

1600.0 Floodplain Items**1601.0 General Requirements for Floodplain Items**

1. The Village of Homer Glen shall be responsible for fulfilling all of the duties listed in Section 1601.0 by assignment or designation of reviews.
2. To fulfill those duties, the assigned designee, who must be a Professional Engineer (P.E.), first should use the criteria listed in Section 1603.0, Base Flood Elevations, to determine whether the development site is located within a floodplain.
3. Once it has been determined that a development is located within a floodplain, the Village must determine whether the development site is within a flood fringe, a designated floodway, or within a SFHA or floodplain for which no floodway has been identified.
 - A. If the site is within a flood fringe, the Village shall require that the minimum requirements of Section 1604.0 be met in addition to other applicable requirements of this Ordinance.
 - B. If the site is within a floodway, the Village shall require that the minimum requirements of Section 1605.0 be met in addition to other applicable requirements of this Ordinance.
 - C. If the site is located within a SFHA or floodplain for which no detailed study has been completed and approved, the Village shall require that the minimum requirements of Section 1606.0 be met.
4. In addition, the general requirements of Section 1607.0 shall be met for all developments meeting the requirements of Section 1604.0, 1605.0, or 1606.0.
5. The Village shall assure that all subdivision proposals shall meet the requirements of Section 1608.0
6. If a variance is to be granted for a proposal, the Village shall review the requirements of Section 600.0 to make sure they are met. In addition, the Applicant shall complete all notification requirements and shall provide to the Village certified copies of all correspondence.
7. In order to assure that property owners obtain permits as required in this Ordinance, the Village of Homer Glen may take any and all actions as outlined in Section 1105.0.

1602.0 Duties of the Enforcement Official(s)

The Village shall be responsible for the general administration and enforcement of this ordinance which shall include the following:

1. Determining the Floodplain Designation
 - A. Check all new development sites to determine whether they are in a Special Flood Hazard Area (SFHA).
 - B. If they are 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 one (1) square mile in an urban or urbanizing area, or more than ten (10) square miles in a rural area.

2. Professional Engineer Review
 - A. 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 hundred acres, the permit shall be referred to a registered professional engineer under the employ or contract of the Village for review to ensure that the development meets Sections 1605.0-1606.0-1.
 - B. In the case of an Appropriate Use, the P.E. shall state in writing that the development meets the requirements of Section 1605.0.
3. Dam Safety Requirements
 - A. Ensure that an IDNR/OWR permit has been issued or a letter indicating no permit is required, if the proposed development activity includes construction of a dam as defined previously.
 - B. Regulated dams may include weirs, restrictive culverts or impoundment structures.
4. Other Permit Requirements

Ensure that any and all required federal, state and local permits are received prior to the issuance of a Site Development Permit.
5. Plan Review and Permit Issuance
 - A. Ensure that all development activities within the SFHAs of the jurisdiction of the Village meet the requirements of this Ordinance; and
 - B. Issue a Site Development Permit in accordance with the provisions of this Ordinance and other regulations of this community when the development meets the conditions of this Ordinance.
6. Development Review

Ensure all development projects have reviews completed before, during, and after construction to assure proper elevation of the structure and to ensure compliance with the provisions of this Ordinance.
7. Elevation and Flood Proofing Certificate

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 Section 1607.0 of this Ordinance, and/or;
 - B. The elevation to which a non-residential building has been flood proofed, using a Flood Proofing Certificate, for all buildings subject to Section 1607.0 of this Ordinance for public inspection and provide copies of the same.
8. Records for Public Inspection

Maintain for public inspection and furnish upon request base flood data, SFHA and designated floodway maps, copies of federal or state permit documents, Site Development Permit documentation, variance documentation, Conditional Letter of Map Revision, Letter of Map Revision, Letter of Map Amendment and “as-built” elevation and flood proofing and/or elevation certificates for all buildings constructed subject to this Ordinance.
9. Ensure that construction authorized has been granted approval by IDNR/OWR, for all development projects subject to Sections 1605.0 and 1606.0 of this Ordinance, unless enforcement responsibility has been delegated to the Village. Upon acceptance of this Ordinance by IDNR/OWR and FEMA, responsibility is hereby delegated to the Village per 92 IL Administrative Code 708 (See Appendix 18.3) for construction in the designated floodway and floodplain when floodways has not been defined in Section

1605.0 and 1606.0 of this Ordinance. However, the following review approvals are not delegated to the Village and shall require review or permits from IDNR/OWR:

- A. Projects, which are undertaken by Organizations which are exempt from this Ordinance, as per the Illinois Compiled Statutes;
- B. IDNR/OWR projects, dams or impoundment structures as defined in Section 202.0 and all other state, federal or local unit of government projects, including projects of the Village;
- C. An engineer's determination that an existing bridge or culvert crossing is not a source of flood damage and the analysis indicating the proposed flood profile, per Section 1605.0-2-C-v;
- D. 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 1605.0-2-C-iv;
- E. Review and approval of Alternate transition section and hydraulically equivalent compensatory storage as indicated in Section 1605.0-2-C-i, ii, viii;
- F. Permit issuance of structures within, under, or over publicly navigable rivers, lakes and streams;
- G. Any changes in the Base Flood Elevation or floodway locations; and
- H. Base Flood Elevation determinations where none now exist.

10. Cooperation with Other Agencies

- A. Cooperate with the state and federal floodplain management agencies to improve base flood or 100-year frequency flood and floodway data and to improve the administration of this Ordinance;
- B. Submit data to IDNR/OWR and FEMA for proposed revisions of a regulatory map;
- C. Submit reports as required for the National Flood Insurance Program; and
- D. Notify FEMA of any proposed amendments to this Ordinance.

11. Promulgate Regulations

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

1603.0 Base Flood Elevation

1. This Ordinance's protection standard is based on the Flood Insurance Study for the Village.
 - A. If a base flood elevation or 100-year frequency flood elevation is not available for a particular site, then the protection standard shall be according to the best existing data available in the Illinois State Water Survey's Floodplain Information Repository that has been approved by IDNR/OWR and FEMA.
 - B. When a party disagrees with the best available data, he/she may finance the detailed engineering study needed to replace existing data with better data and submit it to IDNR/OWR and FEMA.
2. The base flood or 100-year frequency flood elevation for the SFHAs of the Village of Homer Glen shall be as delineated on the 100-year flood profiles in the Flood Insurance Study of the Village prepared by FEMA (or the Department of Housing and Urban Development) and such amendments to such study and maps as may be prepared from

time to time.

