floor (including basement) elevated or structurally dry floodproofed to the 0.2 percent chance flood elevation or three feet above the BFE whichever is greater. Critical facilities may include the following: emergency services facilities (such as fire and police stations), schools, sewage treatment plants, water treatment plants, sanitary pumping stations, hospitals, retirement homes, senior care facilities, major roads and bridges, critical utility sites (telephone switching stations or electrical transformers), and hazardous material storage facilities (chemicals, petrochemicals, hazardous or toxic substances).
- 2. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.
- 3. Access routes elevated to or above the level of the BFE shall be provided to all critical facilities.
- 4. As necessary, adequate parking, at or above the BFE, shall be provided for staffing of the critical facilities during a flood.

J. Vehicle Protection

- 1. The maximum flow depth for transverse crossings of roadways shall not exceed the crown of the road by more than six-inches for the base flood condition and shall meet the design criteria for overland flow along a roadway as established in §XI-15.B. (Major Stormwater System Criteria).

2. Parking lots may be constructed within the flood fringe provided that the BFE is not more than nine inches above the parking spaces within the proposed parking lot and not more than one foot above pavement areas required for access to the parking spaces.
3. Truck docks and truck queuing areas may be constructed within the flood fringe provided that the lowest elevation of the ramp leading to the truck dock is not lower than the two-year flood elevation of the adjacent stream or impoundment and the dock entrance to the building is at or above the FPE.

§ XI-52 Subdivision Requirements Involving Floodplain Areas

The Village shall consider and address flood hazards, to the extent that they are known, by all official actions related to land management, use, and development.

- A. New subdivisions, manufactured home parks, annexation agreements, and planned unit developments (PUDs) within the SFHA shall be reviewed to assure that the proposed developments are consistent with §§XI-43 to XI-51 (Floodplains and Floodways) of this Article and the need to minimize flood damage. Plats or plans for new subdivisions and PUDs, shall include a signed statement by a licensed professional engineer that the plat or plans account for changes in the drainage of surface waters in accordance with the Illinois Plat Act, 765 ILCS 205/2, as amended.
- B. Proposals for new subdivisions, manufactured home parks, travel trailer parks, PUDs, and additions to subdivisions shall include BFE data and floodway delineations as determined pursuant to §XI-44.C (Base Flood Elevation and Designated Floodway or Regulatory Floodplain Locations). Where this information is not available from an existing adopted study, the applicant’s engineer shall be responsible for calculating the BFE per §XI-44.C and the floodway delineation per its definition in § XI-3 (Definitions).
- C. Streets, blocks, lots, parks, and other public grounds shall be located and laid out in such a manner as to preserve and utilize natural streams and channels. Wherever possible, the floodplains shall be included within parks or other public grounds.
- D. The Village shall not approve any PUDs or plats of subdivision located outside the corporate limits within its 1.5-mile extraterritorial jurisdiction unless such agreement or plat is in accordance with the provisions of this Article.
- E. All other activities defined as development, including public utilities and facilities, such as sewer, gas, electrical and water systems, must be located and constructed so as not to alter flood flows and to minimize or eliminate flood damage.
- F. As required by the Plat Act, plats of proposals for all new subdivisions, manufactured home parks, travel trailer parks, additions to manufactured home parks Planned Unit Developments (PUDs), and additions to subdivisions shall include base flood or base flood elevation data and floodway delineations.

STREAM AND WETLANDS PROTECTION

§ XI-53 Authority

The Lowland Conservancy Overlay District is established by the Mayor and Board of Trustees of the Village of Park Forest under the authority of the following Illinois Compiled Statutes: 65 ILCS 5/1-2-1 et seq; 65 ILCS 5/ 11-13-1; 65 ILCS 5/11-30-8; and 65 ILCS 5/11-30-2. The Lowland Conservancy Overlay District shall be considered as an overlay to the zoning districts established by this Ordinance. In the event of a conflict between the overlay district requirements and the underlying zoning district requirements, the most restrictive requirements prevail.

- A. The Lowland Conservancy Overlay District includes those streams, lakes, and ponds (including intermittent streams) are those which are shown on the United States Department of the Interior Geological Survey (USGS) 7.5-minute quadrangle National Wetlands Inventory Maps and those additional streams, lakes, and ponds delineated on the Village Water Resources Management Plan map adopted as part of §§XI-53 through XI-66 (Stream and Wetlands Protection) of this Article. Those are hereby made a part of §§ XI-53 through XI-66 of this Article, and two copies thereof shall remain on file at the Village administrative building for public inspection. Wetlands are those designated in the U.S. Fish and Wildlife Service/Illinois Department of Conservation wetland inventory and those additional wetlands delineated on maps adopted as part of this ordinance. Wetland designations and delineations shall be as defined by the most recent version of the U.S. Army Corps of Engineers Manual of Wetland Delineation.

- B. The Village asserts its jurisdiction over all isolated waters within the Village corporate limits that were formerly under the jurisdiction of the U.S. Army Corps of Engineers prior to January 9, 2000. The Village corporate limits may be amended by the annexation of property that is platted for development pursuant to the provisions of this Article.
 - 1. The jurisdiction of isolated waters of Will County for land outside the Village corporate limits remains with the Will County Board and is administered according to the Water Resource Ordinance for Unincorporated Will County.
 - 2. The jurisdiction of isolated waters of Cook County for land outside the Village corporate limits remains with the MWRD and is administered according to its WMO.

- C. If new drainage courses, lakes, ponds, or wetlands are created as part of a development, the requirements for setbacks and uses within setbacks, and the criteria for watercourse relocation and minor modification shall apply. The Lowland Conservancy Overlay District shall be amended as appropriate to include these areas.
 - 1. District boundary. The procedures, standards and requirements contained in §§XI-50 through XI-63 (Stream and Wetlands Protection) of this Article, shall apply to all lots within wetlands and streams, and all lots lying wholly or in part:
 - a) Within the SFHA designated by the Federal Emergency Management Agency (FEMA); or
 - b) Within 100 feet of the ordinary high-water mark (OHWM) of a perennial stream or intermittent stream, the ordinary high-water mark of a lake or pond, or the edge of a wetland; or
 - c) Within depressional areas serving as floodplain or stormwater storage areas, as designated on the Lowland Conservancy District Map.
 - 2. Minimum setbacks of development activity from streams, lakes, depressional storage, ponds, and wetlands shall correspond to the buffer widths as defined in §XI-58 (Wetland Protective Buffer Requirements) of this Article.
 - 3. For all projects involving the SFHA, including channel modification, fill, or stream maintenance (including levees), the flood carrying capacity of the watercourse shall be maintained. In addition, the Village shall notify adjacent communities in writing, 30 days prior to the issuance of a permit for the alteration or relocation of the watercourse.

§ XI-54 Purpose and Intent

Waters of the United States is a defined term in this Article and refers to areas that are under the jurisdictional authority and regulated by the ACOE. Isolated Waters of Park Forest as defined in this Article are under the jurisdictional authority of Park Forest as prescribed pursuant to this Article.

- A. It is the purpose and intent of §§XI-53 through XI-66 (Stream and Wetlands Protection) of this Article to promote the health, safety, and general welfare of the present and future residents of the Village of Park Forest and downstream drainage areas by providing for the protection, preservation, proper maintenance, and use of Village watercourses, lakes, ponds, floodplain, and wetland areas. This purpose and intent is further defined to include the following objectives:
1. To prevent flood damage by preserving functional storm and floodwater storage capacity (including depressional storage).
 2. To maintain the normal hydrologic balance of streams, floodplains, ponds, lakes, wetlands, and groundwater by storing and providing for infiltration of wet-period runoff in floodplains and wetlands, allowing it to be released slowly to the stream to maintain in-stream flow.
 3. To manage stormwater runoff and maintain natural runoff conveyance systems, thereby minimizing the need for major storm sewer construction and drainage way modification.
 4. To improve water quality, both by filtering and storing sediments and attached pollutants, nutrients, and organic compounds before they drain into streams or wetlands, and by maintaining the natural pollutant- assimilating capabilities of streams, floodplains, and wetlands.
 5. To protect shorelines and stream banks from soil erosion, using natural means and materials wherever possible.
 6. To protect fish spawning, breeding, nursery, and feeding grounds.
 7. To protect wildlife habitat.
 8. To preserve areas of special recreational, scenic, or scientific interest, including natural areas and habitats of endangered species.
 9. To maintain and enhance the aesthetic qualities of developing areas.
 10. To further enhance the floristic aquatic quality of Village owned isolated wetlands which currently meet at least a standard floristic quality while facilitating better value land use of existing degraded low-quality wetland areas.
 11. To encourage the continued economic growth and high quality of life of the Village of Park Forest which depends in part on an adequate quality of water, a pleasing natural environment, and recreational opportunities in proximity to the Village.
- B. Wetland Functions. Wetlands provide any or all the following functions:
1. Facilitate hydrologic functions, including infiltration, evaporation, and evapotranspiration.
 2. Reduce flood flow rates, velocities, and volumes.
 3. Provide flood control by storing stormwater.
 4. Prevent erosion and promote bank stability of streams, lakes, and ponds.
 5. Control sediment from upland areas reducing the impact of urbanization on stream habitat and water quality by filtering and assimilating nutrients discharged from surrounding uplands.
 6. Serve as important areas for de-nitrification, which reduces growth of algal blooms and subsequent depressed levels of dissolved oxygen in-stream.
 7. Provide an effective mechanism for treatment of contaminated surface runoff.

§ XI-55 Permit Requirements for Wetland Impacts

To ensure that proposed development activity can be carried out in a manner which is compatible and harmonious with the natural amenities of the site, the Lowland Conservancy Overlay District, and surrounding land uses, a request for a Stormwater Management Permit for such development activity must be submitted for approval by the Zoning Administrator premised upon a Wetland Status

Certification and Wetland Impact Mitigation Plan. No Stormwater Management Permit shall be issued unless the Village finds that:

- A. The development will not detrimentally affect or destroy natural features such as ponds, streams, wetlands, or their associated buffer areas, nor impair their natural functions, but will preserve and incorporate such features into the development's site, with the exception of impacts to individual wetlands/waters covering 0.1 acre or less total area which may be impacted without mitigation required; and
- B. The location of natural features and the site's topography have been considered in the designing and siting of all physical improvements; and
- C. Adequate assurances have been received that the clearing of the site of topsoil, trees, and other natural features will not occur before the commencement of building operations; only those areas approved for the placement of physical improvements may be cleared; and
- D. The development will not reduce the natural retention storage capacity of any watercourse, nor increase the magnitude and volume of flooding at other locations; and that in addition, the development will not increase stream velocities; and
- E. The soil and subsoil conditions are suitable for excavation and site preparation, and the drainage is designed to prevent erosion and environmentally deleterious surface runoff.

§ XI-56 Isolated Park Forest Wetland Quality Designations

The Village of Park Forest recognizes that the extent of protective measures prescribed for isolated wetlands in the course of adjacent development appropriately varies according to the quality of aquatic resources associated with the wetland. For purposes of managing isolated Park Forest wetlands, the Village has established four classifications of wetland aquatic quality as measured by the wetland's Floristic Quality Index (FQI). The FQI is an indicator of natural plant biodiversity and conservation used throughout northeast Illinois. These classifications are defined as follows:

- A. Open Waters: Any area that in a year with normal pattern of precipitation has water flowing or standing at or above ground to the extent that an ordinary high watermark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent.
- B. Low-Quality Isolated Wetland: An isolated Park Forest wetland having a Swink and Wilhelm Floristic Quality Index (FQI) less than 12.0.
- C. Standard Isolated Wetland: An Isolated Park Forest wetland having a Swink and Wilhelm FQI greater than or equal to 12.0 and less than 20.0.
- D. High Quality Isolated Wetland: Isolated Park Forest wetlands that are of the highest value due to the uniqueness, scarcity, function, and having a Swink and Wilhelm FQI greater than or equal to 20.0 or a Mean C-Value of 3.5 or higher as calculated by the Swink and Wilhelm methodology as defined pursuant to Reference Plants of the Chicago Region (F. Swink and G. Wilhelm, 4th edition, Indianapolis: Indiana Academy of Science, 1994). Wetlands known to possess a federal or state-listed threatened

or endangered species based upon consultation with the Illinois Department of Natural Resources (IDNR) and the United States Fish and Wildlife Service (USFWS) shall also be classified as high quality. These high-quality aquatic resources deserving high levels of protection are distinguished by found species as follows:

1. Advanced Identification (ADID) Sites: Aquatic sites that have been identified by the U.S. Environmental Protection Agency, in advance of specific permit requests, as areas generally unsuitable for disposal of dredged or fill material. ADID sites include various waters of the U.S. including multiple wetlands within Northeastern Illinois.
2. Bog: A low nutrient peatland, usually in a glacial depression, that is acidic in the surface stratum and often dominated at least in part by the genus *Sphagnum* P.
3. Ephemeral Pool: A seasonally inundated depression within a forested wetland or upland community, usually located on a moraine, glacial outwash plain, or in an area shallow to bedrock; also known as a "vernal pool." These areas may not be permanently vegetated.
4. Fen: A peatland, herbaceous (including calcareous floating mats) or wooded, with calcareous groundwater flow.
5. Forested Wetland: A wetland dominated by native woody vegetation with at least one of the following species or genera present: *Carya* spp., *Cephalanthus occidentalis*, *Cornus alternifolia*, *Fraxinus nigra*, *Juglans cinerea*, *Nyssa sylvatica*, *Quercus* spp., *Thuja occidentalis*, *Betula nigra*, *Betula alleghaniensis*, *Betula papyrifera*, *Fagus grandifolia*.
6. Sedge meadow: A wetland dominated by at least one of the following genera: *Carex*, *Calamagrostis*, *Cladium*, *Deschampsia*, *Eleocharis*, *Rhynchospora*, *Scleria*, or *Eriophorum*.
7. Seep: A wetland, herbaceous or wooded, with saturated soil or inundation resulting from the diffuse flow of groundwater to the surface stratum.
8. Streams rated A or B in the Illinois Biological Stream Characterization Study: Reference Illinois Environmental Protection Agency's Biological Stream Characterization (BSC): Biological Assessment of Illinois Stream Quality (latest edition) for a current listing.
9. Wet Prairie: A wetland dominated by a native graminoid species with a diverse indigenous forb component that is seasonally saturated and/or temporarily inundated and may be resemble a fen in its best unfoldment and maturation. Species found in a high quality wet prairie include at least one of the following: *Calamagrostis Canadensis*, *Spartina pectinate*, *Aster puniceus firmus*, *Beckmannia syzigachne*, *Chelone glabra*, *Eleocharis wolfii*, *Lysimachia quadrifolia*, *Oenothera perennis*, *Oenothera pilosella*, *Pedicularis lanceolate*, and *Solidago ohioensis*.
10. Wetlands Supporting Federal or Illinois Endangered or Threatened Species: For current state-listed species, reference Illinois Endangered Species Protection Board's "Checklist of Endangered and Threatened Animals and Plants of Illinois" and/or contact the Illinois Department of Natural Resources. For Federally listed species, reference the U.S. Fish and Wildlife Service's "Endangered and Threatened Wildlife and Plants" list (latest edition) and/or contact the U.S. Fish and Wildlife Service.
11. Further information on the wetlands described above can be found in the U.S. Environmental Protection Agency's "Advanced Identification studies for Kane, Lake and McHenry Counties", the Chicago Wilderness' "Biodiversity Recovery Plan", the Forest Preserve District of Cook County's "The Natural Communities of Cook County: An Ecological Classification System for Terrestrial Communities", Swink and Wilhelm's "Plants of the Chicago Region", and the Illinois Environmental Protection Agency's "Biological Stream Characterization (BSC): Biological Assessment of Illinois Streams".

- E. Fens and Bogs shall be considered as wetlands of exceptional quality that merit enhanced protection and warrant expanded buffers as determined by the Zoning Administrator pursuant to recommendations from the Village's wetland specialist.

§ XI-57 Wetland Status Certification

- A. All development activities to be done in the Lowland Conservancy Overlay District (as established by §XI-53 (Authority)) that create an impact within a wetland, Waters of the U.S., Isolated Waters of Park Forest, or their associated buffers, regardless of the ACOE jurisdiction, require the submission of a Wetland Status Certification prepared by a Wetland Specialist to the Village Zoning Administrator for approval. The application shall document the natural parameters, boundary, and floristic quality status associated with each potentially affected water feature on or immediately downstream of the development site.
- B. The applicant proposing development shall investigate the site for the presence of wetlands using the following sources and methods to determine if wetland areas may exist on the site:
 - 1. Onsite wetland investigation; and
 - 2. National Wetland Inventory (NWI) Maps from the United States Fish and Wildlife Service (USFWS);
 - 3. National Resource Conservation Service (NRCS) wetland inventory maps; and
 - 4. Wetlands identified in current and historical aerial photographs, United States Geological Survey (USGS) hydrological atlas, Soil Survey of Cook County, and Soil Survey of Will County, and USGS Topographic Maps.
- C. The applicant shall identify the boundaries, extent, function, and quality of all wetland areas on the site. The presence and extent of wetland areas on the site shall be determined as the result of an onsite wetland delineation according to the following:
 - 1. All onsite wetland delineations are required to use procedures in accordance with the current U.S. ACOE Wetland Delineation Manual.
 - 2. Agricultural areas that have been abandoned for five consecutive years shall be delineated in accordance with the current Federal wetland delineation methodology authorized under Section 404 of the Clean Water Act.
 - 3. Documentation shall include photos of all wetlands and wetland buffers on the site and a plant inventory that provides an associated C-Value for each plant.
- D. The applicant shall document consultation with the Illinois Department of Natural Resources (IDNR) and the United States Fish and Wildlife Service (USFWS) concerning possible presence of threatened or endangered species. This shall be determined through submittal of an Ecological Compliance Assessment Tool (EcoCAT) on-line request to IDNR, and by following the USFWS procedures outlined in Section 7 of the Endangered Species Act of 1973.
- E. The applicant shall request an ACOE jurisdictional determination of any identified wetland within 100 feet of the project and provide documentation of the results of such jurisdictional determination and resulting ACOE permit, when applicable.
 - 1. Upon completion of the wetland related documentation and delineation, the applicant shall arrange a pre-application meeting with the ACOE to assess any wetland's jurisdictional determination. The desired documentation to be obtained from the meeting in order of preference are as follows:
 - a. Either a Final Jurisdictional Determination (FJD) or a Letter of No Objection (LONO).

