

ARTICLE 05. FLOOD DAMAGE PREVENTION

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Sec. 05-01. GENERAL

A. Statutory Authorization.

The legislature of the State of Missouri has in RSMo ch. 89 delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety and general welfare of its citizenry. Therefore, the City Council of the City of Chesterfield, Missouri, does ordain as follows in this Article.

B. Findings of Fact.

1. The flood hazard areas of the City are subject to periodic inundation, which result in loss of life, property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.
2. These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas of uses vulnerable to floods or hazards to other lands which are inadequately elevated, floodproofed, or otherwise unprotected from flood damage.

C. Statement of Purpose.

It is the purpose of this Article to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

1. To protect human life and health;
2. To minimize expenditure of public money for costly control projects;
3. To minimize the need of rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
4. To minimize prolonged business interruptions;
5. To minimize damage to public facilities and utilities such as water and gas mains, electrical, telephone and sewer lines, streets and bridges located in floodplains;

6. To help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas;
7. To insure that potential home buyers are notified that property is in a flood area; and
8. To insure that those who occupy the special flood hazard areas assume responsibility for their actions.

D. Methods of Reducing Flood Losses.

In order to accomplish its purposes, this Article includes methods and provisions for:

1. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion or to flood heights or velocities;
2. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
3. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;
4. Controlling filling, grading, dredging, and other development which may increase erosion or flood damage; and
5. Preventing or regulating the construction of flood barriers which will unnaturally divert floodway waters or which may increase flood hazards in other areas.

E. Lands to which This Article Applies.

This Article shall apply to all special flood hazard areas, areas of 100-year high water in the Chesterfield Valley, and the Supplemental Protection Area within the jurisdiction of the City of Chesterfield.

F. Basis for Establishment.

Basis for establishing the special flood hazard areas, areas of 100-year high water in the Chesterfield Valley, and the supplemental protection area.

1. The special flood hazard areas identified by the Federal Emergency Management Agency (FEMA) through a scientific and engineering report entitled "The Flood Insurance Study for the

City of Chesterfield, contained in the St. Louis County Study," dated August, 1995, with accompanying flood insurance rate maps (and flood boundary and floodway maps) with any revision thereto and the current version of the Chesterfield Valley Master Storm Water Plan Model are hereby adopted by reference and declared to be a part of this Article. The flood insurance study and Chesterfield Valley Master Storm Water Plan Model are on file at the City of Chesterfield City Hall.

2. In areas where both the FEMA data and Chesterfield Valley Master Storm Water Plan data apply, the higher of the base flood elevation or the 100-year high water elevation in the Chesterfield Valley shall be used.
3. The supplemental protection area is a 200-foot area immediately adjacent to the special flood hazard area or 100-year high water area in the Chesterfield Valley which is hereby created to enhance the purposes of this Article, as stated in Section 05-01.C., by putting in place requirements to reduce the flood damage risk on those properties immediately adjacent to the special flood hazard areas. The requirements associated with this zone are intended to protect structures, principally those on properties that have been elevated by the placement of fill, against subsurface flood conditions and flooding from events that exceed the base flood elevation.

G. Penalties for Non-Compliance.

See Article 08 of this Unified Development Code (UDC) for enforcement and penalties.

H. Abrogation and Greater Restrictions.

This Article is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this Article and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

I. Interpretation.

In the interpretation and application of this Article, all provisions shall be (1) considered as minimum requirements; (2) liberally construed in favor of the governing body and (3) deemed neither to limit or repeal any other powers granted under State statutes.

J. Warning and Disclaimer of Liability.

The degree of flood protection required by this Article is considered reasonable for regulatory purposes and is based on scientific and

engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This Article does not imply that land outside the special flood hazard areas or uses permitted within such areas will be free from flooding or flood damages. This Article shall not create liability on the part of the City of Chesterfield or by any officer or employee thereof for any flood damages that result from reliance on this Article or any administrative decision lawfully made thereunder.

K. Non-conforming Use.

See Article 07 of this UDC for non-conforming uses.

L. Amendments.

1. The regulations, restrictions and boundaries set forth in this Article may from time to time be amended, supplemented, changed or appealed to reflect any and all changes in the National Flood Disaster Protection Act of 1973, provided, however, that no such action may be taken until after a Public Hearing in relation thereto, at which parties in interest and citizens shall have an opportunity to be heard. Notice of the time and place of such hearing shall be published in a newspaper of general circulation in the City of Chesterfield.
2. At least 20 days shall elapse between the date of said publication and the Public Hearing. A copy of such amendments will be provided to the FEMA. The regulations of this Article are in compliance with the National Flood Insurance Program Regulations as published in Title 44 of the Code of Federal Regulations.