3. The base flood or 100-year frequency flood elevation for the SFHAs of those parts of the Village of Homer Glen shall be as delineated on the 100-year flood profiles in the most recent Flood Insurance Study of the Village of Homer Glen prepared by FEMA (or Department of Housing and Urban Development), and such amendments or revisions to such study and maps as may be prepared from time to time.
4. The base flood or 100-year frequency flood elevation for each SFHA delineated as an “AE Zone,” “AH Zone,” or “AO Zone” shall be that elevation (or depth) delineated on the Flood Insurance Rate Map of the Village of Homer Glen.
5. The base flood or 100-year frequency flood elevation for each of the remaining SFHAs delineated as an “A Zone” on the Flood Insurance Rate Map of the Village shall be according to the best existing data available in the Illinois State Water Survey Floodplain Information Repository.
 - A. When no base flood or 100-year frequency flood elevation exists, the base flood or 100-year frequency flood elevation for a riverine SFHA shall be determined from a backwater model, such as HEC-RAS, HEC-II, WSP-2, or a dynamic model such as HIP.
 - B. The flood flows used in the hydraulic models shall be obtained from a hydrologic model, such as HEC-HMS, HEC-I, TR-20, or HIP, or by techniques presented in various publications prepared by the United States Geological Survey for estimating peak flood discharges.
 - C. Along any watercourses draining more than one (1) square mile in an urban or urbanizing area, or more than ten (10) square miles in a rural area, the above analyses shall be submitted to IDNR/OWR for approval. Once approved it must be submitted to the Illinois State Water Survey Floodplain Information Repository for filing.
 - D. For a non-riverine SFHA, the Base Flood Elevation shall be the historic Flood of Record plus three feet, unless calculated by a detailed engineering study and approved by IDNR/OWR for drainage areas greater than one (1) square mile.
 - E. For an unmapped extended SFHA (with drainage area less than one square mile), the base flood elevation shall be determined by the applicant utilizing a method as approved in this Section of the Ordinance.

1604.0 Occupation and use of Flood Fringe Areas

Development in and/or filling of the flood fringe will be permitted if protection is provided against the base flood or 100-year frequency flood by proper elevation, and compensatory storage, and other applicable provisions of this Ordinance. No use will be permitted which adversely affects the capacity of drainage facilities or systems. Developments located within the flood fringe shall meet the requirements of this Section, along with the requirements of Section 1607.0.

1. Site Development Permit for Development in the SFHA
 - A. No person, firm, corporation, or governmental body not exempted by state law shall commence any development in the SFHA without first obtaining a Site Development Permit from the Village of Homer Glen. Failure to obtain a Site

- Development Permit prior to the initiation of any development activities is a violation of this Ordinance.
- B. Any person, firm, corporation or governmental body not exempted by state law that commences any development in the SFHA without first obtaining a Site Development Permit from the Village shall be required to obtain an after the fact Site Development Permit at a cost that is double the normal fee (refer to Section 1500.0).
- C. Application for a Site Development Permit shall be made on a form provided by the Village.
- i. The application shall be accompanied by drawings of the site, drawn to scale, showing property line dimensions and legal description for the property and sealed by a licensed engineer, architect or land surveyor; existing grade elevations in M.S.L., 1929 adj. Datum or N.G.V.D. and all changes in grade resulting from excavation or filling; the location and dimensions of all buildings and additions to buildings.
 - ii. For all proposed buildings, the elevation of the lowest floor (including basement) and lowest adjacent grade shall be shown on the submitted plans and the development will be subject to the requirements of Section 1607.0 of this Ordinance.
- D. Upon receipt of a Site Development Permit application, the Village shall compare the elevation of the site to the base flood or 100-year frequency flood elevation.
- i. Any development located on land that can be shown to be higher than the base flood elevation of the current Flood Insurance Rate Map and which has not been filled after the date of the site's first Flood Insurance Rate Map without a Site Development Permit as required by this Ordinance is not in the SFHA and, therefore, not subject to the requirements of this Ordinance.
 - ii. The Village shall maintain documentation of the existing ground elevation at the development site and certification that this ground elevation existed prior to the date of the site's first Flood Insurance Rate Map identification.
- E. A soil erosion and sediment control plan for disturbed areas shall be submitted in accordance with Section 1400.0. This plan shall include a description of the sequence of grading activities and the temporary sediment and erosion control measures to be implemented to mitigate their effects. This plan shall also include a description of final stabilization and re-vegetation measures, and the identification of a responsible party to ensure post-construction maintenance.
- F. The applicant shall be responsible for providing the Village copies of all other federal, state, and local permits, approval or permit-not-required letters that may be required for this type of activity. The Village shall not issue a permit unless all other federal, state, and local permits have been obtained.

2. Preventing Increased Damages

No development in the flood fringe shall create a threat to public health and safety.

- A. If fill is being used to elevate the site above the base flood or 100-year frequency flood elevation, the applicant shall submit sufficient data and obtain a letter of map revision (LOMR) from FEMA for the purpose of removing the site from the floodplain.
- B. Compensatory Storage.
 - i. Whenever any portion of a floodplain is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the base flood or 100-year frequency flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the base flood or 100-year frequency flood elevation.
 - ii. The excavation volume shall be at least equal to 1.50 times the volume of storage lost due to the fill or structure.
 - iii. In the case of streams and watercourses, such excavation shall be made opposite or adjacent to the areas so filled or occupied.
 - iv. All floodplain storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All floodplain storage lost above the proposed 10-year flood elevation shall be replaced above the proposed 10-year flood elevation.
 - v. All such excavations shall be constructed to drain freely and openly to the watercourse.

1605.0 Occupation and use of Designated Floodways

This Section applies to proposed development, redevelopment, site modification or building modification within a designated floodway. The designated floodway for the Village of Homer Glen shall be as delineated on the designated floodway maps designated by IDNR/OWR according to and referenced in Section 200.0. Only those uses and structures will be permitted which meet the criteria in this Section. All floodway modifications shall be the minimum necessary to accomplish the purpose of the project. The development shall also meet the requirements of Section 1607.0.

1. Site Development Permit for Development in a Floodway

No person, firm, corporation or governmental body not exempted by state law shall commence any development in a floodway without first obtaining a Site Development Permit from the Village and IDNR/OWR. Failure to obtain a Site Development Permit prior to the initiation of any development activities is a violation of this Ordinance.

- A. Any person, firm, corporation or governmental body not exempted by state law that commences any development in the SFHA without first obtaining a Site Development Permit from the Village and who has been issued a stop work order shall be required to obtain an after the fact Site Development Permit at a cost that is double the normal fee (refer to Section 1500.0).