- b. A Preliminary Jurisdictional Determination (PJD).
 - c. In the absence of the willingness of the ACOE to issue any of the above determinations, the minutes of the meeting, when affirmed by the involved ACOE representative, shall be considered a reasonable basis for the Wetland Specialist to prepare the Wetland Status Certification as required to proceed with site planning for protection of wetlands and buffers.
 - 2. If an ACOE jurisdiction is indicated, either a Final ACOE Jurisdictional Determination or ACOE Section 404 Permit shall be provided by the applicant as a condition of Village approval of a Stormwater Management Permit for the site. Absolutely no work shall be undertaken upon an ACOE jurisdictional wetland until the Zoning Administrator has received an approved permit by the ACOE.
 - 3. If either a Preliminary Jurisdictional Determination or Letter of No Objection is issued by ACOE, the Village will assume the wetlands are isolated and proceed with adherence to protection measures and buffers applicable to an isolated wetland.
 - 4. If the Wetland Status Certification defines the wetland as isolated, applicable protection measure and buffers shall be provided. The applicant shall document pursuit of a Letter of No Objection from the ACOE; however, if none is forthcoming within 60 days, the Zoning Administrator will consider issuing the Stormwater Management Permit in its absence providing all other permit requirements have been met.
- F. The approximate location, extent, and quality of offsite wetlands within 100 feet of the site shall be identified. Offsite wetlands shall be delineated using the ACOE Wetland Delineation Manual, or if the delineation is unavailable or cannot be performed, the approximate limits of wetlands shall be identified using one or more of the following resources:
- 1. NWI Maps from the United States Fish and Wildlife Service (USFWS);
 - 2. NRCS Wetland Inventory Maps; and
 - 3. Wetlands identified in current and historical aerial photographs, USGS Hydrological Atlas, Soil Survey of Cook County, Soil Survey of Will County, and USGS Topographic Maps.
- G. Any offsite wetland that cannot be accessed in the field by a wetland specialist shall be considered a high-quality isolated wetland and shall be subject to the wetland buffers established in §XI-58 (Wetland Protective Buffer Requirements) of this Article.
- H. The following isolated wetland areas are exempt from the wetland requirements of this Article:
- 1. Wetlands in roadside or railroad ditches created by excavation in upland areas.
 - 2. Wetlands created by excavation or by other unfinished development in upland areas.
 - 3. Wetlands created by artificial hydrology including, but not limited to, irrigation or detention facility outlets which revert to upland areas if irrigation of upstream areas was to cease.
 - 4. Wetlands created by the construction of stormwater facilities in upland areas, provided that the facility was not created for the purpose of wetland mitigation.
 - 5. Wetlands created by the construction of ponds in upland areas.
- I. The Village shall verify all onsite isolated wetland determinations and delineations through the use of qualified wetland specialists. The verified wetland boundaries are valid for two years after the date of verification.
- J. The applicant shall provide an assessment of any identified isolated wetland and classify it as either a low-quality isolated wetland, a standard isolated wetland, a high-quality isolated wetland, or exceptional quality isolated wetland using the criteria described above in §XI-56 (Isolated Park Forest

Wetland Quality Designations). FQI assessments made before June 1 or after October 15 shall be considered preliminary, and mitigation plans premised upon such preliminary assessments shall not be considered final unless the FQI exceeds 20.0. The Village's qualified wetland specialist will review submitted wetland documentation and make the final determination of wetland status.

- K. When applicable, the applicant shall provide an Impact Assessment Report prepared by a qualified professional, and approved by the Village, that assesses the potential impact of a proposed development on a lake, stream, or wetland and associated environmentally sensitive areas, including loss of flood storage potential, loss of habitat, changes in species diversity and quantity, impacts on water quality, increases in human intrusion, as well as impacts on associated streams, lakes, ponds, wetlands, or downstream areas.
- L. The applicant must demonstrate that the development or hydraulic alteration will not cause an indirect wetland impact unless one of the following apply:
 - 1. The wetlands occur at or below the ordinary high-water mark of a waterway on which the hydraulics will not be changed; or
 - 2. The development is a streambank stabilization; or
 - 3. The Zoning Administrator concurs that there is no potential for adverse impact.
- M. A development or hydraulic alteration is considered to have an indirect impact if one of the following limitations are exceeded:
 - 1. An increase or decrease in the high-water level of more than three inches in the two-year, five-year, and 10-year 24-hour rainfall events; or
 - 2. Changes in the wetland's draw down time resulting in an increase or decrease of greater than 48 hours from the peak elevation to the normal water level. The draw down times must be calculated for the two-year, five-year, and 10-year 24-hour rainfall events for both the existing and proposed conditions; or
 - 3. An increase in the duration of inundation of more than 20 percent from existing to proposed conditions for the 50-year and 100-year 24-hour rainfall event. A minimum increase of 48 hours is allowed for these storm events; or
 - 4. When the dominant plant community or wetland type is known to be sensitive to relatively small changes in depth and duration of inundation (e.g., sedge meadow, vernal pool), then the thresholds as outlined above may be reduced by the Zoning Administrator.

§ XI-58 Wetland Protective Buffer Requirements

A natural vegetation buffer strip is required to minimize erosion, stabilize pond and stream banks, protect water quality, and maintain water temperature at natural levels. Wetland buffers help protect wetland function by infiltrating stormwater, filtering sediment, nutrients, and associated pollutants from surface water runoff; moderating the temperature of water bodies; and providing organic matter to the wetland. Buffers provide beneficial habitat for wildlife and plant species. They also serve as corridors and pathways for the movement of species between fragmented habitats. All isolated wetlands that are to remain pursuant to a site's development plan shall be preserved with native plantings that are conducive to the habitat, soils, hydrology, and topography adjacent to the wetland to an extent appropriate to the quality of the wetland as defined and certified in §§XI-56 (Isolated Park Forest Wetland Quality Designations) and XI-57 (Wetland Status Certification).

- A. Linear buffers shall be designated along both sides of all non-jurisdictional channels and surrounding water bodies. These buffers shall be regulated as Lowland Conservancy Overlay District zoning setbacks.
 - 1. The linear buffer along ACOE jurisdictional waters shall be as established by the ACOE pursuant to Section 404 permit coordination.
 - 2. The linear buffer along non-ACOE jurisdictional channels and water bodies which are deemed isolated Waters of Park Forest shall be a minimum of 30 feet as measured from the ordinary high-water mark.

- B. Minimum wetland buffer widths shall be established as Lowland Conservancy Overlay District zoning setbacks and shall be as follows:
 - 1. Buffers for ACOE jurisdiction wetlands shall be in accordance with the guidelines established pursuant to the Clean Waters Act as prescribed by the ACOE Section 404 Permit for the development site.
 - 2. 15 feet from the boundary of a non-enhanced low-quality isolated wetland that is to remain. If the wetland quality is to be enhanced pursuant to a mitigation plan, the wetland buffer shall be increased to a 25-foot width.
 - 3. 25 feet from the boundary of a standard Park Forest isolated wetland.
 - 4. 40 feet from the boundary of a high-quality Park Forest isolated wetland.
 - 5. 100 feet from the boundary of a fen or bog.

- C. Minimum buffer widths (Lowland Conservancy District zoning setbacks) meeting the definition of Waters of the United States or Isolated waters of Park Forest shall be measured from the ordinary high-water mark of the stream, lake, or pond. Buffer widths for wetlands shall extend from the edge of the delineated wetland. In no case shall the setback be less than the boundary of the 100-year floodway as defined by FEMA.

- D. The wetland buffer width from a standard or high-quality isolated wetland may be varied to a minimum of one-half of the required width upon approval of the Zoning Administrator provided that an overall average buffer width is achieved for the perimeter of the wetland.

- E. The slope of a newly created wetland buffer should not exceed 6:1 horizontal to vertical ratio. Gentler slopes are preferable.

- F. Development within either a standard or high-quality isolated wetland buffer shall not, without mitigation:
 - 1. Adversely change the quantity, quality, or temporal and areal distribution of flows entering any adjacent wetlands or waters; or
 - 2. Adversely affect any groundwater infiltration functions; or
 - 3. Destroy or damage vegetation that stabilizes wetland fringe areas or provides overland flow filtration to wetlands. The removal of invasive vegetation or selective thinning in order to increase sunlight penetration as part of a management program for maintenance and restoration of natural areas is not considered to be destruction or damage of vegetation.

- G. Within the natural vegetation strip, trees and shrubs may be selectively pruned or removed to achieve a filtered view of the water body from principal structure or for a reasonable private access to the stream, lake, pond, or wetland. Said pruning and removal activities shall ensure that a live root system stays intact to provide for bank stabilization and erosion control. In the event of removal and

clearing of any land within the established buffer zone appropriate native deep-rooted vegetation shall be planted to provide soil stabilization.

- H. Impacts to buffer areas in excess of 0.10 acres in aggregate shall be mitigated through the replacement or enhancement of impacted functions. Buffer mitigation shall be included within the Wetland Impact and Mitigation Plan.
 - 1. Buffer areas disturbed by construction or as part of a revegetation plan shall be revegetated using Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, NRCS, et al, (as amended) as a minimum standard.
 - 2. Performance standards for the required revegetation will at a minimum require at least one year of monitoring with at least 90 percent cover for non-aquatic vegetative zones within one year of planting.
- I. All buffer areas shall be maintained free from development including disturbance of the soil by dumping or filling, erection of structures, and placement of impervious surfaces except as follows:
 - 1. Stormwater detention facilities may be located within the outer 40 percent of the buffer.
 - 2. Nature trails and bike/pedestrian paths may encroach within buffers provided:
 - a) They do not impact the habitat of threatened or endangered species.
 - b) They are not wider than 12 feet.
 - c) They are not closer than 10 feet from the edge of the wetland.
 - d) Runoff from such facilities is unconcentrated flow.
 - 3. Benches, comfort stations, informational displays, directional signs, footbridges, observation decks, and docks are permissible.
 - 4. Utility installation or maintenance including electrical transmission and telecommunication lines, poles, and towers; highways, bridges, and culverts; construction of stormwater conveyance facilities; and maintenance of stormwater facilities shall be allowed.
- H. Compensatory floodplain storage may be located within any portion of a buffer.

§ XI-59 Requirements for Development Affecting Wetland Function

- A. Development that impacts onsite ACOE jurisdictional wetlands shall be prohibited unless a permit for all regulated activities is obtained from the appropriate federal and state agencies.
- B. Development that would impact a fen or a bog is prohibited unless required to mitigate a road hazard.
- C. Development that impacts onsite high-quality Park Forest isolated wetlands in excess of 0.10 acres shall be prohibited unless documentation is provided that demonstrates:
 - 1. That the presence of high-quality isolated wetlands precludes all economic use of the site and that no practical alternative to wetland modification exists; or
 - 2. That avoidance of high-quality isolated wetlands would create a hazardous road condition and that no practicable alternative to isolated wetland modification exists.

Based upon a review of the submitted documentation and any other available resources, the Zoning Administrator will make the determination as to whether the least amount of wetland impact required to allow economic use of the parcel or to mitigate a road hazard has been reflected in the site development plan and a determination as to whether a permit should be granted.

- D. Development that impacts onsite standard Park Forest isolated wetlands by more than 0.10 acres shall be prohibited unless documentation is submitted which demonstrates that no practical alternative to wetland modification exists as determined by the Zoning Administrator.
- E. Development that impacts low-quality Park Forest isolated wetlands may be permitted subject to an assessment of possible indirect environmental impacts to onsite or offsite wetlands.
- F. Development will be permitted only when the indirect environmental impacts to onsite and offsite wetlands can be sufficiently evaluated, minimized, and mitigated. The designed hydrology should be maintained as close to 100 percent of the existing hydrology as possible. An indirect impact shall be assumed if the development activity causes the wetland hydrology to fall below 80 percent, or to exceed 150 percent of the existing condition storm event runoff volume to the wetland for the two-year, 24-hour storm event.
- G. The status of every identified wetland area on or within 100 feet of a development site shall be documented by the issuance of a Wetland Status Certification Letter issued by the Zoning Administrator premised upon their review and evaluation of wetland classification documentation and associated exhibits provided by the applicant.
- H. Stormwater management use of existing wetlands.
 1. Detention facilities are not permissible within ACOE jurisdictional wetlands when prohibited by the ACOE.
 2. Detention facilities for new site development are not permitted within high-quality Park Forest isolated wetlands. Detention and volume control BMP facilities are permissible in low-quality Park Forest isolated wetlands.
 3. Detention facilities are permissible within standard Park Forest isolated wetlands subject to the following design parameters:
 - a. The wetland hydrology should be maintained as close to 100 percent of the existing hydrology as possible.
 - b. The wetland hydrology shall not fall below 80 percent, nor exceed 150 percent of the existing condition storm event runoff to the wetland up through the two-year, 24-hour storm event.
 - c. The wetland specialist shall affirm that the species within the facility are compatible with the wetland, increased water levels of the wetland hydraulics, and the duration of the draw down inundation period.
 4. Detention and volume control BMP storage facilities are permissible within low-quality Park Forest isolated wetlands. Selected planting species shall be compatible with the wetland water level fluctuation and the duration of the draw down associated with the wetland hydraulics.
- I. Stormwater outlets discharging into an isolated wetland will only be allowed provided that appropriate volume control practices are established, soil erosion and sedimentation control practices are provided, and the stormwater outlets discharge through proper energy dissipation and scour protection, such as a level spreader or vegetated swale.

§ XI-60 Wetland Impact Mitigation Ratios

Mitigation for developments that impact isolated Park Forest wetlands shall provide for either onsite replacement of the lost wetland environment or payment of a fee-in-lieu of wetland mitigation (§XI-125

(Wetland Mitigation Variance Fee Program)) to the Village according to the following mitigation requirement ratios:

- A. Impacts to non-High-Quality Aquatic Resources open waters that are greater than 0.25 acres shall be mitigated at a 1:1 ratio by either onsite replacement or payment of a fee-in-lieu of wetland mitigation.
- B. Impacts to low-quality Park Forest isolated wetlands shall be mitigated at a 1:1 ratio by payment of a fee-in-lieu of wetland mitigation. However, the natural runoff storage function of the displaced wetland shall not be diminished by the resulting site development except as permitted pursuant to §XI-32.G.8 (Detention Within Depressional Storage Areas). Associated impacted buffers do not require mitigation.
- C. Impacts to standard Park Forest isolated wetlands that are greater than 0.10 acres of impact shall be mitigated at a ratio of 1.5 acres creation for each acre impacted (1.5:1) via either onsite replacement or payment of a fee-in-lieu of wetland mitigation according to §XI-125 (Wetland Mitigation Variance Fee Program).
 - 1. Creation of an onsite wetland replacement may take place only within areas that are not currently wetlands and where there is a reasonable expectation that wetland mitigation will succeed.
 - 2. Mitigated isolated wetlands shall be designed to duplicate or improve the hydrologic and biological features and function of the original isolated wetland.
 - 3. An existing standard Park Forest isolated wetland that is contiguous to a proposed isolated wetland mitigation site may be enhanced in quality from a standard isolated wetland to a high- quality isolated wetland in exchange for a partial credit of the mitigation area required. To encourage such wetland enhancement the total wetland mitigation area may be reduced by 0.75 acre for every one acre of such wetland enhancement.
- D. All impacts to high-quality Park Forest isolated wetlands shall be mitigated at a minimum ratio of three acres of creation for each acre impacted (3:1) via either payment into an ACOE approved wetland bank within the Cal-Sag watershed planning area or by payment of a fee-in-lieu of wetland mitigation.
- E. Any impact to an isolated fen or bog shall be mitigated at a minimum ratio of six acres of creation for each acre impacted (6:1) via payment into an ACOE approved wetland bank within the Cal Sag watershed planning area.
- F. Wetland mitigation for impacts to ACOE jurisdictional wetlands shall not be credited for impacts to Park Forest isolated wetlands.
- G. Any isolated wetland impact initiated prior to the issuance of a WMO Permit or other unauthorized impact shall be mitigated at a ratio of four acres of creation for each acre impacted (4:1). The means of such mitigation shall be as determined by the Zoning Administrator.

§ XI-61 Wetland Impact and Mitigation Plan

A Wetland Impact and Mitigation Plan shall be developed by the applicant to address both ACOE jurisdictional wetland impacts, and isolated Park Forest waters and wetlands impacts of all developments that directly or indirectly affect wetlands within the Lowland Conservancy Overlay District as established by Section §XI-53 (Authority). This plan shall include design, construction, monitoring, and maintenance

of the mitigation measures. The plan shall be prepared by a Qualified Wetland Professional and should generally follow the standards of the Chicago District of the ACOE.

- A. The Wetland Impact and Mitigation Plan shall show the following information:
 - 1. The delineated existing wetland boundaries and wetland surface areas of both onsite and offsite wetlands within 100 feet of the development site in relationship to any waterways and floodplains that may also be present.
 - 2. The ordinary high-water elevation for each wetland.
 - 3. The waters' or wetlands' permitting jurisdiction.
 - 4. The Floristic Quality Index of each wetland together with its corresponding low, standard, high, or exceptional Village of Park Forest classification level.
 - 5. The nature, limits, cross section, and area of proposed wetland impacts prior to development of proposed mitigation, including the location of existing or future access roads or paths.
 - 6. The extent of proposed on-site wetland mitigation.
 - 7. The dimensioned limits of proposed riparian protective buffer setbacks for each wetland.
 - 8. The location of any concentrated inflows into the wetland and discharge overflow from the wetland.
 - 9. The location and nature of permanent sediment control features.
 - 10. Proposed grading contours of the wetland and riparian buffer at one-foot contour intervals.
 - 11. A Wetland Landscape Plan, prepared by a qualified professional, shall be provided for each disturbed wetland and riparian buffer. The Wetland Landscape Plan shall:
 - a) Describe the existing vegetative cover of the property and show where the vegetation will be removed as part of the proposed construction.
 - b) Define the proposed revegetation of the disturbed areas, including specifications for rough and final grading design, soil types, soils placement, plant procurement, water control structures, and a planting plan that lists the plant materials by scientific and common name, seeding rate or spacing distance and special planting restrictions.
 - c) The plan must be prepared in such a way that access for stream maintenance shall not be prevented.
 - 12. The Erosion and Sediment Control Plan for all development within the Lowland Conservancy Overlay District shall be designed with measures to avoid sedimentation of wetlands during construction.
- B. The presentation of the wetland impact and mitigation plan information for ACOE jurisdictional wetlands is recognized as being for information and coordination purposes. Only isolated wetland impacts are subject to Village review authority.
- C. All impacts to ACOE jurisdictional wetlands shall be mitigated according to the regulatory requirements established by the ACOE. Such ACOE mitigation requirements shall be incorporated into the overall site development plan that is submitted for final site plan approval. All associated Section 404 permit application and permit documentation shall be provided to the Village, including all terms and conditions of the ACOE permit.
- D. The certified wetland classification status of individual isolated Park Forest wetlands shall guide the development of the wetland impact mitigation plan.
 - 1. Cumulative impacts to low-quality or standard isolated wetlands with a total acreage less than 0.10 acre do not require a mitigation plan.

2. For applicants meeting their mitigation obligations by securing credits from ACOE approved mitigation banks, their mitigation plans only need to include the number and resource types of credits to be secured along with an explanation as to how these were determined.
 - a) The documentation must include a statement of obligation from the wetland mitigation bank showing mitigation acreage reserved for the project as a condition for approval of the Wetland Impact Mitigation Plan.
 - b) All protective buffers for wetlands that are to remain as reflected on the Wetland Landscape Plan shall be included on the Stormwater Management Plan.
 3. Where development affecting wetlands meets the requirements of this Article and the long-term preservation of wetland functions or characteristics is unlikely as a result of existing or proposed land use practices in adjacent upland areas, then the Zoning Administrator may provide that mitigation for development within or affecting wetlands be accomplished wholly or in part through investment in an established wetland banking development in lieu of constructing new wetlands. For applicants meeting their mitigation obligations by payment of a fee-in-lieu of wetland mitigation, their wetland mitigation plans only need to include the number of credits to be mitigated along with an explanation as to how these were determined. All protective wetland buffers for wetlands that are to remain shall be included on the Stormwater Management Plan. Payment of the fee-in-lieu of wetland mitigation shall be made to the Village prior to approval of the Stormwater Management Plan. The fee-in-lieu of wetland mitigation shall be as established in §XI-125 (Wetland Mitigation Variance Fee Program).
 4. The design, analysis, and construction of all onsite wetland mitigation shall comply with all applicable federal, state, and local regulations.
 - a) Onsite mitigation of standard and high-quality isolated wetlands is preferred when the cumulative area of mitigation and preserved wetlands exceeds 1.5 acres.
 - b) Site Selection. The selected mitigation site should consider watershed needs, onsite alternatives where applicable, as well as the practicality of accomplishing ecologically self-sustaining aquatic resource restoration, establishment, enhancement, and/or preservation at the mitigation site.
 - c) Mitigation Work Plan. The plan shall include detailed written specifications and work descriptions for the mitigation project, including geographic boundaries of the project; hydrologic regime; water control structures; construction methods, work timing and sequence; source(s) of water; methods for establishing the desired plant community; plans to control invasive species; proposed grading plan; soil management; and erosion control measures.
 - (1) The Village may limit development activity in or near a wetland, water's edge, or buffer to specific months and to a maximum number of continuous days or hours in order to minimize adverse impacts.
 - (2) Other development techniques, conditions, and restrictions may also be required to minimize adverse impacts.
 - d) Every wetland mitigation facility shall include at least two wetland plant communities (for example, wet prairie, emergent, floating vascular, forested wetland, sedge meadow, or hemi-marsh; and
 - e) Open water shall not constitute more than 20 percent of the entire wetland mitigation facility.
- E. The Zoning Administrator may allow partial mitigation credit for the following, provided wetland creation for permanent wetland impacts does not fall below a 1:1 ratio.
1. Enhancement or restoration of an existing wetland will be credited at a ratio of 0.5:1.
 2. Enhancement, restoration, or creation of wetland buffers will be credited at a ratio of 0.25:1.