- B. Application for a Site Development Permit shall be made on a form provided by the Land Use Department. The application shall include the following information:
- i. Name and address of applicant;
 - ii. Site location (including legal description) of the property, drawn to scale, on the designated floodway map, indicating whether it is proposed to be in an incorporated or unincorporated area;
 - iii. Name of stream or body of water affected;
 - iv. Description of proposed activity;
 - v. Statement of purpose of proposed activity;
 - vi. Anticipated dates of initiation and completion of activity;
 - vii. Name and mailing address of the owner of the subject property if different from the applicant;
 - viii. Signature of the applicant or the applicant's agent;
 - ix. If the applicant is a corporation, the president or other authorized officer shall sign the application form;
 - x. If the applicant is a partnership, each partner shall sign the application form;
 - xi. If the applicant is a land trust, the trust officer shall sign the name of the trustee by him/her as trust officer. A disclosure affidavit shall be filed with the application, identifying each beneficiary of the trust by name and address and defining the respective interests therein.
 - xii. Plans of the proposed activity shall be provided which include as a minimum:
 - a. A vicinity map showing the site of the activity, name of the waterway, boundary lines, names of roads in the vicinity of the site, graphic or numerical scale, and north arrow;
 - b. A plan view of the project and engineering study reach showing existing and proposed conditions including principal dimensions of the structure or work, elevations in mean sea level (1929 adjustment) datum or NGVD or North American Vertical Datum, adjacent property lines and ownership, drainage and flood control easements, location of any channels and any existing or future access roads, distance between proposed activity and navigation channel (when the proposed construction is near a commercially navigable body of water), designated floodway limit, floodplain limit, specifications and dimensions of any proposed channel modifications, location and orientation of cross-sections, north arrow, and a graphic or numerical scale;
 - c. Cross-section views of the project and engineering study reach showing existing and proposed conditions including principal dimensions of the work as shown in the plan view, existing and proposed elevations, normal water elevation, 10-year frequency flood elevation, 100-year frequency flood elevation, and graphic or numerical scales (horizontal and vertical);
 - d. A soil erosion and sediment control plan for disturbed areas in accordance with Section 1400.0. This plan shall include a description of the sequence of grading activities and the temporary sediment and erosion control measures to be implemented to mitigate their effects.

This plan shall also include a description of final stabilization and re-vegetation measures, and the identification of a responsible party to ensure post-construction maintenance.

- e. A copy of the designated floodway map, marked to reflect any proposed change in the designated floodway location.
 - xiii. Any and all other federal, state, and local permits or approval letters that may be required for this type of development;
 - xiv. Engineering calculations and supporting data shall be submitted showing that the proposed work will meet the permit criteria of Section 1605.0-2;
 - xv. If the designated floodway delineation, base flood or 100-year frequency flood elevation will change due to the proposed project, the application will not be considered complete until IDNR/OWR has indicated conditional approval of the designated floodway map change. No structures may be built until a Letter of Map Revision has been approved by FEMA;
 - xvi. The application for a structure shall be accompanied by drawing of the site, drawn to scale showing property line dimensions and existing ground elevations and all changes in grade resulting from any proposed excavation or filling, and floodplain and floodway limits; sealed by a registered professional engineer, licensed architect or registered land surveyor; the location and dimensions of all buildings and additions to buildings; and the elevation of the lowest floor (including basement) of all proposed buildings subject to the requirements of Section 1607.0 of this Ordinance; and
 - xvii. If the proposed project involves a channel modification, the applicant shall submit the following information:
 - a. A description of the purpose of and need for the proposed work;
 - b. A description of the feasibility of using alternative locations or methods (see 1605.0-2-C-ix) to accomplish the purpose of the proposed work;
 - c. An analysis of the extent and permanence of the impacts each feasible alternative identified in 1605.0-2-C-ix of this Section would have on the physical and biological conditions of the body of water affected; and
 - d. An analysis of the impacts of the proposed project, considering cumulative effects on the physical and biological conditions of the body of water affected.
- C. The applicant shall be responsible for submitting to the Village copies of all other federal, state, and local permits and approvals that may be required for this type of activity.
- i. The Village shall not issue the Site Development Permit unless all required federal and state permits have been submitted.
 - ii. A Registered Professional Engineer, under the employ or contract of the Village shall review and approve applications submitted under this Section.

2. Preventing Increased Damages and a List of Appropriate Uses.

- A. The only development in a floodway which will be allowed are Appropriate Uses,

which will not cause a rise in the base flood elevation, and which will not create a damaging or potentially damaging increase in flood heights or velocity or be a threat to public health and safety and welfare or impair the natural hydrologic and hydraulic functions of the floodway or channel, or permanently impair existing water quality or aquatic habitat. Construction impacts shall be minimized by appropriate mitigation methods as called for in this Ordinance. Only the following Appropriate Uses will be allowed per 92 Ill. Adm. Code Part 708:

- i. Public flood control structures, dikes, dams and other public works or private improvements relating to the control of drainage, flooding of existing structures, erosion, or water quality or habitat for fish and wildlife;
- ii. Structures or facilities relating to the use of, or requiring access to, the water or shoreline, such as in stream aeration and similar treatment facilities.
- iii. Facilities and improvements related to recreational boating, and commercial shipping and other functionally water dependent uses;
- iv. Storm and sanitary sewer outfalls;
- v. Underground and overhead utilities;
- vi. Public open space and recreational facilities such as trail systems, including any related fencing (at least fifty percent (50%) open when viewed from any one direction) built parallel to the direction of flood flows, including open air pavilions, and including parking facilities and any modification thereto associated with an appropriate public facility;
- vii. Bridges, culverts, and associated roadways, sidewalks, and railways, necessary for crossing over the floodway or for providing access to other appropriate uses in the floodway and any modification thereto;
- viii. Regulatory floodway re-grading, without fill, to create a positive non-erosive slope toward a watercourse;
- ix. Flood proofing activities to protect previously existing lawful structures including the construction of water tight window wells, elevating structures, or construction of floodwalls around residential, commercial or industrial principal structures where the outside toe of the floodwall shall be no more than ten (10) feet away from the exterior wall of the existing structure, and, which are not considered substantial improvements to the structure.
- x. The replacement, reconstruction or repair of a damaged building, provided that the outside dimensions of the building are not increased, and provided that, if the building is damaged to fifty percent (50%) or more of the building market value before it was damaged, or if the building requires a substantial improvement, the building will be protected from flooding to the Flood Protection Elevation.
- xi. Modifications to an existing building that would not increase the enclosed first floor area of the building below the 100-year frequency flood elevation, and which will not block flood flows including, but not limited to, fireplaces, bay windows, decks, patios, and second story additions. If the building is improved to fifty percent (50%) or more of the building market value before modification occurred, the building will be protected from flooding to the Flood Protection Elevation.

- B. Appropriate uses do not include the construction or placement of any new structures, fill, building additions, buildings on stilts, excavation or channel modifications done to accommodate otherwise non-appropriate uses in the floodway, fencing (including landscaping or planting designed to act as a fence) and storage of materials except as specifically defined above as an Appropriate Use.
- C. Within the designated floodway as identified on the floodway maps designated by IDNR/OWR, the construction of an Appropriate Use, will be considered permissible provided that the proposed project meets the following engineering and mitigation criteria and is so stated in writing with supporting plans, calculations and data by a registered professional engineer and provided that any structure meets the protection requirements of Section 1605.0 of this Ordinance:
- i. Preservation of Flood Conveyance, so as Not to Increase Flood Stages Upstream

For appropriate uses other than bridges or culvert crossings, on-stream structures or dams, all effective designated floodway conveyance lost due to the project will be replaced for all flood events up to and including the 100-year frequency flood. In calculating effective designated floodway conveyance, the following factors shall be taken into consideration:

- 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 ration of the area to the wetted perimeter. (See Open Channel Hydraulics, Ven Te Chow, 1959, McGraw-Hill Book Company, New York)
- 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 the 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:
- I. 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.
- II. 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 (1) foot horizontal for every one foot of the flooded stream’s length.
- III. 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.