§ XI-62 Wetland Mitigation Performance Standards

- A. All wetland mitigation facilities shall meet the following performance standards:
 1. The entire wetland mitigation facility, excluding the buffer, shall meet the definition of a wetland under this article. Buffers will not count as mitigated area, nor will areas that were intended to be developed as wetland, but that do not meet either the vegetation, soils, or hydrologic requirements of a wetland.
 2. All vegetated zones within any vegetated mitigation facility shall achieve 85 percent cover prior to acceptance of the wetland mitigation facility as complete.
 3. In wetland mitigations where the emergent communities are part of the wetland mitigation, the emergent vegetation will cover a minimum of 60 percent aerial coverage of the designated area. Emergent areas should not be designed so as not to expand into other plant communities designed within the wetland mitigation facility.
 4. For wetland mitigations utilizing floating vascular communities, the aerial coverage shall meet at least 25 percent at the end of the monitoring period.
 5. Open water shall have 0 percent vegetative coverage; however, the use of submerged aquatics within the open water area is encouraged, particularly for shallow bodies of water. Creation of open water areas should also be designed to minimize the occurrence and growth of algae blooms. Open water areas should also be designed to minimize the use of these areas by locally resident goose populations.

- B. In addition to the above performance standards, a wetland facility designed to mitigate for impacts upon a standard isolated wetland shall achieve an FQI four points greater than the natural wetland that is being impacted within the five-year monitoring period.

- C. By the end of the fourth and fifth full growing seasons, at least 80 percent of the vegetation present within the planted wetland and buffer restoration shall be native, non-invasive species. A wetland mitigation facility shall not be dominated or contain cumulatively more than 20 percent cover of the following species: Buckthorn (*Rhamnus cathaca* or *frangula*), reed canary grass (*Phalaris*), purple loosestrife (*Lythrum salicaria*), or giant reed (*Phragmites australis australii*). This standard does not apply to emergent communities or existing previously vegetated wetland or buffer.

§ XI-63 Wetland Establishment

- A. A five-year period of management, maintenance, and monitoring program shall be required to assure establishment of on-site mitigated wetlands. The procedures for management, maintenance, and monitoring wetland mitigation facilities should be those set forth in the current Chicago District protocol promulgated by the ACOE.
 1. The maintenance and monitoring provisions shall include an annual work schedule describing each task in detail and the time of year when it will be performed.
 2. The monitoring period shall begin upon Village concurrence that the installation of vegetative plantings has been substantially completed.
 3. The developer shall provide the Zoning Administrator an annual monitoring report on the status of the constructed wetland and buffer mitigation measures. The report shall be prepared by a qualified wetland professional. It shall be submitted by February 15th of each year for a period of five-years following its substantial completion.
 4. The developer shall undertake all necessary remedial action to bring the area into compliance with the mitigation plan.

- B. Wetland Establishment Funding Guarantee. A five-year wetland monitoring and maintenance guarantee for 125 percent of the monitoring and maintenance cost estimate shall be submitted prior to obtaining final plat approval of a subdivision or approval of an individual site development plan as applicable for any site involving on-site wetland mitigation. (See §XI-121.)
- C. Once a wetland mitigation facility reaches its required FQI and meets the performance standards of §XI-62 (Wetland Mitigation Performance Standards), a request for the release of the performance security may be made to the Zoning Administrator. A release of the performance security may be requested as early as the end of the third full growing season. Upon a determination that the facility meets the wetlands mitigation performance standards, the Zoning Administrator shall release the performance security. Thereafter, the wetland mitigation facility shall be maintained in accordance with the long-term wetland maintenance provisions established in §XI-66 (Long-Term Wetland Maintenance, Management, and Operation).
- D. If the Zoning Administrator determines at the end of the five-year monitoring and management period that the facility does not meet the wetland mitigation performance standards, they shall make an estimate of the probable cost of mitigating for the shortfall in performance for an additional five-year period. The Zoning Administrator shall reduce so much of the performance security to cash as is required to mitigate for the shortfall and shall release the remainder. The amount withheld shall be deposited in the fund created for the fee-in-lieu of wetland mitigation and expended in the manner prescribed in §XI-125 (Wetland Mitigation Variance Fee Program).

§ XI-64 Watercourse Relocation, Channelization, and Minor Modifications

- A. Watercourse relocation or modification is generally not permitted because these activities are not usually consistent with the purposes of §§XI-53 through XI-66 (Streams and Wetland Protection) of this Article.
 - 1. Under certain circumstances, relocation and minor modification may be permitted during site development where certain problems can be mitigated by relocation and/or minor modification, specifically when:
 - a) Off-site hydrologic conditions are causing erosion, flooding, and related problems
 - b) On-site soil and geologic conditions are resulting in unstable conditions that pose hazards to life, health, and existing structures or property
 - c) The quality of previously modified or relocated streams can be improved through restoration
 - d) Officially adopted stormwater management plans call for placement of detention or retention facilities in a stream; or
 - e) Public utilities, including sanitary sewers, pipelines, and roadways require stream crossing or relocation where there are not practical alternatives.
 - 2. Modification of watercourses as a convenience for site design purposes is not permitted.
- B. Permitted stream modification conditions, restrictions, and design criteria.
 - 1. Stream modification, when permitted, is subject to the following conditions and restrictions:
 - a. Water quality, habitat, and other natural functions must be significantly improved by the modification; no significant habitat area may be destroyed.
 - b. The amount of flow and velocity of a stream is not to be increased or decreased as the stream enters or leaves a subject property, unless this reflects an improvement over previous conditions in terms of reduced flooding, reduced erosion, or enhanced low flow conditions.

- c. Prior to diverting water into a new channel, a qualified professional approved by the Village shall inspect the stream modification and shall issue a written report to the Village that the modified stream complies with the requirements in division B.2. of this section; and
 - d. Stream channel enlargement, or other modifications that would increase conveyance, shall not be permitted if the intended purpose is to accommodate development activities in the floodplain.
2. Required content of stream modification, relocation plan. stream relocation may be permitted in accordance with a stream relocation plan that provides for the following:
- a. The creation of a natural meander pattern, pools, riffles, and substrate
 - b. The formation of gentle side slopes (at least three feet horizontally per one foot vertically), including installation of erosion control features
 - c. The utilization of natural materials wherever possible
 - d. The planting of vegetation normally associated with streams, including primarily native riparian vegetation
 - e. The creation of spawning and nesting areas wherever appropriate
 - f. The re-establishment of the fish population wherever appropriate
 - g. The restoration of water flow characteristics compatible with fish habitat areas, wherever appropriate
 - h. The filling and revegetation of the prior channel
 - i. A proposed phasing plan, specifying time of year for all project phases or protective construction methods:
 - (1) The Village may limit development activity in or near a stream, lake, pond, or wetland to specific months, and to a maximum number of continuous days or hours to minimize adverse impacts.
 - (2) The Village may also require that equipment be operated from only one side of a waterbody to minimize bank disruption.
 - j. Plans for sediment and erosion control; and
 - k. Establishment of a low-flow channel that reflects the conditions of a natural stream.
3. Criteria for permitting armoring of channels and banks. Armoring in the form of bulkheads, riprap, or other materials or devices is not permitted except in accordance with the following:
- a. Significant erosion cannot be prevented in any other way and the use of vegetation and gradual bank slopes has not sufficiently stabilized the shoreline or bank.
 - b. The bulkhead or other device is not placed within a wetland, or between a wetland and a lake or pond.
 - c. The bulkhead, riprap, or other device will minimize the transmittal of wave energy or currents to other properties. and
 - d. The change in the horizontal or vertical configuration of the land must be kept to a minimum. Where permission to install bulkheads or other armoring devices is requested as part of the site development permit application, documentation and certification pertaining to the items above must be submitted from involved state agencies.
4. Criteria for permitting the use of culverts. Culverts are not permitted in streams except in accordance with the following:
- a. Where a culvert is necessary for creating access to a property; use of culverts as a convenience, to facilitate general site design, is not to be considered.
 - b. The culvert must allow passage of fish inhabiting the stream and accommodate the 100-year flood event without increasing upstream flooding, except where a restricting culvert is desirable as part of an overall storm and floodwater management plan.

- c. The culvert must be maintained free of debris and sediment to allow free passage of water, and if applicable, fish. and
- d. The stream bottom should not be significantly widened for the placement of a culvert as such widening increases siltation; if multiple culverts must be installed, one culvert should be at the level of the bottom of the stream and the others at or above normal water elevation.
- 5. Criteria for permitting on-stream impoundments. Impoundment of streams is not permitted except in accordance with the following:
 - a. The impoundment is determined to be in the public interest by providing regional stormwater detention, flood control, or public recreation.
 - b. The impoundment will not prevent the upstream migration of indigenous fish species.
 - c. A non-point source control plan has been implemented in the upstream watershed to control the effects of sediment runoff as well as minimize the input of nutrients, oil and grease, metals, and other pollutants.
 - d. Impoundments without permanent low-flow pools are preferred except where a permanent pool is necessary to achieve the intended benefits of the impoundment (e.g. recreation or water quality mitigation). and
 - e. Impoundment design shall include gradual bank slopes, appropriate bank stabilization measures, and a pre-sedimentation basin.

§ XI-65 Stream and Wetland Legal Protection

All remaining, created, restored, or enhanced ACOE jurisdictional waters of the U.S. and isolated waters and wetlands of Park Forest together with their adjacent protective buffers on the project site must be protected through a deed restriction or through a conservation easement.

- A. A draft deed or plat restriction or conservation easement must be provided along with the Preliminary Site Plan.
- B. Lot lines may not occur in created, restored, enhanced, or preserved ACOE jurisdictional waters of the U.S., isolated waters and wetlands of Park Forest, or in adjacent buffer areas on the project site. However, waivers from this requirement may be considered for peculiar conditions provided that long-term maintenance measures are addressed.
- C. The final plat shall include appropriate easements for ingress and egress to such streams, wetlands, and buffer portions for the benefit of the Village.
 - 1. The final plat shall contain a legend imposing the maintenance obligations of this section upon the grantee and his successors in interest as a covenant running with the land and incorporating by reference the plan of long-term maintenance set forth in the application for a stormwater management permit, with approved amendments.
 - 2. The final plat shall contain a legend reserving the right of the permitting authority to enter upon the land to perform the maintenance required in this section if the owner does not do so and to place a lien against the land for the cost thereof.
 - 3. The applicant shall grant an access easement for stream maintenance purposes to the Village of Park Forest over 25 feet parallel to the stream bank.
- D. Whenever the long-term wetland maintenance, management, and operations plan prescribes Village ownership of the wetland and buffer, the lot encompassing the wetland and buffer shall be dedicated to the Village.

§ XI-66 Long-Term Wetland Maintenance, Management, and Operation

A long-term wetland maintenance, management, and operation plan shall be prepared for the development site by a qualified wetland professional. The maintenance plan shall describe inspection, maintenance, and monitoring activities that occur after the construction phase and continue into perpetuity. The plan shall also provide an estimate of the associated long-term costs. The plan shall address any preserved wetlands, mitigated wetlands, and their protective buffers. It shall guide the long-term owner/manager in the proper care of the areas.

- A. For mitigated wetland areas the plan's operation shall commence following establishment of the mitigated wetland and buffer area(s).
- B. For preserved wetland and buffer areas that are not disturbed by the proposed site development, the plan's operation shall commence following the completion of all site construction activities that require maintenance of temporary soil erosion and sediment control facilities associated with the wetland areas.
- C. The plan must establish long-term ownership and perpetual funding for the maintenance, management, and operation of the site's wetlands and buffer facilities in the same manner as established for the development site's stormwater management facilities. The following policies shall guide development of the long-term plan:
 - 1. The Village will accept ownership and maintenance responsibilities of those isolated Park Forest wetlands, mitigated wetlands, and their buffers located within residential developments, provided a Special Service Area is established with a funding mechanism sufficient to pay for long-term maintenance and operation.
 - 2. The Village will also accept maintenance responsibilities for those isolated Park Forest wetlands, mitigated wetlands, and buffers that are partially located on commercial and industrial sites which are part of a larger existing wetland that extends beyond the ownership boundary of the platted development. However, ownership of the wetlands shall remain with the owner of the platted lot so that affected zoning bulk requirements are not diminished by a title transfer. A long-term funding mechanism shall be negotiated as a component of the plan.
 - 3. Those existing isolated Park Forest wetlands, mitigated wetlands, and buffers which are wholly located within either a commercial, industrial, or school district site shall remain under the ownership and maintenance responsibility of the permittee. A long-term funding mechanism shall be negotiated as a component of the plan should the site owners fail to perform the specified maintenance as prescribed by the plan.
 - a) The person responsible for administering the long-term wetland maintenance plan shall be identified in the plan documents. The owner shall be responsible for notifying the Zoning Administrator of any later personnel changes concerning this responsibility.
 - b) The Village will consider maintenance, management, and operational responsibilities for which funding has been negotiated as a component of the plan.
- D. Upon a recommendation from the Zoning Administrator concerning the extent of perpetual commitment of resources associated with the negotiated long-term plan, the plan must be approved by the Village Board. Any subsequent amendments to the plan must also be approved by the Village Board.

STORMWATER MANAGEMENT PERMIT SUBMITTAL REQUIREMENTS

GENERAL REQUIREMENTS

§ XI-67 Stormwater Management and Other Permits Required

- A. A Stormwater Management Permit shall be required if:
1. The development or a substantial improvement is located in the Regulatory Floodplain or there is Regulatory Floodplain within 100 feet of the property boundary; or
 2. The development creates a wetland impact to a wetland located on the property or within 100 feet of the property boundary; or
 3. The development involves either a non-residential or multi-family zoned site of 0.5 acres or more; a residential subdivision of one acre or more; right-of-way of one acre or more; or
 4. The development creates 5,000 square feet of additional imperviousness or an aggregate of 25,000 square feet of imperviousness on a previously developed multi-family or non-residential site; or
 5. The development project disturbs more than 5,000 square feet of pervious ground cover, unless the development solely involves one or more of the following:
 - a) Installation, renovation, or replacement of a septic system, potable water service line, or other utility to serve an existing structure; or
 - b) The demolition of a single-family residential structure that does not involve any fill above the existing ground elevation surrounding the structure; or
 - c) Excavation or removal of vegetation in rights-of-way or public utility easements for the purpose of installing or maintaining utilities not including storm sewers; or
 - d) Maintenance, repair, or at grade replacement of existing lawn areas not otherwise requiring a stormwater permit under this Article; or
 - e) Maintenance of an existing stormwater facility, not requiring other State or Federal permits or approvals.
 - f) Other specific sedimentation and erosion control-related exemptions as detailed in §XI-38.B (Soil Erosion and Sediment Control General Requirements).
- B. All development shall secure all appropriate stormwater management related approvals, including, without limitation, an IDNR/OWR floodway construction permit, a threatened and endangered species disposition in compliance with the Endangered Species Act, a USACOE 404 permit and an IDNR/OWR Dam Safety Permit if required, from all federal, state and regional authorities and other appropriate federal, state, and regional approvals prior to the issuance of a stormwater management permit for areas of a site requiring such other approvals. An MWRD WMO Permit shall also be secured for applicable projects in Cook County that involve a direct outfall connection to Thorn Creek. (This requirement does not apply to channelized tributaries of Thorn Creek.)

§ XI-68 Permit Review Fees

All permit fees, as established by separate ordinance by the Village Board, shall be paid at the time of application. Fees may include, but are not limited to, the cost of permit administration, professional engineering or wetland specialist consulting services, review, and inspections prior to construction, during construction, and within the permanent cover establishment period following construction.

§ XI-69 Professional Seals and Certifications Required

- A. The design of stormwater facilities, calculations for the determination of the regulatory floodplain, or calculations of the impacts of development shall meet the standards of this Article and shall be prepared, signed, and sealed by a professional engineer. The professional engineer shall provide an opinion that the technical submittal meets the criteria required by this Article.
- B. For structures (not including earth embankments) that are subject to a differential water pressure greater than three feet, the submittal shall include evidence that the subject design has been reviewed by a qualified professional who shall, as a minimum, have registration as a professional engineer. Such reviews shall include stability of the structure under design conditions considering the protection of downstream life and property in the event of a failure. When directed by the Zoning Administrator the calculations submitted for such structures shall be reviewed, signed, and sealed by a registered structural engineer.
- C. For projects which include earth embankments which are subjected to differential water pressure the submittal shall include evidence that the embankment design and construction specifications are adequate for the design conditions. This review shall include consideration of the existing foundation soils for the embankment, the materials from which the embankment is to be constructed, compaction requirements for the embankment, and protection of the embankment from failure due to overtopping. Construction and materials specifications for all such embankments shall be included with the plan set submittal. When directed by the Zoning Administrator, or when the impounded water pressure differential exceeds three feet, or when appropriate considering the volume impounded and water surface elevation differential to which the embankment is subjected, these calculations may be required to be reviewed, signed, and sealed by a qualified geotechnical or structural engineer.
- D. A topographical map of the site, record drawings, and other required drawings shall be prepared, signed, and sealed by a professional land surveyor or professional engineer and tied to National American Vertical Datum of 1988 and reflect adjustment to vicinity FEMA benchmarks.

DURATION AND REVISION TO PERMITS

§ XI-70 Stormwater Management Permit Expiration

All Stormwater Management Permits issued by the Village expire December 31 of the third year following the date of permit issuance subject to FEMA limitations for applicable delayed or inactive work.

- A. Development permit or approval for any work involving a FEMA FIRM SFHA or on hydraulically connected land shown to be below the BFE shall become invalid unless the Start of Construction, for work authorized by such permit, is commenced within 180 days after its issuance, or if the work authorized is suspended or abandoned for a period of 180 days after the work commences.
- B. All permitted work within the floodplain shall be completed within eighteen months after the date of issuance of the permit or the permit shall expire.

§ XI-71 Permit Extension

If the permitted activity has been started but is not completed by the expiration date of the permit, and the permittee intends to pursue the permitted activity, then the permittee may submit a written request that the expiration date be extended.

- A. The request for the permit time extension must demonstrate justifiable cause.
- B. Upon receipt of such request and concurrence with the presented justifiable cause, the Zoning Administrator may extend the expiration date in one-year increments a maximum of three times for permitted activities outside designated floodways and regulatory floodplains.
- C. Time extensions for permitted activities in designated floodways and regulatory floodplains of not more than 180 days each may be granted, in writing, by the Zoning Administrator subject to the following conditions:
 - 1. The activity is compliant with the then current requirements of this Article.
 - 2. The FIRM and FIS in effect at the time the extension is granted has not been updated in a manner that raises the BFE affecting the property,
 - 3. Any IDNR/OWR individual permits that may have been issued in association with the development remain valid.
 - 4. Any other required State or Federal permits are still valid.
- D. Cumulative time extensions for permitted activities in designated floodways and regulatory floodplains shall not extend beyond the expiration date of an extended Stormwater Management Permit.

§ XI-72 Permit Revision

If, after permit issuance, the permittee decides to revise the approved plans, the permittee shall submit revised plans to the Zoning Administrator, along with a written request for approval. If the Zoning Administrator determines that the revised plans comply with the then current requirements of this Article, an approval of the revised plans may be issued.

STORMWATER MANAGEMENT PERMIT SUBMITTAL REQUIREMENTS

§ XI-73 Generally

The submittal documents shall include sufficient information to evaluate the environmental characteristics of the property, the potential adverse impacts of the development on water resources both on-site, upstream, and downstream, and the effectiveness of the proposed drainage plan in managing stormwater runoff.

- A. All Stormwater Management Permit submittals shall include the material listed in the sections noted in the table below for the applicable type of development, unless the submittal requirements are specifically modified by the procedure in §XI-74 (Modification of Submittal Requirements).

Table XI-73-A. Stormwater Management Permit Submittal Requirements

Required Submittals (refer to sections listed for specific material)	
Section No./Description	

	XI-75	XI-76	XI-77	XI-78	XI-79	XI-80	XI-83	XI-84
	Application and Project Overview	Plan Submittal	Stormwater Submittal	Erosion Control Submittal	Floodplain/Floodway Submittal	Wetland Submittal	Performance Security	Maintenance Schedule and Funding
All requiring a permit	X	X		X			X	X
All requiring detention & volume control	X	X	X				X	X
All developments on site with floodplains	X	X			X		X	X
All developments on sites with or adjacent to Waters of the U.S. or Park Forest	X	X				X	X	X
All applications requesting variations	X	X	X	X	If on site	If on site	X	X

§ XI-74 Modification of Submittal Requirements

The Zoning Administrator may, at their discretion, modify the submittal requirements on a case-by-case basis considering the size, complexity, and likelihood that a development will affect the discharge of stormwater. Such modifications shall be requested and answered in writing. The Zoning Administrator's response shall note the relevant findings, specifically identifying what submittal requirements are changed. The Will County Stormwater Management Committee (WCSMC) Director shall be copied on all related correspondence involving modified submittal requirements. The Zoning Administrator may not modify submittal requirements for any aspect of the development requiring State or Federal permits or approvals, nor for any application in which any variation from this Article's requirements is requested.

§ XI-75 Applications and Project Overview

The applicant shall provide all the following information, as a minimum, on forms or in a format approved by the Zoning Administrator:

- A. The name and legal address of the owner(s) of the site and the permit applicant.
 - 1. If the applicant is a corporation, the president or other authorized officer shall sign the application form.
 - 2. If the application is a partnership, each partner shall sign the application form.
 - 3. If the application is a land trust, the trust officer shall sign the name of the trustee as trust officer. A disclosure affidavit shall be filed with the application, identifying each beneficiary of the trust by name and address, and defining respective interests therein.
- B. The common address, legal description, property identification number (PIN) of the site.
- C. The name of the project, type of development, area of the site in acres, size of area under development.

- D. A general narrative description of the development, existing and proposed conditions, and project planning principles considered, including Best Management Practices used.
- E. Affidavits signed by the owner or the applicant's authorized representative attesting to their understanding of the requirements of this Article and their intent to comply therewith.
- F. A statement of opinion by a qualified person either denying or acknowledging the presence of floodplain within the area of development, on the site, or 100 feet beyond the area of development if not included within the site.
- G. A statement of opinion by a qualified person either denying or acknowledging the presence of wetlands on or within 100 feet of the development site.
- H. Copies of other stormwater related permits, permit applications, or application findings as required when applicable, including:
 - 1. FEMA LOMAs, LOMRs, LOMR-Fs, CLOMAs, and CLOMRs;
 - 2. ACOE Section 404 permit or Letter of No Objection (LONO);
 - 3. IDNR/OWR Floodway permit, Dam permits, or Letter of No Objection for jurisdictional construction activities. Include documentation that conditions for any applicable Statewide or Regional permits have been met.
 - 4. IEPA NPDES ILR-10 permit number;
 - 5. MWRD WMO permit.
- I. An engineer's estimate of probable construction cost of the stormwater related facilities.

§ XI-76 Stormwater Management Plan Submittal

All applicants for a Stormwater Management Permit shall provide the following Stormwater Management Plan exhibits to document existing and proposed drainage conditions:

- A. The following property and watershed information shall be submitted to document existing drainage conditions:
 - 1. An ALTA Boundary Survey that includes all existing easements on the property (including their legal purpose) and FEMA delineated floodplain boundaries.
 - a) ALTA numeric provisions or the acceptance of a base plat are at the discretion of the engineer of record.
 - b) An extension of the ALTA Boundary Survey to include either the partial or full width of the adjacent rights-of-way should be incorporated when utility construction activities are anticipated within the right-of-way.
 - 2. Topographic Survey of Development Site and vicinity:
 - a) A topographic survey of the property presented at a map scale as one inch = 50 feet (or less) and accurate to +/- 0.5 feet at a one-foot contour interval.
 - (1) The datum of the topographic survey shall be NAVD 88 and shall be referenced to a Village of Park Forest benchmark datum.
 - (2) When floodways are within 500 feet of the project, the waterway name shall be provided, and the map datum shall be correlated to a FEMA or Will County reference mark.
 - b) Sufficient areas upstream and downstream of site as necessary to determine off-site impacts of the proposed drainage plan.

- (1) The surveyed topographic limits should extend a minimum of 25 feet beyond the site boundary.
 - (2) The surveyed topography should further extend as required to establish downstream overland flow control elevations and/or features.
 - (3) The extent of topography may be required to extend up to 100 feet offsite when wetlands, riparian buffers, or protected floodplains are present.
 - c) Roadways, including definitive curb and gutter dimensions, crown, edge of pavement, flow line and top of curb elevations, plus existing sidewalk elevations that will affect or control site grading or overland flow.
 - d) The location of all existing buildings on and adjacent to the site, together with applicable foundation and low opening elevations, noting all structures to remain.
 - e) Drainage structure and storm sewer information, including location, type, size, material, invert elevation, and slope located within the site and adjacent rights-of-way or immediately downstream of the site.
 - f) Other existing utilities on or adjacent to the site such as sanitary sewer, watermain, and other public utilities, including structure locations with pipe inverts, size, and material types.
 - g) Farm drains and tiles.
 - h) The banks and centerline of streams and channels, including the ordinary high-water elevation as established by a qualified professional.
 - i) Shorelines of lakes, ponds, and retention facilities presented at their ordinary high-water level (normal water elevation) as determined by a qualified professional.
 - j) Vicinity detention and volume control storage facilities.
 - k) Depressional storage areas, including the applicable saddle overflow elevation and highlighted contours used in the calculation of natural depressional storage.
 - l) Include the following information on the topographical mapping for any site where either floodplain or flood inundation is present within 100 feet of the site limits:
 - (1) Base flood elevation. Include callouts of BFE at each applicable site boundary line.
 - (2) Designated floodway boundary.
 - (3) 100-year base Regulatory Floodplain limit delineation based on topography as derived from either the FEMA Flood Insurance Rate Map or the MWRD Flood Inundation Mapping for Thorn Creek Tributary D,
 - (4) Modeled base flood flowage limits for waterways conveying watersheds draining tributary areas greater than 20 acres.
 - (5) Modeled extent of inundation limits of natural depressional areas for the base flood demonstrating the volume of containment at the indicated overflow elevation.
3. Interpreted tributary watershed elements:
- a) Watershed boundaries and their areas for all upstream watersheds approaching the development site.
 - b) Computed offsite tributary areas and flows at each site entry point.
 - c) Sub-watershed boundaries and their areas within the property.
 - d) Site drainage outlet locations.
 - e) Existing overland drainage paths through site.
4. Vicinity Topographical Map meeting the following requirements:
- a) An overview vicinity topographical map identifying all off-site areas draining to the development and downstream to the receiving intermittent or perennial stream. The contour interval shall be as needed to accurately delineate the tributary watershed.
 - (1) A two-foot contour map is preferred at a scale readable by a reviewer.
 - (2) A USGS Quadrangle Map or Hydraulic atlas is acceptable for large watersheds.

- b) Location of the development site within the major watershed(s).
 - c) Names of roads in the vicinity of the site.
 - d) Watershed boundaries for areas draining through or from the development, including the names of all regulatory waterways that have been identified within a FEMA FIS.
 - e) Schematic representation of existing major and minor drainage systems affecting or potentially affected by the proposed development.
 - f) Show the overland flow path from the downstream end of the development to the receiving intermittent or perennial stream.
5. Floodplain Mapping Documentation:
- a) Current FIRM map or map revision that delineates the project site.
 - b) Floodway Map for any project when along a regulated waterway.
 - c) Flood profile information affecting the project site.
 - d) In Cook County the site shall also be delineated on the MWRD inundation mapping.
6. Soil and Land Use Mapping:
- a) NRSC Soil Survey Map of the development site and upstream tributary areas;
 - b) Soil Classification descriptions and physical property data information for each indicated onsite and tributary area soil.
 - c) A map designation of all tributary area soil types related to their hydrologic soils group.
 - d) A current aerial map of the development site and its tributary watershed illustrating vegetation and land cover affecting runoff upstream of the site.
 - e) Existing and Proposed Land Use Maps of the development site and its tributary watershed.
7. Environmental Features: A depiction of environmental features of the property and immediate vicinity including the following:
- a) The delineated limits of wetland and adjacent protective riparian areas, including the ordinary high-water elevation, as prescribed in the current ACOE Wetland Delineation Manual.
 - b) A copy of the National Wetlands Inventory Map delineating the proposed development site.
 - c) On-site NRSC mapped boundary of hydric soils, where present.
 - d) The limits of designated natural areas.
 - e) Existing trees and vegetation areas on the site.
8. A subsurface drainage investigation report supported by site geotechnical studies with soil borings and including a written analysis of the groundwater elevation and soil color (indicative of hydric conditions) as required to establish the design parameters for wetland preservation, volume control storage and stormwater detention design:
- a) Provide appropriate sub-soil infiltration rates in locations of storage facilities. Include percolation test data using single ring or double ring infiltrometer method if an infiltration rate of 0.5 inches/hour or greater is used in the rate control volume calculations.
 - b) The soil boring profiles shall be included within the plan documents.
 - c) The existing interpolated water table elevation shall be included on the profiles of proposed sewers and proposed cross-sections of drainage facilities.
- B. The following property and watershed information shall be submitted to present proposed stormwater management of the development site:
- 1. A proposed development site plan showing proposed pavements and structures superimposed on the existing site topography.
 - 2. Permanent public access maintenance easements granted or dedicated to, and accepted by, a government entity.
 - 3. Proposed major and minor stormwater systems.
 - 4. Proposed on-site contours and habitable structure foundation elevations.

5. Proposed drainage patterns and watershed boundaries.
 6. Delineation of post-development regulatory floodplain/floodway limits with the base flood and flood protection elevations noted.
 7. Locations of cross-sections and any other hydrologic/hydraulic computer modeled features, including critical sections of overland flow routes.
 8. Design details for proposed stormwater facilities (i.e. storage facilities, drainage structures and controlled outlet detail drawings, etc.).
 9. Highlighted plan areas with elevations below the 100-year high water elevation of the site runoff and storage facilities.
 10. Maintenance provisions:
 - a) Scheduled maintenance program for permanent stormwater facilities including BMP measures.
 - b) Planned maintenance tasks and schedule.
 - c) Identification of entities responsible for maintenance.
- C. The engineering plans shall have a certification by the registered professional engineer who seals the plans as follows:

"I, _____, hereby certify that adequate stormwater storage and drainage capacity has been provided by this development, such that surface water from the development will not be diverted onto and cause damage to adjacent property for storms up to and including the one hundred (100) year event, and that the design plans are in compliance with all applicable federal, state, county, and village laws and ordinances."

§ XI-77 Stormwater Submittal

The stormwater submittal shall include narrative discussion and calculations to support a finding that the proposed development complies with the technical requirements of the permitting authority ordinance. The submittal shall consist of, at a minimum, the following material.

- A. A narrative description of the existing and proposed site drainage patterns and conditions. Include description of off-site conditions, which help to identify stormwater issues considered in the design. The description shall include:
 1. Identification and description of all development site outlets, including the results of an outlet evaluation of available downstream drainage system conveyance capacity.
 2. Development site area in acres of existing impervious areas.
 3. Development site area in acres of proposed impervious areas.
 4. A narrative description of the upstream tributary area(s) to allow for evaluation of offsite impacts to and resulting from the proposed development.
 5. The narrative shall address the approach used in the development of the proposed project to minimize increases of runoff volumes and rates reflecting the Best Management Practices hierarchy of §XI-21.A.5 (Best Management Practices Requirements).
- B. A schedule for implementation of the site stormwater management plan.
- C. On-site and off-site runoff calculations in accordance with §§XI-8 to XI-22 (General Stormwater Requirements) of this Article which address the following:
 1. Documentation of the procedures, assumptions, and data used to calculate hydrologic and hydraulic conditions for sizing major and minor stormwater systems.

2. Direction of storm flows.
 3. Time of concentration calculations.
 4. Curve number calculations for existing and proposed conditions, including applications of topsoil preservation incentive commitments.
 5. Delineation of areas tributary to each stormwater facility, overland flow route, and storage facility;
 6. Calculations for sizing storm sewer systems.
 7. Hydraulic grade line and water surface elevations under design flow conditions.
 8. Hydraulic grade line and water surface elevations under base flood flow conditions.
 9. Calculations of flow and velocity for sizing overland flow routes, channels, and swales.
 10. Cross-section data for open channel flow paths and designated overland flow routes.
 11. Profile drawings for open channels and sewers.
 12. Assumptions or calculations utilized to determine tailwater conditions for the site.
 13. Other calculations necessary to demonstrate compliance with this Article such as computation of depressional storage volumes or interpolations of Base Flood Elevations, where present.
- D. A Volume Control BMP Storage Plan with supporting calculations that describes all measures appropriate for the development in accordance with §§XI-23 to XI-27 (Site Volume Control BMP Requirements) of this Article. This plan shall include:
1. Calculations of impervious area and the associated volume required for the volume control practices.
 2. Narrative description of likely water quality impacts based upon the proposed development land use.
 3. Description of soils that shall include:
 - a) Infiltration rates.
 - b) Percentage of clay.
 - c) Depth to water table, bedrock, or limiting layer.
 4. Narrative description of the utilization of the volume control practices hierarchy in §XI-25. A. to C. (Volume Control Practices, Requirements, and Design Criteria) of this Article, including the use of retention-based practices, adjacent offsite volume control practices, and flow-through practices in §XI-25. A.3 and for impervious area reduction in §XI-25.C of this Article.
 5. Calculations of the quantifiable storage in each proposed retention-based practice(s) in §XI-25. A of this Article to verify adequate storage.
 6. Calculations to demonstrate that the chosen flow-through practice(s) in §XI-25. A of this Article will treat the targeted water quality impacts.
 7. Calculations of impervious area reduction in §XI-25. C.1 of this Article, if applicable.
- E. Site Runoff Storage (Detention) Plan with supporting calculations, which addresses all measures appropriate for the development in accordance with §§XI-28 to XI-37 (Site Runoff Storage Requirements) of this Article. This plan shall include the following:
1. Calculation of hydraulically connected impervious area and corresponding retention volume.
 2. Documentation of the procedures, assumptions, and data used to calculate hydrologic and hydraulic conditions for determining the allowable release rate.
 3. Documentation of the procedures, assumptions, and data used to calculate on-site depressional storage.
 4. Documentation of the procedures/assumptions used to calculate hydrologic and hydraulic conditions for determining the storage volume.
 5. Elevation verses storage area curve data and associated calculations for site runoff storage (detention) facility.

6. Elevation-discharge data, and calculations specifically related to the outlet control structure depicted in the plan exhibits, including assumptions or calculations utilized to determine tailwater conditions affecting each control structure.
7. Calculations demonstrating that the detention facility overflow structure is properly sized.

§ XI-78 Soil Erosion and Sediment Control Submittal

The Soil Erosion and Sediment Control submittal shall meet the requirements of §§XI-38 through XI-42 (Soil Erosion and Sedimentation Control Requirements) and shall include the following when applicable:

- A. Maps, plan sheet(s) and exhibits in accordance with §XI-39 (Soil Erosion and Sediment Control Requirements) of this Article.
 1. Plan sheets should have the same scale as the site topography and include the following:
 - a. Existing and proposed roadways, structures, parking lots, driveways, sidewalks, and other impervious surfaces.
 - b. Floodplain/floodway locations.
 - c. Delineated wetlands distinguished between ACOE jurisdictional and Park Forest isolated wetlands.
 - d. Proposed buffer location, existing soil types, vegetation, and land cover conditions.
 - e. Limits of clearing and grading.
 - f. Sediment/erosion control installation measures and schedule.
 - g. List of maintenance tasks and schedule for sediment/erosion control measures.
- B. A Soil Erosion and Sediment Control Plan that describes all measures appropriate for the development such that the requirements of §§XI-38 through XI-42 (Soil Erosion and Sediment Control Requirements) are met. This plan shall include:
 1. A narrative description of the existing land cover, hydrologic conditions of the proposed development, and the areas adjacent to the development, including a description of any flood protection areas, site discharge location(s), points of discharge to jurisdictional waters of the U.S., and soil survey data referenced to accompanying exhibit(s).
 2. The NPDES ILR-10 permit number issued by IEPA to the applicant upon submittal of the ILR-10 Notice of Intent permit application or permit.
 3. A narrative description of the proposed temporary erosion and sediment control practices, including a narrative describing how flood protection areas will be protected from erosion and sedimentation.
 4. A schedule of construction activities including, but not limited to, clearing and grading, installation of stabilized construction entrances, disposal of construction waste, stockpiling, and inspection and maintenance of all erosion and sediment control practices.
 5. A narrative describing how flood protection areas will be protected from erosion and sedimentation.
 6. Data and calculations used to size, locate, design, and maintain all erosion and sediment control practices, and for the design temporary stream crossings.
 7. A definitive mechanism for ensuring that the erosion and sediment control installation and maintenance requirements for both temporary and permanent measures will be met, including the list of maintenance tasks and performance schedules that have been identified and/or required in the plan sheet(s) and specifications.

§ XI-79 Floodplain/Floodway Submittal

The Floodplain/Floodway submittal shall include all documents necessary to document Village, IDNR/OWR, and FEMA permitting responsibilities as defined in §XI-43 (General Application and Agency Coordination) for the associated Designated Floodway and IDNR/OWR Regulatory Floodplain Locations) of this Article. Separate information shall also be provided to document Village Stormwater Management Permit review of flood-prone areas. The applicant shall obtain impact determinations from IDNR/OWR for all hydraulically-related modifications of the designated Floodway or Regulatory Floodplain which may require floodway permits and/or FEMA concurrence for FIRM map changes. Documentation shall be submitted with this application supporting a finding that the proposed development complies with the Floodplains and Floodways requirements of this Article as established in §§XI-43 through §XI-52. The documentation should include a description of the proposed activity and a stated purpose of the proposed activity. At a minimum, the following material shall be submitted for approval with the application.

- A. The application for a Stormwater Management Permit involving floodplain or floodway shall be made on a form provided by the Zoning Administrator.
 - 1. The application shall be accompanied by drawings of the site, drawn to scale showing the following information at a minimum:
 - a. Property line dimensions,
 - b. Existing grade elevations, and
 - c. All changes in grade resulting from excavation or filling.
 - d. The location and dimensions of all buildings and additions to buildings,
 - e. The elevations of the lowest floor (including basement) of any existing building on the site that is to remain.
 - f. The elevations of the lowest floor (including basement) of all proposed buildings demonstrating design compliance with XI-51 (Protection of Buildings and Vehicles in All Floodplain Areas).
 - 2. These drawings shall be sealed by a Professional Engineer, Licensed Architect, or Registered Land Surveyor.
 - 3. The anticipated dates of initiation and completion of activity, distinguishing scheduled construction activities within and outside the IDNR/OWR Regulated Floodway and floodplain.
- B. Designated Floodway and Regulatory Floodplain boundary determination:
 - 1. Site location (including legal description) of the property, drawn to scale, on the FIRM, indicating whether it is proposed to be in an incorporated or unincorporated area. Show the name of the stream or the water body affected.
 - 2. Provide source of flood profile information.
 - 3. Provide all hydrologic and hydraulic study information for site-specific floodplain studies, unnumbered Zone 'A' area elevation determinations, and floodplain map revisions.
 - 4. Determine the BFE and show its limits on plan sheets for existing and proposed conditions.
 - 5. Define the FPE applicable to the development in accordance with its definition provided in §XI-3 (Definitions) and §XI-51 (Protection of Buildings and Vehicles in All Floodplain Areas).
- C. A detailed narrative description of the proposed development within the limits of the Designated Floodway and Regulatory Floodplain, including its purpose and its intended use.
 - 1. The description must document whether the proposed development is an appropriate use or activity at its proposed location. Where applicable, the documentation shall affirm compliance with conditions stipulated in the statewide permits or Regional Permit #3.