- IV. Transition sections shall be provided between cross-sections with rapid expansions and contractions and when meeting the designated floodway delineation on adjacent properties.
 - V. All cross-sections used in the calculations shall be located perpendicular to flood flows.
- ii. 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.
 - b. Compensatory storage for fill or structures shall be equal to at least 1.50 times the volume of 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 100-year flood elevation. All designated floodway storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All designated floodway storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation. All such excavations shall be constructed to drain freely and openly to the watercourse.
 - e. If the compensatory storage will not be placed at the location of the proposed construction, the applicant's engineer shall demonstrate to IDNR/OWR 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 as a result of a floodway modification, unless such modification is necessary to reduce flooding at an existing structure.
 - iii. 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 100-year frequency 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 the use of rip-rap or other design measures.
 - iv. 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 100-year frequency event; or the upstream flood stage increases will be contained within the channel banks (or within existing vertical extensions of the channel banks) such as within the design protection grade of existing levees or flood walls 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.
 - I. The engineering analysis of upstream flood stages must be calculated using the flood study flows, and corresponding flood elevations for tail water conditions for the flood study specified in Section 1603.0 of this Ordinance. Culverts must be analyzed using the U.S. DOT, FHWA Hydraulic Chart for the Selection of Highway Culverts. Bridges must be analyzed using the U.S. DOT/Federal Highway Administration Hydraulics of Bridge Waterways' calculation procedures.
 - II. Lost floodway storage must be compensated for per Section 1605.0-2-C-ii.
 - III. Velocity increases must be mitigated per Section 1605.0-2-C-iii.
 - IV. If the crossing is proposed over a public water that is used for recreational or commercial navigation, an IDNR/OWR permit must be received.
 - V. 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 1605.0-2.
 - VI. All excavations for the construction of the crossings shall be designed per Section 1605.0-2-C-viii.
- v. 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 100-year event, if the existing structure is not a source of flood damage.
 - b. If the existing bridge or culvert and roadway approach is a source of flood damage to buildings or structures in the upstream floodplain the applicant's engineer shall evaluate the feasibility of redesigning the structure to reduce the existing backwater, taking into consideration the effects on flood stages on upstream and downstream properties.
 - c. 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 92 Ill Adm. Code Part 708 (Floodway Construction in Northeastern Illinois) and submitted to IDNR/OWR for review and

concurrence before a permit is issued.

- vi. 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 100year frequency event shall be contained within the channel banks (or within existing vertical extensions of the channel banks) such as within the design protection grade of existing levees or flood walls 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 Section 202.0 shall meet the permitting requirements of 92 Ill. Adm. Code Part 702 (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:
 - I. The impoundment is determined to be in the public interest by providing flood control, public recreation, or regional storm water detention;
 - II. 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;
 - III. 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;
 - IV. 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;
 - V. The project otherwise complies with the requirements of Section 1605.0.
- vii. Flood Proofing of Existing Habitable, Residential and Commercial Structures.
 - a. If construction is required beyond the outside dimensions of the existing building, the outside perimeter of the flood proofing construction shall be placed no further than ten (10) feet from the outside of the building.
 - b. Compensation for lost storage and conveyance will not be required for flood proofing activities.
- viii. 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:
 - I. 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 (1) foot horizontal for every four (4) feet of the flooded stream's length;
 - II. 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 (1) foot horizontal for every one (1) foot of the flooded stream's length; and
 - III. 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.
 - IV. Erosion/scour protection shall be provided inland upstream and downstream of the transition sections.
- ix. If the proposed activity involves a channel modification, it shall be demonstrated that:
 - a. There are no practicable alternatives to the activity, which would accomplish its purpose with less impact to the natural conditions of the body of water affected. Possible alternatives include levees, bank stabilization, flood proofing of existing structures, removal of structures from the floodplain, clearing the channel, high flow channel, or the establishment of a streamside buffer strip or green belt. Channel modification is acceptable if the purpose is to restore natural conditions and improve water quality and fish and wildlife habitat;
 - b. Water quality, habitat, and other natural functions would be significantly improved by the modification and no significant habitat area may be destroyed, or the impacts are offset by the replacement of an equivalent degree of natural resource values;
 - c. The activity has been planned and designed and will be constructed in a way which will minimize its adverse impacts on the natural conditions of the body of water affected, consistent with the following criteria:
 - I. The physical characteristics of the modified channel shall match as closely as possible those of the existing channel in length, cross section, slope and sinuosity. If the existing channel has been previously modified, restoration of more natural physical

- conditions should be incorporated into channel modification design, where practical.
- II. Hydraulically effective transitions shall be provided at both the upstream and downstream ends of the project, designed such that they will prevent erosion.
 - III. One-sided construction of a channel shall be used when feasible. Removal of streamside (riparian) vegetation should be limited to one side of the channel, where possible, to preserve the shading and stabilization effects of the vegetation.
 - IV. Clearing of stabilizing vegetation shall be limited to that which is essential for construction of the channel.
 - V. Channel banks shall be constructed with a side slope no steeper than 3:1 horizontal to vertical, wherever practicable. Native vegetation and gradual side slopes are the preferred methods for bank stabilization. Where high velocities or sharp bends necessitate the use of alternative stabilization measures, soil bioengineering techniques, natural rock or riprap are preferred approaches. Artificial materials such as concrete, gabions, or construction rubble should be avoided unless there are no practicable alternatives.
 - VI. All disturbed areas associated with the modification shall be seeded or otherwise stabilized as soon as possible upon completion of construction. Erosion blanket or an equivalent material shall be required to stabilize disturbed channel banks prior to establishment of the vegetative cover.
 - VII. If the existing channel contains considerable bottom diversity such as deep pools, riffles, and other similar features, such features shall be provided in the new channel. Spawning and nesting areas and flow characteristics compatible with fish habitat shall also be established, where appropriate.
 - VIII. A sediment basin shall be installed at the downstream end of the modification to reduce sedimentation and degradation of downstream water quality.
 - IX. New or relocated channels should be built in the dry and all items of construction, including vegetation, should be completed prior to diversion of water into the new channel.
 - X. There shall be no increases in stage or velocity as the channel enters or leaves the project site for any frequency flood unless necessitated by a public flood control project or unless such an increase is justified as part of a habitat improvement or erosion control project.
 - XI. Unless the modification is for a public flood control project, there shall be no reduction in the volume of floodwater storage outside the floodway as a result of the modification.
- d. The project otherwise complies with the requirements of Section 1605.0.

x. Seeding and Stabilization Plan.

For all activities located in a floodway, a seeding and stabilization plan shall be submitted by the applicant.

xi. Soil Erosion and Sedimentation Measures.

For all activities in the floodway, including grading, filling, and excavation, in which there is potential for erosion of exposed soil, soil erosion and sedimentation control measures shall be employed consistent with the following criteria:

- a. The construction area shall be minimized to preserve the maximum vegetation possible. Construction shall be scheduled to minimize the time soil is exposed and unprotected. In no case shall the existing natural vegetation be destroyed, removed, or disturbed more than fifteen (15) days prior to the initiation of improvements.
- b. Temporary and/or permanent soil stabilization shall be applied to denuded areas as soon as possible. As a minimum, soil stabilization shall be provided within fifteen (15) days after final grade is reached on any portion of the site, and within fifteen (15) days to denuded areas, which may not be at final grade but will remain undisturbed for longer than sixty (60) days.
- c. Sedimentation control measures shall be installed before any significant grading or filling is initiated on the site to prevent the movement of eroded sediments off site or into the channel. Potential sediment control devices include filter fences, straw bale fences, check dams, diversion ditches, and sediment traps and basins.
- d. A vegetated buffer strip of at least seventy-five (75) feet in width shall be preserved and/or re-established, where possible, along existing channels (See Section 1605.0-2-C-xvi). The buffer width may be reduced to a minimum of 1/2 of the buffer width required, upon approval by the Village, provided that the total buffer area required is achieved adjacent to the area being buffered. The permitting and/or consultation process with any other agency such as the IDNR, USACE or U.S. Fish & Wildlife Service may override the ability to average buffer areas upon approval of the Village.
Construction vehicle use of channels shall be minimized. Temporary stream crossings shall be constructed, where necessary, to minimize erosion. Necessary construction in or along channels shall be restabilized immediately.
- e. Soil erosion and sedimentation control measures shall be designed and implemented consistent with "Procedures and Standards for Urban Soil Erosion and Sedimentation Control in Illinois" (1998) and "The Illinois Urban Manual" (NRCS, 1995).

xii. Public Flood Control Projects. For public flood control projects, the permitting requirements of this Section will be considered met if the applicant

can demonstrate to IDNR/OWR through hydraulic and hydrologic calculations that the proposed project will not singularly or cumulatively result in increased flood heights outside the project right-of-way or easements for all flood events up to and including the 100-year frequency event.

xiii. General Criteria for Analysis of Flood Elevations.

- a. The flood profiles, flows and floodway data in the designated floodway study, referenced in Section 1603.0, 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.
- b. If the 100-year designated floodway elevation at the site of the proposed construction is affected by backwater from a downstream receiving stream with a larger drainage area, the proposed construction shall be shown to meet:
 - I. The requirements of this Section for the 100-year frequency flood elevations of the designated floodway conditions; and
 - II. Conditions with the receiving stream at normal water elevations.
- c. If the applicant learns from IDNR/OWR, local governments, or a private owner that a downstream restrictive bridge or culvert is scheduled to be removed, reconstructed, modified, or a regional flood control project is scheduled to be built, removed, constructed or modified within the next five years, the proposed construction shall be analyzed and shown to meet the requirements of this Section for both the existing conditions and the expected flood profile conditions when the bridge, culvert or flood control project is built.

xiv. Conditional Letter of Map Revision.

- a. If the Appropriate Use would result in a change in the designated floodway location or the 100-year frequency flood elevation, the applicant shall submit to IDNR/OWR and FEMA all information, calculations and documents necessary to be issued a conditional designated floodway map revision and receive from IDNR/OWR a conditional concurrence of the designated floodway change before a permit is issued.
- b. The final designated floodway map will not be changed by FEMA until as-built plans or record drawings of initial filling, grading, dredging, or excavating activities are submitted and accepted by FEMA and IDNR/OWR.
- c. In the case of non-government projects, the municipality in incorporated areas and the county in unincorporated areas shall concur with the proposed conditional designated floodway map revision before IDNR/OWR approval can be given.

- d. No filling, grading, dredging or excavating shall take place until a conditional approval is issued.
- e. After initial filling, grading, dredging or excavating, no activities shall take place until a final Letter of Map Revision (LOMR) is issued by FEMA with concurrence from IDNR/OWR.

xv. Professional Engineer's Supervision.

All engineering analyses shall be performed by or under the supervision of a registered professional engineer.

xvi. For all activities in the floodway involving construction within seventy-five (75) feet of the channel, the following criteria shall be met:

- a. A natural vegetation buffer strip shall be preserved within at least seventy-five (75) feet of the ordinary high water mark of the channel.
- b. Where it is impossible to protect this buffer strip during the construction of an Appropriate Use as allowed in Section 1605.0-2-A, a vegetated buffer strip shall be established upon completion of construction.

xvii. After receipt of conditional approval of the designated floodway change and issuance of a permit and a Conditional Letter of Map Revision, construction as necessary to change the floodway designation may proceed but no buildings or structures or other construction that is not an Appropriate Use may be placed in that area until the designated floodway map is changed and a final Letter of Map Revision is received. The designated floodway map will be revised upon acceptance and concurrence by IDNR/OWR and FEMA of the "as-built" plans.

3. Development Activities Requiring State Review

For those projects listed below located in a designated floodway, the following criteria shall be submitted to IDNR/OWR for their review and concurrence prior to the issuance of a permit by the Village, which is the delegated state permitting authority in the floodway.

- A. An engineer's analysis of the flood profile due to a proposed bridge pursuant to Section 1605.0-2-C-iv.
- B. An engineer's determination that an existing bridge or culvert crossing is not a source of flood damage and the analysis indicating the proposed flood profile, pursuant to Section 1605.0-2-C-v.
- C. Alternative transition sections and hydraulically equivalent storage pursuant to Section 1605.0-2-C-i, ii, viii.
- D. The construction of any IDNR/OWR projects, dams (as defined in Section 200.0) and all other state, federal, or local units of government projects, including projects of the municipality or county.
- E. An engineer's determination that a proposed bridge affected by backwater from a downstream receiving stream may be built with a smaller opening.
- F. Projects which revise the floodway and/or flood profiles.
- G. Projects in public bodies of water.

4. Other Permits

- A. In addition to the other requirements of this Ordinance, a development permit for a site located in a floodway shall not be issued unless the applicant first obtains a permit or written documentation that a permit is not required from IDNR/OWR, issued pursuant to 615 ILCS 5/4.9 et seq.
- B. No permit from IDNR/OWR shall be required if IDNR/OWR has delegated this responsibility to the Village.