2. For developments that involve additions or modifications of an existing building on a parcel that is within the Designated Floodway or IDNR/OWR Regulatory Floodplain, the development site plan and documentation shall clearly provide the following:
 - a) the BFE elevation and its horizontal limits for both existing and proposed grading conditions
 - b) the elevation of the lowest floor (including basement)
 - c) the elevation of the concrete slab at any garage door openings
 - d) the bottom elevation and dimensions of any foundation openings
 - e) the bottom elevation of horizontal floor support members for buildings constructed on a crawl space
 - f) the dimensions and floor elevation of all accessory structures
 - g) the lowest adjacent ground elevations along the building foundation
 - h) the adjacent ground elevation at each building opening
 - i) a description of any existing sump pump system flood protection capability, and
 - j) the building elevation certification for applicable existing buildings in accordance with in §XI-7 (Building Permit and Occupancy Prerequisites).
 3. For developments involving new building(s) on a parcel that is within the Designated Floodway or Regulatory Floodplain, the development site plan shall clearly provide all the information listed above in C.2.a – h plus demonstrate compliance with §XI-7.B (Building Permit Prerequisites) and §XI-51 (Protecting Buildings and Vehicles in All Floodplain Areas).
 4. The description must define the nature of all grading changes and address associated impacts to the floodplain and floodway in accordance with §XI-43 to XI-49.
- C. A preliminary determination from the applicant of whether the development or building modifications constitutes a substantial improvement. This determination is subject to a final determination by the Zoning Administrator.
- D. Flood proofing measures.
1. Narrative discussion of flood proofing measures, when applicable, including material specifications, calculations, design details, and operation summary which demonstrates compliance with 44 CFR §60.3—Floodplain Management Criteria for Flood-prone Areas.
 2. Narrative and supporting calculations required to demonstrate that structures built on fill in or near SFHA are reasonably safe from flooding pursuant to FEMA Technical Bulletin 10.
 3. Provide floodproofing certification for applicable non-residential buildings.
- E. Floodplain fill and compensatory storage calculations for below and above 10-year flood elevation up to the base flood elevation, including:
1. Cross section views of the project and engineering study reach showing existing and proposed conditions presented on graphical or numeric scales with existing and proposed elevations, 10-year frequency flood elevation, and BFE. Also provide the ordinary high-water elevation for perennial streams, ponds, and depressional wetlands.
 2. A plan view delineating the location of the cross sections.
 3. Tabular summary for below and above 10-year flood elevation of fill, compensatory storage, and compensatory storage ratios provided in proposed plan.
- F. Revisions to FIRM(s), including all hydrologic and hydraulic calculations, modeling, and all CLOMR/LOMR and LOMR-F applications.
- G. A copy of the applicable Cook County or Will County FIS Floodway Data Table.

- H. For development within the Designated Floodway or INDR/OWR Regulatory Floodplain, the following calculations or analysis shall also be submitted to demonstrate compliance with §XI-47 (Occupation and Use of Designated Floodways) and §XI-48 (Occupation and Use of Floodplain Areas Where Floodways are Not Identified) of this Article:
1. Existing and proposed hydrologic and hydraulic analysis (land use and stream systems).
 2. Tabular summary of existing and proposed flows, flood elevations, and floodway velocities for the two-year, 10-year, and 100-year storm event.
 3. All calculations used in the hydrologic and hydraulic modeling.
 4. Input and output for hydrologic and hydraulic computer models.
 5. The plans of the proposed activity shall include a vicinity map showing the site of the activity, name of the waterway, boundary lines, names of roads in the vicinity of the site, graphic scale, and north arrow.
 6. Plan view drawing on existing/proposed topographical background showing all cross sections and transition sections utilized within the hydraulic computer models. The cross-sections shall be perpendicular to the flow of floodwater.
 7. Cross-section views of the project on graphic scale (horizontal and vertical) and engineering study reach showing existing and proposed conditions, including principal dimensions of the work as shown on the plan view, existing and proposed elevations, ordinary high-water elevation, 10-year frequency flood elevation, and BFE.
 8. The hydraulic analysis of new, modified, or replacement bridges or culverts shall include impacts from modifications to their roadway approaches.
 - a) For purposes of evaluating public safety and emergency vehicle accessibility, the roadway overtopping and overflow flood frequencies and depths should be determined and indicated on the roadway cross-section along with the 10-year and BFE elevations.
 - b) The extent of impacts to existing upstream structures from flood backwater conditions associated with the existing drainage structure and roadway approaches shall be documented. This documentation shall include upstream building locations as well as their lowest opening elevations. The presence of basements within affected structures shall be noted. Lowest floor elevations shall be provided to the extent available from public records of building elevation certificates kept by the Zoning Administrator.
 9. Analysis of hydraulically equivalent compensatory storage provided by the development.
- I. A seeding or stabilization plan for the disturbed area shall accompany the submittal to IDNR/OWR.
- J. Copies of any of the following forms of correspondence from the IDNR/OWR:
1. A "Letter of No Objection" stating that no IDNR/OWR permit is necessary; or
 2. A copy of the completed joint application form (NCR Form 426, "Protecting Illinois Waters") signed by the applicant, together with all associated correspondence submitted to and received from IDNR/OWR.
- K. Flood easements when required by IDNR/OWR and the Zoning Administrator pursuant to this Article.
- L. Copies of all other state and federal permit applications, compliance documents or correspondence related to the state and federal Endangered Species Act.

§ XI-80 Wetland Submittal

Wetland-related permit submittal requirements depend upon whether the development is within ACOE jurisdictional Waters of the U.S. or Isolated Waters of Park Forest as provided below. The wetland submittal shall be in accordance with §§XI-53 to XI-65 (Stream and Wetland Protection) of this Article. The applicant shall provide a Wetland Status Certification that documents the determination of jurisdictional status of all wetlands located on the site or within 100 feet of the site boundary. A copy of the ACOE jurisdictional determination shall be included within the wetland submittal.

- A. For wetland impacts to Waters of the U.S. or to Isolated Waters of Park Forest, the following information is required:
1. A wetland delineation and wetland determination report prepared by a qualified wetland specialist. The delineation shall be consistent with all the Wetland Status Certification requirements of §XI-57 (Wetland Status Certification) of this Article.
 2. Copies of the following forms of correspondence with the U.S. ACOE:
 - a) A jurisdictional determination from the ACOE indicating whether or not the delineated wetlands are under the jurisdiction of the ACOE.
 - b) A “Letter of No Objection” from the ACOE stating that no permit from the ACOE is necessary.
 - c) If required by the ACOE, a Section 404 permit application together with all associated correspondence and a copy of the completed joint application form (NCR Form 426, “Protecting Illinois Waters”) signed by the applicant.
 3. Listed and indicated buffer requirements as required by the ACOE for jurisdictional wetlands or as required by this Article for Isolated Wetlands of Park Forest.
 4. A cover letter signed by a Qualified Wetland Professional that provides a clear project purpose and need statement, a description of the proposed development site activity, defines the area (in acres) of wetland and/or buffer impact, and summarizes the mitigation requirements associated with each wetland encroachment and impact.
 5. Documentation of the floristic quality index for each delineated wetland and the associated wetland quality classification according to the Village’s wetland classification hierarchy.
 6. Documentation that the development complies with the Illinois Department of Natural Resources’ (IDNR) threatened and endangered species consultation program pursuant to the Illinois Natural Areas Preservation Act.
 7. Documentation that the development complies with the U.S. Fish and Wildlife Service (USFWS) threatened and endangered species consultation program pursuant to the endangered Species Act.
 8. A mitigation plan meeting the requirements of this Article.
 9. A discussion, hydrology calculations, or other supporting information to document that the on-site preserved wetlands and off-site wetlands will not be impacted either from adverse changes in hydrology or pollutant/sediment loading or erosion.
 10. A narrative of the alternative measures taken to avoid, minimize, or mitigate for the Isolated Wetlands of Park Forest.
 11. For impacts to High Quality Isolated Wetlands, documentation must be provided indicating that the proposed amount of impact represents the least amount of impact required to allow for an economically feasible use of the parcel, and documentation shall be provided indicating that:
 - a) The presence of High-Quality Isolated Wetlands precludes all economically feasible uses of the site and no practicable alternative to wetland modification exists; and/or
 - b) Avoidance of High-Quality Isolated Wetlands would create a hazardous road condition and no practicable alternative to wetland modification exists.
- B. For impacts to isolated wetland buffers, documentation must be provided that describes how the impacted buffer functions and how its values will be mitigated. Isolated wetland buffer impacts may

be mitigated via replacement, or enhancement of impacted functions and values, or through buffer averaging.

OTHER SUBMITTALS PRIOR TO PERMIT ISSUANCE

§ XI-81 Additional Submittals Required

The following additional submittals as noted in §XI-82 (Plat of Easement), §XI-83 (Performance Security), and §XI-84 (Stormwater Management System Maintenance Schedule and Funding) are required prior to issuance of the Stormwater Management Permit.

§ XI-82 Plat of Easement

An easement shall be granted to the Village for all stormwater management facilities for which a long-term maintenance agreement is required. The easement shall be recorded as a condition for approval of the Stormwater Management Permit.

§ XI-83 Performance Security

Performance security in accordance with §§XI-118 through XI-122 (Performance Security) shall be required prior to permit issuance.

§ XI-84 Stormwater Management System Maintenance Schedule and Funding

Maintenance and Monitoring Plan. The maintenance and monitoring plan submittal shall consist of the assignment of maintenance responsibility together with the development of a detailed schedule of intermittent and recurring maintenance tasks for the stormwater and watershed management features in accordance with §§XI-86 through XI-91 (Long-Term Maintenance). The features requiring perpetual maintenance plans include detention facilities, volume storage control facilities, and protected wetlands. Temporary maintenance and monitoring plans shall be prepared to address erosion and sediment control affecting these features during construction activities. No permits will be issued unless the maintenance plan is approved.

- A. Long-term maintenance responsibility shall be established pursuant to §XI-86 (Long-Term Maintenance) of this Article. This shall include the identification of the entity responsible for maintenance and funding, as well as back-up funding sources in accordance with §XI-91 (Funding of Long-Term Maintenance of Stormwater Facilities and Wetlands).
- B. The maintenance management plans shall be in accordance with applicable IEPA NPDES Phase 2 requirements and shall comply with US EPA guidelines for maintenance of MS-4 stormwater water quality management facilities. The plan shall be prepared by:
 - 1. Registered Professional Engineers - The applicant shall provide an Illinois Registered Professional Engineer or persons working under their direct control and authority to provide construction stake-out and construction observation periodically as required when work is being performed. The applicant's Registered Professional Engineer shall provide progress reports approved by the applicant to the Village and the Village Engineer on a weekly basis if determined to be necessary by the Village.

2. Professional Landscape Architect or Wetland Designer/ Ecologist - The applicant shall provide a Professional Landscape Architect or Wetland Designer/Ecologist or persons working under their direct control and authority to provide the required reports and monitoring plans.

§ XI-85 Issuance or Denial of Permit and Appeal of Permit Denial

The Zoning Administrator shall either issue or deny a stormwater permit within 30 days of receiving a complete permit application and all required submittals and fees unless additional time is granted by both the Administrator and the applicant. When a permit is denied, the applicant may appeal the Zoning Administrator's decision to the Village Board provided such appeal is made in writing within 15 days of the date of the notification of denial. The Village Board shall render a decision to issue the Stormwater Management Permit, issue the permit with conditions, or uphold the Zoning Administrator's denial of the permit. The Village Board shall render its decision within 30 days of the appeal. Failure of the Village Board to take action shall be deemed action to uphold the permit denial by the Zoning Administrator.

Upon denial by the Village, the applicant may file an appeal in writing within 15 days of the denial or decision or the community's action to the Will County Board.

LONG-TERM MAINTENANCE

§ XI-86 Long-Term Maintenance

- A. Unless maintenance responsibility has been delegated to and accepted by another qualified entity under this section, the owner shall maintain that portion of a stormwater drainage system located upon their land. With the approval of the Zoning Administrator the stormwater drainage system, or specified portions thereof, may be:
 1. Dedicated or otherwise transferred to and accepted by the Village or other public entity; or
 2. Conveyed or otherwise transferred to and accepted by a property owner's association, or similar entity, the members of which are to be the owners of all the lots or parcels comprising the development; or
 3. Conveyed to one or more persons or in one or more undivided interests to one or more persons.
- B. Except for those portions of a stormwater drainage system to be dedicated or otherwise transferred to the Village or other public entity, included in the application for a stormwater permit shall be a plan for the long-term management, operation and maintenance of the stormwater drainage system and a description of the sources of funding.
 1. The Permittee shall therefore be responsible for preparing the detailed long-term maintenance plan for the review and concurrence by the Zoning Administrator.
 2. Amendments to the plan must be approved by the Zoning Administrator.
- C. All property owners of a retention or detention pond and/or related stormwater management facilities shall be required to comply with the requirements of a Pond Self-Inspection Program requiring the submittal of an annual inspection report of the condition of stormwater facilities and the completion of any identified required maintenance activities. The requirements of the Program (including but not limited to inspectional and maintenance standards) shall be provided by the Zoning Administrator and may be revised on an annual basis or as deemed necessary by the Zoning Administrator from time to time. The Zoning Administrator shall at all times maintain a current set of the Program requirements for public inspection and copying. Annual inspection reports shall be

submitted to the Village on or before July of each year. Where an annual inspection report submitted to the Zoning Administrator indicates that certain maintenance activities are necessary in order to bring the subject retention pond, detention pond, or stormwater management facilities into compliance with the Program requirements and the otherwise applicable ordinances of the Village, the property owner submitting the report shall complete all such required maintenance activities within 90 days of the date on which the Village receives the annual inspection report, and shall likewise furnish to the Village a statement within such 90 day period certifying that all maintenance activities indicated by the relevant inspection report have been completed.

§ XI-87 Transfer to Permitting Authority or Other Public Entity

If any portion of the stormwater drainage system is to be dedicated or otherwise transferred to the Village or other public entity under §XI-86.A.1 (Long-Term Maintenance), appropriate easements for ingress and egress to and maintenance of such portions shall be reserved for the benefit of such entity on the final plat. The Village will accept such a dedication primarily for single family residential subdivisions provided a Special Service Area is established based on the requirements of §XI-91 (Funding of Long-Term Maintenance of Stormwater and Wetland Facilities).

§ XI-88 Transfer to Property Owner's Association

If any portion of the stormwater drainage system is to be conveyed or otherwise transferred to a property owner's association or similar entity under §XI-86.A.2 (Long-Term Maintenance) then:

- A. Appropriate easements for ingress and egress to and maintenance of such portions shall be reserved for the benefit of such association and the permitting authority on the final plat.
- B. The association shall be duly incorporated and a copy of the Certificate of Incorporation, duly recorded, and bylaws, and any amendment to either of them, shall be delivered to the Zoning Administrator.
- C. The bylaws of the association shall, at a minimum, contain:
 - 1. A provision acknowledging and accepting the association's obligation to maintain certain portions of the stormwater drainage system as required by this Article; and
 - 2. A mechanism for imposing an assessment upon the owners of all of the lots or parcels comprising the development sufficient, at a minimum, to provide for the maintenance of those portions of the stormwater drainage system as required by this Article and the payment of all taxes levied thereon;
 - 3. A provision adopting the plan of long-term maintenance set forth in the application for a stormwater management permit, with approved amendments; and
 - 4. A provision identifying the officer of the association responsible for carrying out the obligations imposed upon the association under this Article, and an obligation to inform the Zoning Administrator of the name, address, and phone number of this officer and any changes thereto; and
 - 5. A provision requiring the consent of the permitting authority to any amendment of the bylaws changing any of the provisions of the bylaws required by this Article; and
 - 6. A provision requiring the consent of the permitting authority to the dissolution of the association.

D. Any conveyance or other instrument of transfer delivered under §XI-86.A.2 (Long-Term Maintenance) of this Article shall include a covenant affirmatively imposing upon the association the obligations set forth in this section and the association's affirmative acceptance thereof.

§ XI-89 Conveyance to One or More Persons

If any portion of the stormwater drainage system is to be conveyed to one or more persons under §XI-86.A.3 (Long-Term Maintenance) then:

- A. Appropriate easements for ingress and egress to and maintenance of such portions shall be reserved for the benefit of the permitting authority on the final plat.
- B. The final plat shall contain a legend imposing the maintenance obligations of this section upon the grantee and their successors in interest as a covenant running with the land and incorporating by reference the plan of long-term maintenance set forth in the application for a stormwater management permit, with approved amendments.
- C. The final plat shall contain a legend reserving the right of the permitting authority to enter upon the land to perform the maintenance required in this section if the owner does not do so and to place a lien against the land for the cost thereof.
- D. Any conveyance delivered under §XI-86.A.3 (Long-Term Maintenance), and any subsequent conveyance, shall include a covenant affirmatively imposing upon the grantee the obligations, restrictions, and provisions set forth in this section and the grantee's affirmative acceptance thereof.

§ XI-90 Incorporation of Maintenance Obligations in Stormwater Management Permit

The provisions of §§XI-86 through XI-91 (Long-Term Maintenance) shall be incorporated by reference in the stormwater management permit and the applicant's acceptance of the permit shall be deemed to be the applicant's acceptance and assumption of the obligations imposed under this section. At the option of the Zoning Administrator, the Stormwater Management Permit may be recorded.

§ XI-91 Funding of Long-Term Maintenance of Stormwater and Wetland Facilities

Pursuant to requirements of the WCSMO, provision of an adequate mechanism for long-term funding to cover future stormwater facility and wetland maintenance expenditures shall be established as a condition of approval for a Stormwater Management Permit.

- A. Unless the maintenance responsibility for the stormwater drainage system to be constructed or installed in connection therewith has been accepted by a public entity, the Zoning Administrator will require assurance of long-term funding in a form found acceptable to the permitting authority. A corporation with a bond rating of "A" or higher from a major investment firm (i.e. Standard and Poor, Moody or equivalent) will be considered to have met the long-term maintenance funding requirement. Absent some other form of agreement, then the Zoning Administrator shall require the establishment of a Special Service Area pursuant to ILCS Ch. 35, Act 200, § 27-5, et seq., either as the primary means of providing for the long-term maintenance of the facilities, or as a backup vehicle in the event the entity designated by the applicant as having primary maintenance responsibility fails to adequately carry out its duties.

- B. If the establishment of a Special Service Area is required, the Zoning Administrator shall consider and approve a good faith estimate by the applicant of the tax rate required to produce a tax to be levied upon all taxable property within the area, sufficient for the long-term maintenance of the facilities and submit the same to the permitting authority which shall incorporate such rate into its enactment of the ordinances necessary for the establishment of the area.
- C. On or before August 1 of each year thereafter, the Zoning Administrator shall submit to the permitting authority a good faith-estimate of the amount of tax required to be levied upon all taxable property within the area for the next fiscal year for the continued maintenance of the stormwater drainage system.

CONSTRUCTION CERTIFICATION

§ XI-92 Record Drawings

The developer is required to submit record drawings of all permitted stormwater facilities. The record drawings shall be signed and sealed by a Professional Engineer or Professional Land Surveyor who shall state that the project as constructed is substantially in conformance with the project as permitted. The record drawings shall include calculations verifying that the volumes of Volume Control BMP storage, detention storage, and compensatory storage required in the permit have been provided.

- A. An “as-built” grading plan shall be submitted to the Zoning Administrator for review and approval prior to the issuance of final certificate of occupancy for a structure if a site grading plan was a requirement of the Stormwater Management Permit. The “as-built’ grading plan shall include sufficient actual land elevations and structure elevations to prove that the grading was constructed in accordance with the intent of the grading plan submitted for the permit. Copies of the “as-built’ grading plan will be available to the property owner, their agents, IDNR/OWR and FEMA.
- B. In addition, for any new or substantially improved building in a SFHA a Professional Land Surveyor shall affirm that the building and associated site grading meet the elevation requirements of the Stormwater Management Permit for the building and permitted parcel. The Zoning Administrator will review and maintain completed Elevation Certificates showing the “finished construction” elevations. Copies of the Elevation Certificates will be available to the property owner, their agents, IDNR/OWR and FEMA.
- C. For any new or substantially improved non-residential building on a permitted parcel within a floodplain that meets the building protection standards using floodproofing techniques defined in FEMA Flood Insurance Administration Technical Bulletin-3, the Zoning Administrator will review and maintain completed Floodproofing Certificates. Copies of these certificates will be available to the property owner, their agents, IDNR/OWR and FEMA.

ENFORCEMENT AND PENALTIES

§ XI-93 Inspection and Maintenance Authority

Pursuant to the authority granted by ILCS Ch. 55, Act 5, §§ 5-1104 and 5-1062, the Village or county may, after 10-day notice to the owner or occupant, enter upon any lands or waters within the Village for the

purpose of inspecting and/or maintaining stormwater facilities or causing the removal of any obstruction to an affected watercourse. Such requirement of notice shall not infringe upon any rights of the Village to take immediate actions to protect the public health and safety.

§ XI-94 Required Inspections

Any development constructed pursuant to a Stormwater Management Permit shall be subject to periodic inspections by the Zoning Administrator, the WCSMC Director, or their designee to ensure conformity with permit provisions and conditions. Such inspections may be conducted without notice at any time while the permit is effective.

§ XI-95 Violations and Offenses

- A. It shall be unlawful for any person to undertake any development without first securing a Stormwater Management Permit as required by this Article.
- B. Any person who violates, disobeys, omits, neglects, refuses to comply with, or resists the enforcement of any provision of this Article ("Article violation") or any requirement or condition in any permit or variance issued pursuant to this Article ("permit violation"), and, in the case of a permit violation, fails to correct such violation, omission or neglect, or cease such disobedience, refusal or resistance after notice and re-inspection as provided in §XI-95.E (Permit Violation—Notice) of this Article, shall be guilty of an offense under this Article.
- C. The failure of a building or structure or other development to be fully compliant with the Village’s floodplain and stormwater management regulations shall be deemed as a violation. A building or other development that is constructed without the elevation certificate or other evidence of flood protection compliance is deemed to be in violation until such time as the documentation is provided.
- D. It shall be unlawful for any person to fail to maintain systems, in whole or in part, as required:
 - 1. Within a Stormwater Management Permit; and
 - 2. Within the maintenance plan of the permit as required pursuant to the maintenance schedule and funding terms of this article.
- E. Permit violation--Notice. Whenever the Zoning Administrator or WCSMC Director determines that a permit violation exists, they shall give notice of the violation in the manner prescribed in §XI-116 (Service) of this Article to the permittee. Such notice shall state the nature of the violation and fix a date not less than ten days after the date of the notice when the site will be re-inspected.
- F. When violations are deemed to result in the potential increase of flood damages to a property, the Zoning Administrator shall inform the owner that such violation is considered a willful act to increase flood damages and, therefore, may cause coverage by a Standard Flood Insurance Policy to be suspended.

§ XI-96 Penalties and Remedies

- A. Any person found guilty of an offense under this Article shall pay a civil fine in an amount not less than \$50 and not more than \$1,000 for each offense. Each calendar day during which such violation continues to exist shall constitute a separate offense.

- B. In addition to any fine imposed under division A of this section, the Zoning Administrator may revoke any Stormwater Management Permit issued to such person.

- C. In addition to any fine imposed under division A of this section or action taken under division B of this section, the Zoning Administrator or the WCSMC Director is authorized to issue an order requiring the suspension of any further work on the site. Such stop-work order shall be in writing, shall indicate the reason for its issuance, and shall specify the action, if any, required to be taken in order to resume work.
 - 1. One copy of the stop-work order shall be posted on the site in a conspicuous place and one copy shall be delivered in the manner prescribed in §XI-116 (Service) of this Article to the permittee, if any, or if none, to the person in whose name the site was last assessed for taxes as disclosed by the records of the Supervisor of Assessments, as that person is known in their respective County.
 - 2. No Stormwater Management Permit shall be permanently suspended or revoked until a hearing is held by the Park Forest Board of Trustees. Written notice of such hearing shall be served on the permittee and shall state: (a) the grounds for complaint or reasons for suspension or revocation; and (b) the time and place of the hearing. At such hearing, the Permittee shall be given an opportunity to present evidence on their behalf. At the conclusion of the hearing the Park Forest Board of Trustees shall determine whether the permit shall be suspended or revoked.
 - 3. Nothing herein shall prevent the Village from taking such other lawful action to prevent or remedy any violations. All costs connected therewith shall accrue to the person or persons responsible.

- D. In the enforcement of this Article, the Zoning Administrator or the WCSMC Director may bring any action, legal or equitable, including an action for injunctive relief that may be necessary. If such owner fails after ten-day notice to correct the violation:
 - 1. The Village may make application to the Circuit Court for an injunction requiring conformance with this Article or make such order as the Court deems necessary to secure compliance with this Article.
 - 2. Any person who violates this Article shall, upon conviction thereof, be fined not less than \$50 nor more than \$1,000 for each offense.
 - 3. A separate offense shall be deemed committed upon each day during or on which a violation occurs or continues.
 - 4. The Village shall record a notice of violation on the title to the property.

- E. Following the completion and acceptance of the initial construction of the stormwater management facilities, failure to timely comply with the requirements of §XI-93 (Inspection and Maintenance Authority) of this section pertaining to maintenance obligations of stormwater management facilities will result in the following fines: \$1,000 assessed monthly, up to a maximum of \$5,000 per annum, for failure to submit the annual inspection report, and \$1,000 assessed monthly (without limit), for failure to timely complete any maintenance activities identified in the completed annual inspection report or to timely submit a required statement of completion of such activities to the Zoning Administrator.

GENERAL PROVISIONS

§ XI-97 Scope of Regulation

This Article applies to all development within the Village, including developments under the control of any governmental entity, agency, or authority. When the Village shall undertake development in the

regulatory floodway, or regulatory floodplain where no regulatory floodway has been designated, the Village shall obtain a permit from IDNR/OWR prior to issuance of a Stormwater Management Permit. All units of local government shall obtain Stormwater Management Permits from the Village for all development projects within the corporate limits of the Village.

§ XI-98 Interpretation

- A. This Article shall be liberally construed to protect the health, welfare, safety, and the environment of the residents of the Village and to effectuate the purposes of this Article and the enabling legislation.
- B. Nothing in this Article shall be deemed to consent to, license or permit to locate, construct, or maintain any structure, site, facility, or operation, or to carry on any trade, industry, occupation, or activity.
- C. When provisions of this Article differ from any other applicable law, statute, ordinance, rule, or regulation, the more stringent provision shall apply.
- D. The provisions of this Article are cumulative of all other laws, statutes, ordinances, rules, and regulations which relate to the subject matter hereof and, except as otherwise expressly provided herein, nothing in this Article shall be construed as a limitation upon the application or enforcement of any such law, statute, ordinance, rule, or regulation. To the greatest extent possible, the provisions of this Article shall be construed to be consistent with the provisions of such other laws, statutes, ordinances, rules, or regulations, and with each other, to the end that all such provisions may be given their fullest application.

§ XI-99 Warning and Disclaimer of Liability

- A. The degree of flood protection provided by this Article is considered reasonable for regulatory purposes and is based upon engineering experience and scientific methods of study. Increased flooding may result from causes beyond the control of any governmental authority. Larger floods may occur, or flood heights may be increased by man-made or natural causes. This Article does not, therefore, warrant or guarantee that areas outside the floodplain or permitted land uses within the floodplain will be free from flooding and associated damages.
- B. Nothing in this Article shall be construed or applied in any manner to create liability on the part of or a cause of action against Will County, the MWRD, the Village of Park Forest or other municipality, or any other governmental authority, or any elected official, or any officer, agent, or employee of any of the foregoing, or any certified review specialist for any flood damage resulting from reliance on the provisions of this Article.
- C. The design and supplementary design requirements contained herein do not replace nor substitute sound engineering practice.

§ XI-100 Abrogation and Greater Restrictions

- A. This Article is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions.

- B. Where this Article and other articles, easements, covenants, or deed restrictions conflict or overlap, whichever imposes the more stringent restrictions shall prevail.
- C. This Article is intended to repeal and replace other ordinances adopted to meet the National Flood Insurance Program regulations, but it is not intended to repeal the original resolution or ordinance adopted to establish initial eligibility for the program.

§ XI-101 Severability

- A. The several provisions of this Article shall be severable in accordance with the following rules:
 - 1. If any court of competent jurisdiction shall adjudge any provision of this Article to be invalid, such judgment shall not affect any other provision of this Article.
 - 2. If any court of competent jurisdiction shall adjudge to be invalid the application of any provision of this Article, to a particular parcel of land, a particular structure, or a particular development, such judgment shall not affect the application of said provision to any other land, structure, or development.
- B. All such unaffected provisions of this Article shall remain in full force and effect.

§ XI-102 Effective Date

This Article shall be in full force and effect from and after its passage and approval and publication, as required by law. For all purposes, and its effective date shall be XXX.

STORMWATER MANAGEMENT VARIATIONS

§ XI-103 Purpose

In order to provide a narrowly circumscribed means by which relief may be granted when strict compliance with the requirements of this Article is impossible or impracticable, variations from the specific provisions of this Article may be granted according to the standards set forth in §§XI-103 through §XI-110 (Stormwater Management Variations) of this Article.

§ XI-104 Application for Stormwater Management Permit Variation

- A. It is the responsibility of the owner or developer and/or their engineer to review this Article and identify any and all potential variation(s). An application for a stormwater management variation, prepared by the owner or developer's licensed professional engineer and signed by the property owner and the developer of the development to which it relates, shall be filed with the Zoning Administrator in accordance with §VIII-2.B (Application Procedure) of the Unified Development Ordinance. No application for a stormwater management variation will be accepted for filing unless it relates to a previously or contemporaneously filed application for a stormwater management permit. Applications for a variation shall be filed in such number of duplicate copies as the Zoning Administrator may designate by administrative order. No action will be taken on an application for a variation unless it and the corresponding application for a stormwater management permit to which it relates are complete as determined by the Zoning Administrator. The Zoning Administrator shall send a copy of the complete application to the WCSMC Director, to MWRD, and to all other affected Will

County and/or Cook County certified communities within the same watershed. Applications for a variation shall contain the information set forth in division B of this Section.

- B. An application for Stormwater Management Permit variation shall set forth:
1. The common addresses and legal descriptions of all lands comprising the development.
 2. The names and addresses of all owners of record of the legal title of all lands comprising the development.
 3. If title to any of the land comprising the development is held in trust, the names and addresses of all beneficiaries of the trust.
 4. The names and addresses of the developers of the land, if different from the owner.
 5. The names and addresses of all consultants retained by the developer in connection with the application for a variation.
 6. The names and addresses of all property owners within 250 feet of the development.
 7. The specific feature or features of the development that require a variation.
 8. The specific provision of this Article from which a Stormwater Management Permit variation is sought and the precise extent of the variation therefrom.
 9. A statement of the characteristics of the development that prevent compliance with the provisions of this Article.
 10. A statement that the variation requested is the minimum variation necessary to permit the development.
 11. A statement as to how the variation requested satisfies the standards set forth in §XI-107 (Granting of Stormwater Management Permit Variations) of this Article.

§ XI-105 Application Fee

With the filing of the application for a Stormwater Management Permit variation, the applicant shall pay the fee prescribed by the Village.

§ XI-106 Public Hearing

When the application is complete, the Zoning Administrator will so notify the applicant and will schedule a public hearing on the application before the Oversight Committee as applicable. Notice of the public hearing shall be made consistent with the requirements of §VIII-2.C (Notice) and the Oversight Committee shall conduct a public hearing in accordance with §VIII-2.D (Public Hearing), of the Unified Development Ordinance. In addition to the notice required by §VIII-2.C. (Notice), notice of the hearing shall be sent by first class mail, postage prepaid, to the Will County Director, to MWRD, to all property owners within 250 feet of the development as disclosed in the application, and to each affected Will County and/or Cook County certified community within the same watershed as the development and to the Will County Stormwater Management Committee.

Within the same time period, notice of the hearing shall be published at least once in a newspaper published within the Village of Park Forest as the certified community having jurisdiction over the application. If no newspaper is published within the certified community, then the notice shall be published in a newspaper with a general circulation within the certified community, which is published in Will County. The notices given under the section shall set forth the common name, address, and legal description of the development and a brief description of the variation is requested.

§ XI-107 Granting of Stormwater Management Variations

The Oversight Committee shall not recommend, nor shall the Village Board grant a variation for a project from the provisions of this Article unless the variation is consistent with the purposes of §XI-2 (Purposes of this Article) of this Article, and meets the following standards based upon substantial evidence submitted at the hearing:

- A. No variation shall be granted for any development activity in a designated floodway, the effect of which would be to create regulation less restrictive than the federal or state minimum standards applicable to development in such areas.
- B. The variation for a development activity outside of a designated floodway will not increase measurably the probability of flood damage to insurable structures.
- C. When a variation would lessen the degree of flood surface runoff protection to any building, the Zoning Administrator shall notify the applicant that the variation, if granted, may
 1. Result in increased premium rates for Flood insurance up to amounts as high as \$25 per \$100 of insurance coverage; and
 2. Increase the risks to life and property; and
 3. Require the applicant proceed with knowledge of these risks and that the applicant will acknowledge in writing the assumption of the risk and liability.
- D. The variation requested is the minimum required considering each of the following statements of underlying intent of this Article and there are no means other than the requested variation by which the alleged hardships can be avoided or remedied to a degree sufficient to permit the reasonable continuation of the development:
 1. Detention of stormwater shall also contribute to the improvement of the quality of stormwater runoff.
 2. The volume of detention storage provided in open air vegetated facilities is maximized consistent with other land use site constraints including zoning requirements essential for the proposed development.
 3. Conveyance of stormwater from the project shall not increase peak discharges from existing offsite conveyance facilities beyond design capacity for any storm event from the two-year to the 100-year flood frequency.
 4. High quality natural areas shall be preserved on the site, including without limiting the generality of the foregoing, stands of native trees, existing wetlands, natural floodplain storage or other valuable environmental and biological resources.
- E. No variation shall be granted unless the applicant demonstrates that all the following conditions are met:
 1. The development activity cannot be located outside of the SFHA; and
 2. An exceptional hardship would result if the variation were not granted; and
 3. The relief requested is the minimum necessary; and
 4. There will be no additional threat to public health, safety, beneficial stream uses and functions, especially aquatic habitat, or creation of a nuisance; and
 5. There will be no additional public expense for flood protection, lost environmental stream uses and functions, rescue or relief operations, policing, or repairs to streambeds and banks, roads, utilities, or other public facilities; and

6. The requirements of §XI-43.B (General Floodplain Development Performance Standards), §XI-45.C pertaining to LOMRs, §XI-46 (Compensatory Storage Volume Standards), and §XI-48.D (Preventing Increased Damages) have been met; and
 7. The activity is not in a designated floodway.
 8. The applicant's circumstances are unique and do not establish a pattern inconsistent with the intent of the National Flood Insurance Program; and
 9. The granting of the variation will not alter the essential character of the area involved including existing stream uses; and
 10. All other required state and federal permits or waivers have been obtained.
- F. The variation is not requested solely for the purpose of increasing the density of the development nor impervious areas on the site.
- G. The variation is not requested solely as a result of economic hardship.
- H. If applicable, the variation is required due to unique, natural topographical features of the site.
- I. The applicant's circumstances are not self-imposed.
- J. Variations requested in connection with restoration of a historic site or historic structure as defined in §XI-3 (Definitions) "Historic Structures", may be granted using criteria more permissive than the requirements of §XI-107.B. or C. (Granting of Stormwater Management Permit Variations), subject to the conditions that:
1. The repair or rehabilitation is the minimum necessary to preserve the historic character and design of the structure; and
 2. The repair or rehabilitation will not result in the structure being removed as a certified historic structure.

§ XI-108 Recommendations

- A. The Zoning Administrator or designee shall review the application for a variation and present their written recommendations to the Oversight Committee at the public hearing.
- B. Not more than 60 days after the close of the hearing, the Oversight Committee shall forward the application with its written recommendations to the Village Board. The written recommendations of the Oversight Committee, when forwarded, shall be accompanied by written findings of fact with respect to each of the considerations set forth in §XI-107 (Granting of Stormwater Management Permit Variations) of this Article with citations to the evidence taken at the public hearing.

§ XI-109 Decision

- A. The Village Board shall grant the variation, grant the variation with modifications or conditions, or deny the variation in writing within 60 days after receipt of the written recommendations of the Oversight Committee; but in the event the Village Board does not act as aforesaid, then the application is denied.
- B. The findings of fact and conclusions of law made by the Village Board according to §XI-107. D., the notifications required by § XI-106 (Public Hearing), and a record of hearings and evidence considered

as justification for the issuance of all variances from this ordinance shall be maintained by the Village in perpetuity.

§ XI-110 Conditions

- A. A variation less than or different from that requested may be granted when the record supports the applicant's right to some relief, but not to the relief requested.
- B. In granting a variation, the Village Board may impose such specific conditions and limitations concerning any matter relating to the purposes and objectives of this Article on the applicant as may be necessary or appropriate.
- C. Whenever any variation is granted subject to any condition or limitation to be met by the applicant, upon meeting such conditions, the applicant shall file evidence to that effect with the Zoning Administrator.

ADMINISTRATION

§ XI-111 Responsibility for Administration

- A. The Village Board shall determine policy related to this Article subject to the requirements of the Will County Board, IDNR/OWR and FEMA.
 - 1. As a multi-county municipality, the Village of Park Forest hereby adopts the WCSMO, as amended from time to time by the Will County Board as the governing instrument to which it will abide in the administration of all stormwater management-related matters that are incorporated within the WCSMO.
 - 2. The Village shall also enter into an intergovernmental agreement with the Metropolitan Water Reclamation District of Greater Chicago (MWRD) which satisfies the following MWRD requirements:
 - a) The Village has the authority to adopt an adjacent County's ordinance.
 - b) The Village has retained the staff and will continue to retain the staff as required per the adopted ordinance for a certified community of Will County.
 - c) The Village agrees to administer and enforce the adopted WCSMO per the requirements of the adopted ordinance.
 - d) The Village agrees to defer to the MWRD for the administration of applicable stormwater management permit authority for development activities within Cook County involving a direct connection to Thorn Creek.
 - e) The Village agrees that a WMO Permit shall be required from the MWRD for all development activities in Cook County when a direct connection to Thorn Creek is required as a condition for the applicant's receipt of the Park Forest Stormwater Management Permit.
- B. The Zoning Administrator shall be primarily responsible to administer this Article. In performing their duties, the Zoning Administrator may delegate and oversee enforcement of responsibilities to any named designee. The WCSMC Director shall administer the oversight responsibilities of the Village of Park Forest to assure that the Village meets its obligations as a Certified Community.
 - 1. If the development site is within a designated floodway or within a floodplain for which a detailed study has not been conducted and which drains more than one square mile, the review of the

Stormwater Management Permit concerning floodway impacts and appropriate uses shall be referred to a Professional Engineer under the employ or contract of the Village.