5. Permits for Dams

- A. Any work involving the construction, modification or removal of a dam as defined in Section 10.3 per 92 Ill. Adm. Code Part 702 (Rules for Construction of Dams) shall obtain an IDNR/OWR permit prior to the start of construction of a dam.
- B. If the Village finds a dam that does not have an IDNR/OWR permit, the Village shall immediately notify the IDNR/OWR Schaumburg office.

6. Activities That Do Not Require A Registered Professional Engineer's Review

The following activities may be permitted without a registered professional engineer's review. Such activities shall still meet the other requirements of this Ordinance, including the mitigation requirements.

- A. Underground and overhead utilities that:
 - i. Do not result in any increase in existing ground elevations, or

- ii. Do not require the placement of above ground structures in the floodway, or
 - iii. In the case of underground stream crossings, the top of the pipe or encasement is buried a minimum of three feet (3') below the existing streambed, and
 - iv. Overhead utility lines shall be constructed above the estimated 100-year frequency flood elevation or attached above the low chord of an existing bridge (with the permission of the bridge owner). No supporting towers shall be placed in the watercourse and shall be designed so as to not catch debris.
 - v. Disturbance of streamside vegetation shall be kept to a minimum during construction to prevent erosion and sedimentation. All disturbed floodway areas, including the stream banks shall be restored to their original contours and seeded or otherwise stabilized upon completion of construction.
 - vi. A utility crossing carrying material which may cause water pollution as defined by the Environmental Protection Act 415 ILCS 5 (1992 State Bar Edition) shall be provided with shut off valves on each side of the body of water to be crossed.
 - vii. All Illinois Commerce Commission, National Electric Safety Codes, and federal requirements for clearance must be met.
- B. Storm and sanitary sewer relief outfalls that:
- i. Do not extend riverward or lakeward of the existing adjacent natural bank slope,
 - ii. Do not result in an increase in ground elevation, and
 - iii. Are designed so as not to cause stream erosion at the outfall location.
- C. Construction of sidewalks, athletic fields (excluding fences), properly anchored playground equipment and patios at grade.
- D. Construction of shoreline and stream bank protection:
- i. That does not exceed one thousand feet (1,000') in length.
 - ii. Where materials are not placed higher than the existing top of bank.
 - iii. Where materials are not placed so as to reduce the cross-sectional area of the stream channel or bank of the lake.
 - iv. Where stabilization utilizing native vegetation and gradual side slopes are the preferred mitigation methods for existing erosion problems. Where high channel velocities, sharp bends or wave action necessitate the use of alternative stabilization measures, soil bioengineering techniques, natural rock or riprap are preferred materials. Artificial materials such as concrete, construction rubble, and gabions should be avoided unless there are no practicable alternatives.
 - v. Where temporary stream crossings in which:
 - a. The approach roads will be one-half (1/2) foot or less above natural grade.
 - b. The crossing will allow stream flow to pass without backing up the water above the stream bank vegetation line or above any drainage tile or outfall invert.
 - c. The top of the roadway fill in the channel will be at least two feet (2')

- below the top of the lowest bank. Any fill in the channel shall be non-erosive material, such as riprap or gravel.
- d. All disturbed stream banks will be seeded or otherwise stabilized as soon as possible upon installation and again upon removal of construction.
 - e. The access road and temporary crossings will be removed within one year after authorization.

1606.0 Occupation and use of SFHA Where Floodways are not Identified

1. In SFHA or floodplains (including AE, AH, AO and Unnumbered A Zones) where no floodways have been identified and no base flood or 100-year frequency flood elevations have been established by FEMA, and draining more than a square mile, no development shall be permitted unless the cumulative effect of the proposals, when combined with all other existing and anticipated uses and structures, shall not significantly impede or increase the flow and passage of the floodwaters nor significantly increase the base flood or 100-year frequency flood elevation.
 - A. No person, firm, corporation, or governmental body, not exempted by state law, shall commence any development in a SFHA or floodplain without first obtaining a Site Development Permit from the Village of Homer Glen. Failure to obtain a Site Development Permit is a violation of this Ordinance.
 - B. Any person, firm, corporation or governmental body not exempted by state law that commences any development in the SFHA without first obtaining a Site Development Permit from the Village shall be required to obtain an after the fact Site Development Permit at a cost that is double the normal fee (refer to Section 1500.0).
 - C. Application for a Site Development Permit shall be made on a form provided by the Village.
 - i. The application shall be accompanied by drawings of the site, drawn to scale showing property line dimensions, existing grade elevations, and all changes in grade resulting from excavation or filling, sealed by a licensed engineer, architect or surveyor; the location and dimensions of all buildings and additions to buildings; and the elevations of the lowest floor (including basement) of all proposed buildings subject to the requirements of Section 1607.0 of this Ordinance.
 - ii. The application for a Site Development Permit shall also include the following information:
 - a. A detailed description of the proposed activity, its purpose, and intended use;
 - b. Site location (including legal description) of the property, drawn to scale, on the designated floodway maps, indicating whether it is proposed to be in an incorporated or unincorporated area;
 - c. Anticipated dates of initiation and completion of activity;
 - d. Plans of the proposed activity shall be provided which include as a minimum:

- I. A vicinity map showing the site of the activity, name of the waterway, boundary lines, names of roads in the vicinity of the site, graphic or numerical scale, and north arrow;
 - II. A plan view of the project and engineering study reach showing existing and proposed conditions including principal dimensions of the structure or work, elevations in mean sea level (1929 adjustment) datum or N.G.V.D., adjacent property lines and ownership, drainage and flood control easements, distance between proposed activity and navigation channel (when the proposed construction is in or near a commercially navigable body of water), floodplain limit, location and orientation of cross-sections, north arrow, and a graphical or numerical scale;
 - III. Cross-section views of the project perpendicular to the flow of floodwater and engineering study reach showing existing and proposed conditions including principal dimensions of the work as shown in the plan view, existing and proposed elevations, normal water elevation, 10-year frequency flood elevation, 100-year frequency flood elevation, and graphical or numerical scales (horizontal and vertical); and
 - IV. A soil erosion and sedimentation control plan for disturbed areas. This plan shall include a description of the sequence of grading activities and the temporary sediment and erosion control measures to be implemented to mitigate their effects. This plan shall also include a description of final stabilization and re-vegetation measures, and the identification of a responsible party to ensure post-construction maintenance.
- iii. Engineering calculations and supporting data shall be submitted showing that the proposed work will meet the criteria of Section 1606.0-2.
 - iv. Any and all other federal, state, and local permits or approvals that may be required for this type of development.
- D. Based on the best available existing data according to the Illinois State Water Survey's Floodplain Information Repository, the Village shall compare the elevation of the site to the base flood or 100-year frequency flood elevation.
- i. Should no elevation information exist for the site, the developer's engineer shall calculate the elevation according to Section 1603.0-5.
 - ii. Any development located on land that can be shown to have been higher than the base flood elevation of the current Flood Insurance Rate Map Identification is not in the SFHA and, therefore, not subject to the requirements of this Ordinance.
 - iii. The Village shall maintain documentation of the existing ground elevation at the development site and certification that this ground elevation existed prior to the date of the site's first Flood Insurance Rate Map identification.
- E. The applicant shall be responsible for submitting to the Village copies of all other

federal, state, and local permits, approvals or permit-not-required letters that may be required for this type of activity. The Village shall not issue the development permit unless all required federal, state, and local permits have been submitted.

2. Preventing Increased Damages

- A. No development in the SFHA, where a floodway has not been determined shall create a damaging or potentially damaging increase in flood heights or velocity or threat to public health, safety and welfare, impair the natural hydrologic and hydraulic functions of the floodway or channel, or impair existing water quality or aquatic habitat. Construction impacts shall be minimized by appropriate mitigation methods as called for in this Ordinance.
- B. Within all riverine SFHAs where the floodway has not been determined, the following standards shall apply:
- i. The developer shall have a Registered Professional Engineer state in writing and show through supporting plans, calculations, and data that the project meets the engineering requirements of Section 1605.0-2-C-i through xii for the entire floodplain as calculated under the provisions of Section 1603.0-4 of this Ordinance.
 - a. As an alternative, the developer should have an engineering study performed to determine a floodway and submit that engineering study to IDNR/OWR for acceptance as a designated floodway.
 - b. Upon acceptance of the floodway by IDNR/OWR, the developer shall demonstrate that the project meets the requirements of Section 1605.0 for the designated floodway. The floodway shall be defined according to the definition in Section 202.0 of this Ordinance.
 - ii. A development permit shall not be issued unless the applicant first obtains a permit from IDNR/OWR.
 - iii. No permit from IDNR/OWR shall be required if IDNR/OWR has delegated permit responsibility per 92 Ill. Adm. Code Part 708 for designated floodways.
 - iv. Permits for Dams
 - a. Any work involving the construction, modification or removal of a dam as defined in Section 10.3-0 per 92 Ill. Adm. Code Part 702 (Rules for Construction of Dams) shall require the applicant to obtain an IDNR/OWR permit prior to the start of construction of a dam.
 - b. If the Village finds a dam that does not have an IDNR/OWR permit, the Village shall immediately notify the IDNR/OWR Schaumburg office.
 - c. If the Village finds a dam which is believed to be in unsafe condition, the Village shall immediately notify the owner of the dam, the IDNR/OWR Schaumburg office, and the Illinois Emergency Management Agency (IEMA).

- C. A Site Development Permit may be issued for the following activities without a

Registered Professional Engineer's review or calculation of a base flood elevation and designated floodway. Such activities shall still meet the other requirements of this Ordinance:

- i. Underground and overhead utilities that:
 - a. Do not result in any increase in existing ground elevations, or
 - b. Do not require the placement of above ground structures in the floodway, or
 - c. In the case of underground stream crossings, the top of the pipe or encasement is buried a minimum of three feet (3') below the existing streambed, and
 - d. Overhead utility lines shall be constructed above the estimated 100-year frequency flood elevation or attached above the low chord of an existing bridge (with the permission of the bridge owner). No supporting towers shall be placed in the watercourse and shall be designed so as to not catch debris.
 - e. Disturbance of streamside vegetation shall be kept to minimum during construction to prevent erosion and sedimentation.
 - f. A utility crossing carrying material which may cause water pollution as defined by the Environmental Protection Act 415 ILCS 5 (1992 State Bar Edition) shall be provided with shut-off valves on each side of the body of water to be crossed.
 - g. All Illinois Commerce Commission, National Electric Safety Codes, and federal requirements for clearance must be met.
- ii. Storm and sanitary sewer relief outfalls that:
 - a. Do not extend riverward or lakeward of the existing adjacent natural bank slope, and
 - b. Do not result in an increase in ground elevation, and
 - c. Are designed so as not to cause stream erosion at the outfall location.
- iii. Construction of shoreline and stream bank protection that:
 - a. Does not exceed one thousand feet (1,000') in length.
 - b. Materials are not placed higher than the existing top of bank.
 - c. Materials are placed so as not to reduce the cross-sectional area of the stream channel by more than ten percent (10%).
 - d. Stabilization utilizing native vegetation and gradual side slopes are the preferred mitigation methods for existing erosion problems. Where high channel velocities, sharp bends or wave action necessitate the use of alternative stabilization measures, soil bioengineering techniques, natural rock or riprap are preferred materials. Artificial materials such as concrete, construction rubble, and gabions should be avoided unless there are no practicable alternatives.
- iv. Temporary stream crossings in which:

- a. The approach roads will be one half foot (½') or less above natural grade.
 - b. The crossing will allow stream flow to pass without backing up the water above the stream bank vegetation line or above any drainage tile or outfall invert.
 - c. The top of the roadway fill in the channel will be at least 2' below the top of the west bank. Any fill in the channel shall be non-erosive material, such as riprap or gravel.
 - d. All disturbed stream banks will be seeded or otherwise stabilized as soon as possible upon installation and again upon removal of construction.
 - e. The access road and temporary crossings will be removed within one year after authorization.
- v. The construction of light poles, signposts and similar structures;
 - vi. The construction of sidewalks, driveways, athletic fields (excluding fences), patios and similar surfaces, which are built at grade;
 - vii. The construction of properly anchored, un-walled, open structures such as playground equipment, pavilions, and carports built at or below existing grade that would not obstruct the flow of flood waters;
 - viii. The placement of properly anchored buildings not exceeding seventy (70) square feet in size, nor ten (10) feet in any one dimension (e.g., animal shelters and tool sheds);
 - ix. The construction of additions to existing buildings which do not increase the first floor area by more than twenty percent (20%), which are located on the upstream or downstream side of the existing building, and which do extend beyond the sides of the existing building that are parallel to the flow of flood waters;
 - x. Minor maintenance dredging of a stream channel where:
 - a. The affected length of stream is less than one thousand feet (1,000').
 - b. The work is confined to reestablishing flows in natural stream channels, or
 - c. The cross-sectional area of the dredged channel conforms to that of the natural channel upstream and downstream of the site.
- D. The flood-carrying capacity within any altered or relocated watercourse shall be maintained.

- E. Compensatory Storage
 - i. Whenever any portion of a floodplain is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the base flood or 100-year frequency flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the base flood or 100-year frequency flood elevation.
 - ii. The excavation volume shall be at least equal to 1.50 times the volume of storage lost due to the fill or structure.
 - iii. In the case of streams and watercourses, such excavation shall be made opposite or adjacent to the areas so filled or occupied.
 - iv. All floodplain storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All floodplain storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation. All such excavations shall be constructed to drain freely and openly to the watercourse.