- C. The Village of Park Forest shall remain solely responsible for its standing in the National Flood Insurance Program, including:
 - 1. The maintenance of all records and the submission of all reports required for eligibility in the program, including elevation certificates, flood proofing certificates, and lowest floor elevations; and
 - 2. The notification of the WCSMC Director of its Stormwater Management Ordinance, MWRD, FEMA and IDNR/OWR of any proposed amendment to this Article.

§ XI-112 Recognized Duties of the Will County Director

The Will County Executive or designee is designated by the WCSMO as the role of the Director of the WCSMO. In that role the Director will:

- A. Supervise the enforcement of the WCSMO as administered by the Village of Park Forest as a Certified Community; and
- B. Supervise the development, revision, and implementation of the Will County Comprehensive Countywide Stormwater Management Plan as adopted by the Will County Board on October 13, 1998, as amended from time to time; and
- C. Supervise the review of complex stormwater management permits if the Village requests such assistance; and
- D. Notify all communities in the County, FEMA, IDNR/OWR, USACOE, the Illinois Environmental Protection Agency, and the United States Environmental Protection Agency of any amendments to the Will County Comprehensive Countywide Stormwater Management Plan or any amendments to the WCSMO; and
- E. Review variation requests for the Will County Stormwater Management Committee.

§ XI-113 Duties of the Park Forest Zoning Administrator

The Zoning Administrator shall be responsible for administration of this Article. The Zoning Administrator shall:

- A. Obtain from the applicant copies of any and all required federal, state, and county permit applications filed for the project are received prior to issuing a permit under this Article for areas covered by other stormwater related jurisdictions. The Zoning Administrator shall not issue a Stormwater Management Permit unless all other federal, state and local permits have been obtained.
- B. Defer to the MWRD for the administration of applicable stormwater management permit authority pursuant to its WMO for development activities within Cook County involving a direct connection to Thorn Creek.
- C. Determine applicable floodplain designation.

1. Ascertain whether any floodplains/ floodways exist on any site that is the subject of an application for a permit under this Article and whether any new development is within the SFHA.
 2. In addition to referencing FEMA Flood Insurance Rate Maps, the Zoning Administrator shall reference community records of CLOMRs, LOMRs, and LOMAs.
 3. If the site is in a SFHA, determine whether they are in a floodway, flood fringe, or in a floodplain for which a detailed study has not been conducted and which drains more than 640 acres and apply the provisions of this Article as applicable.
 4. Check whether the development is potentially within an extended SFHA (with a drainage area less than one square mile), indicating that the development would have adverse impacts regarding storage, conveyance, or inundation which would be the basis for the applicant being required to delineate the floodplain and floodway and be subject to the remaining sections of this Article.
 5. Determine if the MWRD Inundation Mapping for Cook County for Thorn Creek Tributary D may serve as an acceptable source for determining the Base Flood Elevation for the project site.
- D. Professional engineer review.
1. If the development site is within a floodway or in a floodplain for which a detailed study has not been conducted and which drains more than one square mile, the permit shall be referred to a licensed professional engineer (P.E.) under the employ or contract of the Village for review to ensure that the development meets Section §XI-47 (Occupation and Use of Designated Floodways) or §XI-48 (Occupation and Use of Floodplain Areas Where Floodways Are Not Identified).
 2. In the case of an Appropriate Use, the P.E. shall state in writing that the development meets the requirements of §XI-47.
- E. Plan review and permit issuance. Review permit applications and determine whether to issue or deny permits.
1. Ensure that all development activities within the SFHAs of the jurisdiction of the Village meet the requirements of this Article; and
 2. Issue a floodplain development permit in accordance with the provisions of this Article and other regulations of this community when the development meets the conditions of this Article.
 3. Ensure that all development activities happen in a timely manner and any permit time extensions are issued per the requirements of this Article.
- F. Administer requests for variances to assure that required conditions are met and ensure that the required notice of an application for a variation has been given in accordance with §§XI-116 (Service) and XI-117 (Publication) of this Article.
- G. Notify an applicant for a variation that such variation may result in increased rates for flood insurance.
- H. Notify the Will County Director of its Stormwater Management Ordinance of an application for a variation, CLOMR, or LOMR.
- I. Maintain all records required by a certified community pursuant to the WCSMO:
1. Maintain adequate records of every issued Stormwater Management Permit and every granted variation under this Article within the Park Forest municipal limits; and
 2. Maintain record drawings of all structures erected or constructed pursuant to a Stormwater Management Permit issued or variation granted by the Village; and
 3. Make the records maintained pursuant to the WCSMO available for periodic inspection by the Will County Land Use Department; and

4. Report annually to the WCSMO Director on forms provided by the Will County Land Use Department regarding Stormwater Management Permits issued in the preceding year.
- J. Provide for inspections of developments as required by this Article;
 1. Inspect all development projects before, during, and after construction to assure proper elevation of the structure and to ensure compliance with the provisions of this Article; and
 2. Schedule on an annual basis an inspection of the floodplain and document the results of the inspection.
- K. Investigate complaints of violations of this Article within the Village.
- L. Notify violators within regulatory floodplains that failure to comply with the provisions of the National Flood Insurance Program could make them ineligible to receive flood insurance.
- M. Initiate any proceeding necessary to enforce this Article within the Village to assure that property owners obtain permits as required by this Article and adhere to the permit requirements.
- N. Advise, consult, and cooperate with other governmental agencies to promote the purposes of this Article.
- O. Substantial Damage and Substantial Improvement Determinations.
 1. Determine the market value or require the Applicant to obtain an appraisal of the market value prepared by a qualified independent appraiser, of the Building before the Start of Construction of the proposed work. In the case of repair, the market value of the Building shall be the market value before the damage occurred and before any repairs are made.
 2. Compare the cost to perform the improvement, the cost to repair a damaged Building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the Building.
 3. Determine and document whether the proposed work constitutes Substantial Improvement or Substantial Damage.
 4. Notify the Applicant if it is determined that the work constitutes Substantial Improvement or repair of Substantial Damage and that compliance with the Flood resistant construction requirements of this Article is required.
- P. Maintain documentation and data on the cost of any improvement to a structure in the floodplain in order to enforce the cumulative tracking for 10-years provisions of this Article pertaining to substantial damage and substantial improvements to such structures.
- Q. Elevation and Floodproofing Certificates.
 1. Maintain permit files including:
 - a) An Elevation Certificate certifying the elevation of the lowest floor (including basement) of a residential or non-residential building subject to §XI-7.A.1 (Building Elevation Certificate) of this Article; and/or
 - b) The elevation to which a non-residential building has been floodproofed, using a Floodproofing Certificate, for all buildings subject to §XI-7.A.2 (Building Elevation Certificate) of this Article.
 2. Maintain a map record of lots and buildings for which elevation and floodproofing certificates have been provided.

- R. Maintain records for public inspection.
1. Maintain for public inspection and furnish the following upon request:
 - a) Current and historical community FIS's and documentation of base flood data, including existing ground elevation topography of floodplain areas in 1980 when the Village enrolled in the National Flood Insurance Program,
 - b) Current and historical FIRM's and FHBM's showing SFHA's and designated floodways,
 - c) Copies of Federal or State permit documents, including all applications and submittals,
 - d) Variation documentation,
 - e) Conditional Letter of Map Revision (CLOMR),
 - f) Letter of Map Revision (LOMR),
 - g) Letter of Map Revision Based on Fill (LOMR-F), including associated soil compaction records,
 - h) Letter of Map Amendment (LOMA), and
 - i) "As-built" elevation and floodproofing and/or elevation certificates for all buildings constructed subject to this Article.
 2. Maintain records of detailed engineering studies that have been performed by the Village or others for the determination of base flood elevations where such information is not provided on FEMA FIRM's or applicable Village or County FIS's.
- S. Administer applicable IDNR/OWR regional and statewide permits.
1. Administer the Park Forest Stormwater Management Permit for development activities subject to IDNR/OWR Regional Permit No. 3 -- "Authorizing Construction of Minor Projects in Northeastern Illinois Regulatory Floodways" according to the terms and conditions established for allowable floodway construction activities of the permit in the context of the development activities as they may be subject to a Park Forest Stormwater Management Permit. The following specified project types are included within the IDNR/OWR Regional Permit:
 - a) Underground and Overhead Utilities; and
 - b) Storm and Sanitary Sewer Outfalls and Outlet Channels
 - c) Sidewalks, Athletic Fields (excluding fences), Playground Equipment and Patios; and
 - d) Shoreline and Streambank Protection; and
 - e) Minor non-commercial boat docks.
 2. Administer the following applicable IDNR/OWR Statewide Permits according to the terms and conditions of the Statewide Permits in the context of development activities as they may be subject to a Park Forest Stormwater Management Permit:
 - a) IDNR/OWR Statewide Permit No. 4—Aerial utility crossings; and
 - b) IDNR/OWR Statewide Permit No. 5 – Minor boat docks; and
 - c) IDNR/OWR Statewide Permit No. 6 – Minor, non-obstructing activities (not involving fill or positive change in grade; and
 - d) IDNR/OWR Statewide Permit No. 7 – Outfall structures and drainage ditch outlets; and
 - e) IDNR/OWR Statewide Permit No. 8 – Underground pipeline and utility crossings; and
 - f) IDNR/OWR Statewide Permit No. 9 – Bank stabilization projects (subject to IDNR/OWR review and determination; and
 - g) IDNR/OWR Statewide Permit No. 10 – Accessory structures and additions to existing residential buildings; and
 - h) IDNR/OWR Statewide Permit No. 11 – Minor maintenance dredging activities (subject to IDNR/OWR review and determination); and
 - i) IDNR/OWR Statewide Permit No. 12 – Bridge and culvert replacement structures and bridge widenings (subject to IDNR/OWR review and determination); and
 - j) IDNR/OWR Statewide Permit No. 13 – Temporary construction activities

- T. Assure applicable state IDNR/OWR floodway permit review and securement.
1. Ensure that construction authorization has been granted by IDNR/OWR pursuant to 615 ILCS 5/5 et seq. for all development projects subject to §XI-47 (Occupation and Use of Designated Floodways) and §XI-48 (Occupation and Use of Floodplain Areas Where Floodways are Not Identified) of this Article for which enforcement responsibility has not been authorized by the Village or that written documentation is provided stating that a permit is not required from IDNR/OWR. Such development activities include the following:
 - a) IDNR/OWR projects, and all other federal, state, or local units of government projects including those of the Village of Park Forest, county departments, county forest preserve districts, WCSMC, and MWRD, with the exception of those Village of Park Forest projects meeting the requirements of §XI-47 pertaining to appropriate uses within the Designated Floodway;
 - b) An engineer's analysis of the flood profile due to the construction of a new bridge or culvert crossing and associated roadway approaches across a designated floodway per Section §XI-47;
 - c) An engineer's determination that a proposed bridge affected by backwater from a downstream receiving stream may be built with a smaller opening, per Section §XI-47 pertaining to the construction of new bridges or culvert crossings and roadway approaches;
 - d) An engineer's determination that an existing bridge or culvert crossing is not a source of flood damage, including the analysis establishing the flood profile, per Section §XI-47, as required for the reconstruction or modification of existing bridges, culverts, and road approaches;
 - e) Alternative transition sections and hydraulically equivalent compensatory storage as indicated in Section §XI-47 pertaining to preservation of flood conveyance, preservation of floodway storage, and excavation in the floodway;
 - f) Permits for construction and other activities in public bodies of water pursuant to Ill Admin Code, Title 17, Part 3704;
 - g) Any changes in the mapped floodway or published flood profiles;
 - h) Base flood elevation determinations for SFHA's where none now exist.
 2. Permits for dams
 - a) Any work involving the construction, modification or removal of an IDNR/OWR jurisdictional dam as defined in Section 300.16 per 17 Ill. Adm. Code Part 3702 (Rules for Construction of Dams) shall obtain an IDNR/OWR permit prior to the start of dam construction. The following conditions warrant coordination with the IDNR/OWR:
 - i. The dam height is greater than six-feet or its impoundment capacity exceeds 50 acre-ft,
 - ii. The dam height is greater than 25 feet and its impoundment capacity exceeds 15 acre-feet,
 - iii. The tributary watershed is greater than or equal to 640 acres and the product of the dam height in feet multiplied by its capacity in acre-feet exceeds 300.
 - b) The Zoning Administrator shall ensure that documentation has been provided by an applicant that either demonstrates that an impoundment is exempt from the need to provide an IDNR/OWR Dam Permit or that the applicant has secured the appropriate IDNR/OWR Dam Permit.
 - c) If a Class III Small Size Dam Permit from IDNR/OWR is required, the Zoning Administrator shall:
 - i. Assure that proof of flooding rights (fee simple ownership or flood easement) is provided for all lands within the reservoir's flood pool; and
 - ii. Assure that an easement providing right of access authorization for the State and Village to inspect the dam site and its immediate vicinity before, during, and after construction for the life of the dam and its appurtenances.
 - d) If the Zoning Administrator finds a dam that does not have an IDNR/OWR permit, the Zoning Administrator shall immediately notify the IDNR/OWR Bartlett office.

U. Dam Safety Requirements. If the Zoning Administrator finds a dam which is believed to be in unsafe condition, the Zoning Administrator shall immediately notify the owner of the dam, the IDNR/OWR Bartlett office, and the Illinois Emergency Management Agency.

V. Cooperation with other agencies.

1. Cooperate with State and Federal floodplain management agencies to improve BFE and floodway data and to improve the administration of this Article.
2. Submit data to IDNR/OWR and FEMA for proposed revisions of a regulatory map within six months whenever a modification of the floodplain may change the base flood elevation or result in a change to the floodplain map.
3. Submit reports as required for the National Flood Insurance Program.
4. Notify FEMA and IDNR/OWR of any proposed amendments to this Article.
5. Cooperate with Stormwater Management Permit audit requests from either the WCSMC Director, or MWRD, as well as National Flood Insurance Program audit requests from IDNR/OWR or FEMA.
6. Respond to any written complaints that may be served by either the Will County Stormwater Management Committee or the MWRD.

W. Notify adjacent communities in writing 30 days prior to issuing a permit for the alteration or relocation of a watercourse.

X. Promulgate regulations. Promulgate rules and regulations as necessary to administer and enforce the provisions of this Article, subject however to the review and approval of IDNR/OWR and FEMA for any Article changes.

§ XI-114 Representative Capacity

In all cases when any action is taken by the Zoning Administrator, or their duly appointed designee, to enforce the provisions of this Article, such action shall be taken in the name of the Village and neither the Zoning Administrator, nor their designee, in so acting shall be rendered personally liable.

§ XI-115 Oversight Committee

The Planning and Zoning Commission is designated by the Village Board to perform the duties assigned to the Oversight Committee in this Article.

§ XI-116 Service

Unless otherwise provided herein, service of any notice or instrument under this Article may be made upon any person in one of the following manners:

- A. By certified mail/return receipt requested, postage prepaid and addressed to the address then on file for such person, if any, or if none, to such person's last known address; or
- B. By any method prescribed under the Illinois Code of Civil Procedure.

§ XI-117 Publication

Unless otherwise provided herein, publication of any notice or other instrument under this Article shall be made by publishing such notice or other instrument once in a newspaper published within the Village (or, if no newspapers published within the community then a newspaper published in the County and having a general circulation within the Village), such publication being not less than 15 or more than 30 days before the hearing or other event to which the publication relates.

PERFORMANCE SECURITY

§ XI-118 General Security Requirements

- A. As security to the Village for the performance by the developer of the developer's obligations to complete the construction of any stormwater facilities required by the Stormwater Management Permit, to pay all costs, fees, and charges due from the developer pursuant to the permitting authorities of this Article and to otherwise faithfully perform the developer's undertakings pursuant to this Article or the applicable certified community ordinance, the developer shall, prior to issuance of a Stormwater Management Permit:
 - 1. Post a development security as provided in §XI-119 (Development Security) of this Article; and
 - 2. Post a separate soil erosion and sediment control security as provided in §XI-120 (Soil Erosion and Sediment Control Security) of this Article, if a Soil Erosion and Sediment Control Plan is required pursuant to §§XI-73 through XI-80 (Stormwater Management Permit Submittal Requirements) of this Article.
 - 3. Post a separate Wetland Establishment Funding Guarantee security, when applicable pursuant to §XI-63.B, if mitigation for a wetland impact is required under this article and the applicant chooses to mitigate within a wetland mitigation facility
- B. The developer shall bear the full cost and responsibility of securing and maintaining the securities required by this section.
- C. When security is required by §IX-5 (Construction Security) of the UDO for construction of subdivision improvements, it will be inclusive of the costs for installation of stormwater facilities except those required to install temporary and permanent soil erosion and sediment control facilities and those required to guarantee establishment of wetlands. Additional security as described in Section A.1 will not be required for secured subdivision development improvements.

§ XI-119 Development Security

- A. A development security shall be posted and shall include:
 - 1. A schedule agreed upon by the developer and the Zoning Administrator for the completion of the construction of any stormwater facilities required by the permit.
 - 2. An irrevocable letter of credit, or such other adequate security as the Zoning Administrator may approve, in an amount equal to not less than 110 percent of the estimated probable cost to complete the construction of any stormwater facilities required by the Stormwater Management Permit, which estimated probable cost shall be prepared by a registered professional engineer and shall be approved by the Zoning Administrator.
 - 3. A statement signed by the applicant granting the Zoning Administrator the right to draw on the security and the right to enter the development site to complete required work in the event that work is not completed according to the work schedule.
 - 4. A statement signed by the applicant that the applicant shall indemnify the Village for any additional costs incurred attributable to the concurrent activities of or conflicts between the applicant's contractor and the Village's remedial contractor at the site.

- B. The security required by this Section shall be maintained and renewed by the applicant, and it shall be held in escrow by the Zoning Administrator until the conditions set forth in this section or other applicable provisions are satisfied.
- C. The Zoning Administrator may approve periodic reductions in the letter of credit based on progress of construction. However, not more than 90 percent of the security provided for in this section may be released prior to approval of record drawings and final inspection. A minimum of 10 percent of the security shall be retained for a period of time not less than one year after completion of construction of all stormwater facilities required by the permit.

§ XI-120 Soil Erosion and Sediment Control Security

- A. Unless exempted pursuant to §XI-38.B (Exemptions from Stormwater Management Permit), a Soil Erosion and Sediment Control Plan is required pursuant to §XI-78 (Soil Erosion and Sediment Control Submittal) of this Article. When a Soil Erosion and Sediment Control Plan is required under this article, the applicant shall post:
 - 1. A statement of the estimated probable cost to install and maintain the soil erosion and sediment control measures required by the plan which estimate is subject to the approval of the Zoning Administrator; and
 - 2. An irrevocable letter of credit in favor of the Village of Park Forest, or such other adequate security as the Zoning Administrator may approve, in an amount equal to not less than 110 percent of the estimated probable cost to install and maintain the required soil erosion and sediment control measures.
 - 3. A statement signed by the applicant granting the Zoning Administrator the right to draw on the security and the right to enter the development site to complete soil erosion and sediment control measures in the event that such measures are not installed and/or maintained according to the established schedule.
 - 4. A statement signed by the applicant that the applicant shall indemnify the Village for any additional costs incurred attributable to the concurrent activities of or conflicts between the applicant's contractor and the Village's remedial contractor at the site.
- B. The security required by this Section shall be maintained and renewed by the applicant, and it shall be held in escrow by the Zoning Administrator, as applicable, until the conditions set forth in this Section are satisfied.
- C. After completion of construction, establishment of vegetation, removal of all sediment from stormwater facilities, and final inspection and approval by the Zoning Administrator, as applicable, 100 percent of the sediment and erosion control security shall be released.

§ XI-121 Wetland Establishment Funding Guarantee Security

- A. If mitigation for a wetland impact is required under this Article and the applicant chooses to mitigate within a wetland mitigation facility, the applicant shall post:
 - 1. A statement of the estimated probable cost to construct, plant, manage, maintain and monitor the prescribed wetland mitigation measures required by the mitigation plan to establish the wetlands

- according to the Wetland Mitigation Performance Standards, which estimate is subject to the approval of the Zoning Administrator; and
2. An irrevocable letter of credit in favor of the Village of Park Forest, or such other adequate security as the Zoning Administrator may approve, in an amount equal to not less than 125 percent of the estimated probable cost to establish the wetland as required under §XI-63.B (Wetland Establishment Funding Guarantee).
 3. A statement signed by the applicant granting the Zoning Administrator the right to draw on the security and the right to enter the development site to complete establishment of the wetland in the event that the applicant does not meet the Wetland Mitigation Performance Standards.
 4. A statement signed by the applicant that the applicant shall indemnify the Village for any additional costs incurred attributable to the concurrent activities of or conflicts between the applicant's contractor and the Village's remedial contractor at the site.
- B. The Wetland Establishment Funding Guarantee Security required by this section shall be maintained by the applicant in favor of the Village of Park Forest until construction has been completed, vegetation has been established and the wetland facility has been evaluated by the Zoning Administrator and found to meet the performance standards of section §XI-62 (Wetland Mitigation Performance Standards) and §XI-63 (Wetland Establishment) of this Article at which time it shall be released.

§ XI-122 Letters of Credit

- A. Letters of credit, or such other adequate security as the Zoning Administrator may approve, posted pursuant to §§XI-118 (General Security Requirements), XI-119 (Development Security), and XI-120 (Soil Erosion and Sediment Control Security) of this Article shall be in a form satisfactory to the Zoning Administrator.
- B. Each letter of credit, or such other adequate security as the Zoning Administrator may approve, shall be from a lending institution; acceptable to the Zoning Administrator, as applicable; having capital resources of at least \$10,000,000, or such other amount acceptable to the Zoning Administrator; with an office in Will County, Illinois; and insured by the Federal Deposit Insurance Corporation as required by the WCSMO.
- C. Each letter of credit, or such other adequate security as the Zoning Administrator may approve, shall, at a minimum, provide that:
 1. It shall not be canceled without the prior written consent of the Zoning Administrator; and shall not expire without written notification of the Zoning Administrator at least 45 days prior to expiration.
 2. It shall not require the consent of the developer prior to any draw on it by the Will County Director or the Zoning Administrator.
 3. If at any time it will expire within 45 or any lesser number of days, and if it has not been renewed and the renewal submitted to the Administrator, and if any applicable obligation of the developer for which its security remains uncompleted or is unsatisfactory, then the Zoning Administrator may, without notice and without being required to take any further action of any nature whatsoever, call and draw down the letter of credit and thereafter either hold all proceeds as security for the satisfactory completion of all such obligations or employ the proceeds to complete all such obligations and reimburse the County or the Village for any and all costs and expenses, including legal fees and administrative costs, incurred by the County or the Village, as the Zoning Administrator shall determine.

- D. If at any time the Zoning Administrator determines that the funds remaining in the letter of credit are not, or may not be, sufficient to pay in full the remaining unpaid cost of all stormwater facility construction or sediment and erosion control measures, then, within 10 days following a demand by the Zoning Administrator, the developer shall increase the amount of the letter of credit to an amount determined by the Zoning Administrator to be sufficient to pay such unpaid costs. Failure to so increase the amount of the security shall be grounds for the Zoning Administrator to draw down the entire remaining balance of the letter of credit.

- E. If at any time the Zoning Administrator determines that the bank issuing the letter of credit is without capital resources of at least \$10,000,000, is unable to meet any Federal or State requirement for reserves, is insolvent, is in danger of becoming any of the foregoing, or is otherwise in danger of being unable to honor such letter of credit at any time during its term, or if the Zoning Administrator otherwise reasonably deems the bank to be insecure, then the Zoning Administrator shall have the right to demand that the developer provide a replacement letter of credit from a bank satisfactory to the Zoning Administrator. Such replacement letter of credit shall be deposited with the Zoning Administrator not later than 10 days following such demand. Upon such deposit, the Zoning Administrator shall surrender the original letter of credit to the developer.

- F. If the developer fails or refuses to meet fully any of its obligations under this Article or the applicable certified community ordinance, then the Zoning Administrator may, in their discretion, draw on and retain all or any of the funds remaining in the letter of credit. The Zoning Administrator thereafter shall have the right to take any action they deem reasonable and appropriate to mitigate the effects of such failure or refusal, and to reimburse the County or the certified community from the proceeds of the letter of credit for all of its costs and expenses, including legal fees and administrative expenses, resulting from or incurred as a result of the developer's failure or refusal to fully meet its obligations under this Article or the applicable certified community ordinance. If the funds remaining in the letter of credit are insufficient to repay fully the County or the certified community for all such costs and expenses, and to maintain a cash reserve equal to the required letter of credit during the entire time such letter of credit should have been maintained by the developer, then the developer shall, upon demand of the Zoning Administrator therefore, immediately deposit with the Zoning Administrator such additional funds as the Zoning Administrator determines are necessary to fully repay such costs and expenses and to establish such cash reserve.

FEE-IN-LIEU PROGRAMS

§ XI-123 Site Volume Control BMP Storage Variance Fee Program

- A. The Zoning Administrator may require payment of a Fee-in-lieu of On-site Volume Control BMP Storage to fulfill all or part of the on-site volume control BMP storage requirement for a development rather than installing volume control BMP storage facilities on the property.
 - 1. A Fee-in-lieu of On-site Volume Control BMP Storage in the amount of \$6.00 per cubic foot may be applied as an option for redevelopments that will discharge stormwater to the Village's storm sewer system or waterways for projects that involve physical conditions that preclude construction as allowed in §XI-23.D (Applicability), except when contaminated soils are present on the site. A higher Fee-in-lieu of On-site Volume Control BMP Storage of \$12.35 per cubic foot may be applied when contaminated soils are present. This fee has been derived based upon the cost to construct underground volume control BMP storage on a site with contaminated soils that would require

remediation to enable construction of the required storage. This fee excludes the value of the land in each case. Fee-in-lieu of On-site Volume Control BMP Storage solely due to financial constraints is not allowed. The fee may be adjusted yearly by the Construction Cost Index (CCI), based on the recommendation of the Zoning Administrator.

B. Procedures. The following Fee-in-lieu of Volume Control BMP Storage procedures:

1. The Zoning Administrator may require, or the applicant may submit, a written request for the payment of a Fee-in-lieu of On-site Volume Control BMP Storage to fulfill all or part of the on-site detention requirement in accordance with §XI-24.A (Volume Control BMP Storage Determination) of this Article. A request for Fee-in-lieu of On-site Volume Control BMP Storage shall be either rejected or approved within 45 days of the written request unless additional engineering studies are required.
2. Approval of a request for Fee-in-lieu of On-site Volume Control BMP Storage on a development site shall be determined by the Zoning Administrator.
3. A fund will be maintained by the Village for each of the major watersheds for the purpose of identifying and controlling all revenues and expenses related to stormwater drainage services resulting from Fee-in-lieu of On-site Volume Control BMP Storage approvals. All monies collected for Fee-in-lieu of On-site Volume Control BMP Storage shall be deposited in these funds and may only be used for purposes related to stormwater management as noted in division B.4 of this Section.
4. Fee-in-lieu of On-site Volume Control BMP Storage revenues from development site may be used to plan, design, or construct an upgrade to existing or future stormwater management system enhancements of water quality if the upgrade is consistent with a basin plan or stormwater system improvement that has been approved by the Village Board.

§ XI-124 Site Runoff Storage (Detention) Variance Fee Program

A. The Zoning Administrator may require payment of a Fee-in-lieu of Site Runoff Storage (Detention) to fulfill all or part of the on-site detention requirement for a development rather than installing detention facilities on the property.

1. A Fee-in-lieu of Site Runoff Storage (Detention) amount of \$110,000 per acre-foot may be applied as an option for redevelopments that will discharge stormwater to the Village's storm sewer system and the applicant can demonstrate that the redevelopment will not increase the risk to downstream properties of flooding. Fee-in-lieu of Site Runoff Storage (Detention) solely due to financial constraints is not allowed. In addition, a redevelopment project requesting Fee-in-lieu of Site Runoff Storage (Detention) must demonstrate a net benefit in water quality will be realized. The \$110,000 per acre-foot fee may be adjusted yearly by the Construction Cost Index (CCI).
2. The applicant may provide the Village with a detailed, verifiable cost estimate for actually providing the required storage. If the Zoning Administrator concurs with the cost estimate, the fee set for Fee-in-lieu of Site Runoff Storage (Detention) will be determined by the lesser of the \$110,000 per acre-foot or part thereof or the verifiable cost of providing the required storage.
3. To encourage redevelopment of properties that have been within the Village limits for a minimum of 15 years, the Zoning Administrator may allow a discount of up to 90 percent for projects if there is no increase in impervious area between the existing development and the proposed redevelopment.

B. Procedures. Fee-in-lieu of Site Runoff Storage (Detention) procedures shall be as follows:

1. The Zoning Administrator may require, or the applicant may submit, a written request for the payment of a Fee-in-lieu of Site Runoff Storage (Detention) to fulfill all or part of the site detention requirement in accordance with §VI-28.B (Applicability of Site Runoff Storage Requirements) of this Article. A request for Fee-in-lieu of Site Runoff Storage (Detention) shall be either rejected or approved within 45 days of the written request unless additional engineering studies are required.
2. Approval of a request for Fee-in-lieu of Site Runoff Storage (Detention) on a development site shall be determined by the Zoning Administrator. A project in Cook County that involves a direct connection to Thorn Creek is not eligible.
3. A fund will be maintained by the Village for each of the major watersheds for the purpose of identifying and controlling all revenues and expenses related to stormwater drainage services resulting from Fee-in-lieu of Site Runoff Storage (Detention) approvals. All monies collected for Fee-in-lieu of Site Runoff Storage (Detention) shall be deposited in these funds and may only be used for purposes related to stormwater management as noted in division B.4 of this Section.
4. Fee-in-lieu of Site Runoff Storage (Detention) revenues from development site may be used to plan, design or construct an enhancement to existing site runoff storage facilities and related components, construct off-site facilities and related components, provide maintenance of stormwater facilities, or undertake other development that provides a watershed benefit.

§ XI-125 Wetland Mitigation Variance Fee Program

- A. If development impacts to an Isolated Wetland of Park Forest meet all of the conditions for mitigation in the wetland banking program as established pursuant to the Interagency Coordination Agreement on Mitigation Banking within the Regulatory Boundaries of the U.S. Army Corps of Engineers, Chicago District, and there is no wetland banking development available within the Little Calumet River watershed, the applicant may make a fee-in-lieu payment to the Village in the sum of \$85,000 per acre of required mitigation area.
- B. Applicant and Village Procedures.
 1. An applicant's statement of intention to satisfy the wetland mitigation requirement by the payment of a Fee-in-lieu of Wetland Mitigation for eligible conditions shall be in writing and filed with the Zoning Administrator.
 2. Fees paid in lieu of wetland mitigation shall be deposited by the Village in a separate fund created for such purpose. Provisions shall be made so that all receipts and disbursements of such funds may be accounted for according to the individual watershed in which the development for which they were paid was located.
 3. Fees paid in lieu of mitigation for isolated Park Forest wetlands shall be expended to plan, design, construct, create, or enhance wetlands within the Lowland Conservancy Overlay District of Park Forest.

**ECONOMIC DEVELOPMENT ADVISORY GROUP
MINUTES OF AUGUST 11, 2021
HYBRID MEETING IN PERSON (VOPF BOARD ROOM) AND VIA ZOOM**

PRESENT IN PERSON:

Chair Philip Perkins; Member Denise Williams-Harvey; Staff Liaison Sandra Zoellner

PRESENT VIA ZOOM:

Vice Chair Margaret Banks; Members Mercedes Gross, Krishina Ingram, Mike Jordan

ABSENT: Members Maurae McCants, John V. Moore (excused); Trustee Liaison Joseph A. Woods (excused)

GUEST: None

CALL TO ORDER: Chair Perkins called the meeting to order at 6:07 p.m.; the roll was called.

APPROVAL OF MINUTES: Member Jordan moved to accept the minutes as printed; Vice Chair Banks provided a second to approve the minutes of the July 7, 2021 meeting. All in favor; motion carried.

NEW BUSINESS:

- **Vice Chairperson and New Member Welcome.** Mayor Vanderbilt appointed Margaret Banks as Vice Chair of EDAG. Denise Williams-Harvey was welcomed to the group.
- **EDAG Goal 4 – Property Tax Equity Issue.** The first project could be where a business owner's tax bill was \$62,000 and is going up to \$171,000. The owner wanted to know if the Village was interested in purchasing the property. Discussion on a working committee was tabled to verify commitments from Members McCants and Moore.

OLD BUSINESS: None.

STAFF REPORT:

- **Central Court Plaza – EDAG's** recommendation was forwarded to the Village Attorney and shared with senior staff.
- **Grocery store and Orchard Park Plaza –** the State agency came back for another visit and the site is now on a short list. There should be a decision by the end of the year. No new information on Jet Foods.
- **Will Cook Enterprise Zone –** more development in Monee, Matteson, University Park and Richton Park. There is a subsidized housing development in Richton Park, Carvana in University Park, remodel at Labbas Latte and Vino in Monee, and R&L Trucking and a medical cannabis cultivation facility in Matteson. Assistant Director Zoellner made the presentation to use \$35,000 for shop local campaign. There is a working committee to follow-through on the program.
- **202 Forest Blvd – former Chase Bank –** referred three prospects to this site to the owner: two day care operators looking for a commercial site and an existing business looking to expand. Nothing resulted of the referrals.
- **LoopNet –** one lead for lots on Holly Street and one call about the 12 acres on Western Ave.
- **CSEDC and Rep Will Davis** arranged a meeting with a Taiwanese business owner with 13 factories and 40,000 employees. The owner met with Orland Park Mayor, and staff with Park Forest, Tinley Park, Homewood, Matteson, Richton Park, Hazel Crest, University Park and Cook County. Tinley Park said they are working on establishing an air taxi to Midway and O'Hare, and can provide use of a helipad for private industry.
- **Intersect Illinois –** two leads – will likely submit for the window blinds manufacturer, working with the owner of 80 North Street. Will likely not respond to a lead for an insecticide manufacturer, as there is some concern their wastewater, which would have zinc chloride at 20%, could leach out of the existing waste water pipes and contaminate the clean water supply.
- **Blackhawk Tower Plaza –** showed the property to an existing Park Forest business owner who is looking to expand and diversify. The concern is that he is considering forming a non-profit to own the real estate.
- **12 Acres on Western Ave –** one call from LoopNet, the use was not consistent with the SPLUED – they wanted to build a trucking depot.
- **Vacant lot at NE Corner of Cunningham and Main Street –** nothing new to report from the developer of the proposed apartments.

- **New businesses have applied for business registration since the last EDAG meeting**
 - **Six businesses in the DownTown, with four at Poppin Plates, one taking on temporary management of DOTG and an existing business is expanding:**
 - Mz Dior Kitchen LLC, Food Prepared Onsite: Loaded Potatoes, Tacos, Hamburgers, Mobile Food Dealer
 - Authentic African Kitchen LLC, Makes Sauce, Hot Sauce, and Canning Sauces.
 - Rea's Baked Goods Inc, Baked Goods- Cakes & Cobblers
 - Mack's Healthy Seasonings LLC, Spices & Seasonings
 - E And J Paradise Travel And Events LLC, Management Of Booked Events At Dining On The Green (349 Main). Provide rental equipment and decorations for events on and off-site.
 - Dulce By Dori Incorporated, Retail / Classes (How To Dip Caramel Apples, How To Eat A Cupcake, Pairing Wine And Cakes, Etc.) – expanding into the former Serenity's Place space
 - **Three Home based businesses:**
 - Cyn-Sational Tees, Create & Print T-Shirts
 - Zenja's Sweet Cups LLC, Sells Sweets And Other Food In Cups
 - A Mothers Touch Home Day Care LLC, In Home Daycare
 - **Orchard Park Plaza**
 - Stacy's Bistro LLC, Restaurant, Gaming, TVs, and Alcoholic Beverages – a lease was signed. The location is the former Dunagains and it will likely be several months before they are ready to open.
- Annie Lotton received a referral from Constant Contact: www.byblack.us This information could be incorporated into Goal 3 (f) to coordinate a Black-owned business promotion. Staff will do more research before sharing this site on Constant Contact.
- The summer **2021 Planners magazine** has an article about street vendors. The LA based Economic Roundtable estimates that the average wage for an informal job is \$12,000. The author reported that in 2004, around 679,000 people were operating in the informal economy in LA County, resulting in \$8.1 Billion earned that year alone. Staff previously reported that the Village adopted a policy to allow food trucks on Village-owned property and on commercial property with letters of approval from the property owners. In light of the high unemployment rate and acknowledging that starting a formal business can be expensive, Annie is working with a resident who wants to sell frozen treats/ice cream from a large icebox/cooler on various Village owned lots. This is the first time that the Village is allowing this type of street vendor, taking an approach to encourage rather discourage. Margaret Lewis, the community health nurse, is onboard. Because the party is home based, she will not qualify for the new loan program.

TRUSTEE'S COMMENTS: Excused absence. Trustee Woods provided the following comments, read into the minutes by Chairman Perkins:

1. In place of a standard Saturday Rules Meeting, this past Saturday the Board of Trustees held a strategic planning meeting with B2B Strategic Solutions in the Village Hall Boardroom. The session lasted approximately two hours and had been posted in accordance with the Open Meetings Act. The public was welcome to attend. Trustee Woods will notify EDAG members of the next Strategic Planning Meeting when open to the public.
2. Also related to strategic planning: 775 paper survey responses have been received plus an additional 152 electronic surveys, for a total of 927 responses. It is estimated that we are somewhere near 1,100 total surveys received. For those who have not yet filled out the survey, please refer to www.villageofparkforest.com or the Village Hall lobby for a hardcopy.
3. This past Monday, the Board convened for its Rules meeting. Items of discussion included:
 - a. An agreement to install a solar array project to offset energy usage at the water treatment plant.
 - b. A tree preservation ordinance for trees on public property.
4. The annual meeting of the TIF Joint Review Board is tentatively set for Thursday, August 19th in the Board Room of Village Hall at 10:00 a.m. The session is open to the public. Associated taxing bodies will be invited.

5. The Board has established a Police and Fire Advisory Council that shall consist of seven members. For those interested, an application form will be sent in the August water bill. More information can be found on the Village website.
6. The Park Forest/Chicago Heights Rotary Club will have its 70th Annual Corn Road Picnic tomorrow, August 12 at 5:00 p.m. at the Park Forest Central Park Pavilion. Those interested in attending should RSVP to Mary Dankowski. Donation: \$20 for adults; \$10 for children.
7. The Board acknowledges and welcomes Margaret Banks as Vice Chair and Denise Harvey-Williams as a new member of EDAG. Your commitment and much-needed service is greatly appreciated. Thank you.

OPEN DISCUSSION FOR EDAG MEMBERS:

Member Gross and Vice Chair Banks briefly discussed how to use public information to determine the ownership of properties.

PLANNING AND ZONING COMMISSION MINUTES:

Minutes from the last meeting have not yet been approved.

AUDIENCE FOR VISITORS' COMMENTS:

No visitors present.

ADJOURNMENT:

Member Ingram moved to adjourn at 6:52 p.m. Second by Member Jordan. All in favor; motion carried.

Respectfully submitted,
Dolores DuBois, Recorder