1607.0 Permitting Requirements Applicable to all Floodplain Areas

In addition to the requirements found in Sections 1604.0, 1605.0, and 1606.0 for development in flood fringes, designated floodways, and SFHA or floodplains where no floodways have been identified (Zones A, AO, AH, AE, A1-A30, A99) the following requirements shall be met.

- 1. Public Health Standards
 - A. No developments in the SFHA shall include locating or storing chemicals, explosives, buoyant materials, animal wastes, fertilizers, flammable liquids, pollutants, or other hazardous or toxic materials below the flood protection elevation (FPE).
 - B. New and replacement water supply systems, wells, sanitary sewer lines and on-site waste disposal systems may be permitted providing all manholes or other above ground openings located below the FPE are watertight.
- 2. Carrying Capacity and Notification
 - A. For all projects involving channel modification, fill, or stream maintenance (including levees), the flood carrying capacity of the watercourse shall be maintained.
 - B. In addition, the Village shall notify adjacent communities in writing thirty (30) days prior to the issuance of a permit for the alteration or relocation of the watercourse.
- 3. Protecting Buildings
 - A. All buildings located within a 100-year floodplain also known as SFHA shall be protected from flood damage below the flood protection elevation. These building protection criteria may be met by one of the following methods in Sections B through F below and applied to the following situations:

- i. Construction or placement of a new building;
 - ii. A structural alteration to an existing building that either increases the first floor area or the building's market value by more than fifty percent (50%);
 - iii. Installing manufactured home on a new site or a new manufactured home on an existing site. This building protection requirements does not apply to returning a mobile home to the same site it lawfully occupied before it was removed to avoid flood damage; and
 - iv. Installing a travel trailer on a site for more than one hundred and eighty (180) days.
- B. A residential or non-residential building, when allowed, may be constructed on permanent land fill in accordance with the following:
- i. The lowest floor (including basement) shall be at or above the flood protection elevation.
 - ii. Fill Requirements
 - a. The fill shall be placed in layers no greater than one (1) foot deep before compaction and should extend at least ten (10) feet beyond the foundation of the building before sloping below the flood protection elevation.
 - b. The top of the fill shall be above the flood protection elevation. However, the ten (10) foot minimum may be waived if a structural engineer certifies an alternative method to protect the building from damages due to hydrostatic pressures.
 - c. The fill shall be protected against erosion and scour.
 - d. The fill shall not adversely affect the flow or surface drainage from or onto neighboring properties.
- C. A residential or non-residential building may be elevated in accordance with the following:
- i. The building or improvements shall be elevated on crawl space, stilts, piles, walls, or other foundation that is permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood or 100-year frequency flood. The permanent openings shall be no more than one (1) foot above the existing grade, and consist of a minimum of two openings. The openings must have a total net area of not less than one (1) square inch for every one (1) square foot of enclosed area subject to flooding below the Base Flood Elevation.
 - ii. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice and floating debris.
 - iii. All areas below the flood protection elevation shall be constructed of materials resistant to flood damage.
 - a. The lowest floor (including basement) and all electrical, heating, ventilating, plumbing, and air conditioning equipment and utility meters

- shall be located at or above the flood protection elevation.
- b. Water and sewer pipes, electric and telephone lines, submersible pumps, and other waterproofed service facilities may be located below the flood protection elevation.
 - iv. The areas below the flood protection elevation may only be used for the parking of vehicles, building access or storage in an area other than a basement.
 - v. Manufactured homes, and travel trailers to be installed on a site for more than one hundred and eighty (180) days, shall be elevated to or above the flood protection elevation; and, shall be anchored to resist flotation, collapse or lateral movement by being tied down in accordance with the Rules and Regulations for the Illinois Mobile Home Tie-Down Act issued pursuant to 77 Ill. Adm. Code Part 870. In addition, all manufactured homes shall meet the following elevation requirements:
 - a. In the case of manufactured homes placed or substantially improved (1) outside of a manufactured home park or subdivision, (2) in a new manufactured home park or subdivision, (3) in an expansion to an existing manufactured home park or subdivision, or (4) in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage from a flood, the top of the lowest floor shall be elevated to or above the flood protection elevation.
 - b. In the case of manufactured homes placed or substantially improved in an existing manufactured home park or subdivision, the manufactured home shall be elevated so that either the top of the lowest floor is above the base flood elevation or the chassis is at least thirty six (36) inches in height above grade and supported by reinforced piers or other foundations of equivalent strength, whichever is less.
 - vi. Recreational vehicles or travel trailers shall be required to meet the elevation and anchoring requirements of Subsection 1607.0-3-C-v above unless:
 - a. They are on site for fewer than one hundred and eighty (180) consecutive days; and
 - b. They are fully licensed and ready for highway use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utility and service devices, and has no permanently attached additions.
- D. Only a non-residential building may be structurally dry flood proofed (in lieu of elevation) provided that:
- i. A registered professional engineer shall certify that the building has been structurally dry flood proofed below the flood protection elevation, the structure and attendant utility facilities are watertight and capable of resisting the effects of the base flood or 100-year frequency flood.
 - ii. The building design shall take into account flood velocities, duration, rate of

- rise, hydrostatic and hydrodynamic forces the effects of buoyancy, and impacts from debris or ice.
- iii. Flood proofing measures shall be operable without human intervention and without an outside source of electricity (levees, berms, floodwalls and similar works are not considered flood proofing for the purpose of this subsection).
- E. Existing buildings located within a designated floodway shall also meet the more restrictive Appropriate Use standards included in Section 1605.0. Non-conforming structures located in a designated floodway may remain in use and may only be enlarged, replaced or structurally altered in accordance with Section 1605.0-2.

1608.0 Other Development Requirements

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

1. New structures, 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 the requirements of this Ordinance and the need to minimize flood damage.

Plats or plans for new subdivisions, mobile home parks and Planned Unit Developments (PUDs) shall include a signed statement by a Registered Professional Engineer that the plat or plans account for changes in the drainage of surface waters in accordance with the Plat Act (765 ILCS 205/2).

2. Proposals for new subdivisions, manufactured home parks, travel trailer parks, planned unit developments (PUDs) and additions to manufactured home parks and additions to subdivisions shall include base flood or 100-year frequency flood elevation data and floodway delineations.
 - A. Where this information is not available from an existing study filed with the Illinois State Water Survey, the applicant's engineer shall be responsible for calculating the base flood or 100-year frequency flood elevation per Section 1603.4 and the floodway delineation per the definition in Section 202.0.
 - B. The applicant's engineer shall submit the data to IDNR/OWR for review and approval as best available regulatory data and then send it to the State Water Survey. The applicant's engineer shall also submit the data to FEMA for a Letter of Map Revision (LOMR).
3. 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. Private ownership of floodplain and floodway shall be discouraged.

4. The Village shall not approve any special use permit for a Planned Unit Development (PUD) unless such agreement or plat is in accordance with the provisions of this Ordinance.