Sec. 05-02. ADMINISTRATION

A. Establishment of a Development Permit.

A development permit shall be obtained before construction or development begins within any special flood hazard area or supplemental protection area established in Section 05-01.F. No person, firm, or corporation or unit of government shall initiate any development or substantial improvement or cause the same to be done without first obtaining separate permits for each development as defined in Article 10 of this UDC. Application for a development permit shall be made on forms furnished by the Director of Public Services (the Director) and may include, but not be limited to; plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage

facilities; and the location of the foregoing. Specifically, the following information is required:

1. Elevation in relation to mean sea level, of the lower floor (including basement) of all structures;
2. Elevation in relation to mean sea level to which any non-residential structure is to be floodproofed;
3. Certification from a registered professional engineer or architect that the non-residential floodproofed structure will meet the floodproofing criteria in Section 05-03.C.; and
4. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

B. Designation of the Local Administrator.

The Director or their designee is hereby appointed to administer and implement the provisions of this Article, by granting or denying development permit applications in accordance with its provisions.

C. Duties and Responsibilities of the Director.

Duties of the Director shall include, but not be limited to:

1. Review all development permits to assure that sites are reasonably safe from flooding and that the permit requirements of this Article have been satisfied;
2. Review permits for proposed development to assure that all necessary permits have been obtained from those Federal, State or local governmental agencies from which prior approval is required;
3. When base flood elevation data has not been provided in accordance with Section 05-01.F., then the Director shall obtain, review and reasonably utilize any base flood elevation or floodway data available from a Federal, State or other source, in order to administer the provisions of this Article.
4. Verify, record and maintain record of the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures.
5. Verify, record and maintain record of the actual elevation (in relation to mean sea level) to which the new or substantially improved structures have been floodproofed.

6. When floodproofing is utilized for a particular structure, the Director shall obtain certification from a registered professional engineer or architect.
7. Notify adjacent communities and the Missouri Department of Natural Resources, Floodplain Management Unit prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.
8. Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.
9. Where interpretation is needed as to the exact location of the boundaries of the special flood hazard areas (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), the Director shall make the necessary interpretations. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this Section.
10. Serve notices of violation, issue stop work orders, revoke permits, and take corrective actions necessary to achieve compliance with Section 05-03.

D. Variance Procedures.

The Board of Adjustment as established by the City of Chesterfield shall hear and decide appeals and requests for variances from the requirements of this Article. See Article 02 of this UDC for variance procedures.

E. Conditions for Variances.

1. Generally, variances may be issued for a new construction and substantial improvements to be erected on a lot of one-half (1/2) acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing paragraphs 2. through 6. below, have been fully considered. As the lot size increases beyond the one-half (1/2) acre, the technical justification required for issuing the variance increases.
2. Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historical Places or the State Inventory of Historical Places, without regard to the procedures set forth in the remainder of this Section.

3. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
4. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
5. Variances shall only be issued upon:
 - a.) A showing of good and sufficient cause;
 - b.) A determination that failure to grant the variance would result in exceptional hardship to the applicant; and
 - c.) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense, or will not create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
6. Any Applicant to whom a variance is granted shall be given a written notice that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

Sec. 05-03. PROVISION FOR FLOOD REDUCTION

A. General Standards.

1. In all special flood hazard areas (Zones A, AE, A1-30, AO, AH) the following provisions are required:
 - a.) All new construction, including manufactured homes and substantial improvements, shall be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
 - b.) All new construction and substantial improvements shall be constructed with materials resistant to flood damage.
 - c.) All new construction and substantial improvements shall be constructed by methods and practices that minimize flood damage.
 - d.) All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing,

and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

- e.) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
 - f.) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.
 - g.) Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
 - h.) The storage or processing of materials that are in time of flooding buoyant, flammable, explosive, or could be injurious to human, animal, or plant life is prohibited.
 - i.) Storage of other material or equipment may be allowed if not subject to major damage by floods and firmly anchored to prevent flotation or if readily removable from the area within the time available after flood warning.
 - j.) That until a floodway has been designated, no development, including landfill, may be permitted within Zones A1-30 and AE on the City's FIRM unless the Applicant for the land use has demonstrated that the proposed use, when combined with all other existing and reasonably anticipated uses, will not increase the water surface elevation of the 100-year flood more than one (1) foot on the average cross section of the reach in which the development or landfill is located as shown on the flood insurance rate study incorporated by reference; Section 05-01.F. of this Article.
2. All new construction and substantial improvements located within the supplemental protection area, as defined in Article 10 of this UDC, shall comply with the requirements of Section 05-03.C. of this Article.

B. Standards for Subdivision Proposals.

All subdivision proposals and other proposed new development, including manufactured home parks of subdivisions, shall be consistent with the need to minimize flood damage.

C. Specific Standards.

In all supplemental protection areas and special flood hazard areas where base flood elevation data has been provided as set forth in Section 05-01.F., or Section 05-02.C.3., (Zones A1-30, AE and AH) the following provisions are required:

1. *Residential construction in special flood hazard areas outside the Chesterfield Valley.* New construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to a minimum of two (2) feet above the base flood elevation.
2. *Residential construction in special flood hazard areas inside the Chesterfield Valley.* New construction or substantial improvement of any residential structure shall have the lowest floor elevated to a minimum of one (1) foot above both the base flood elevation and 100-year high water elevation in the Chesterfield Valley as indicated in Section 05-01.F.
3. *Non-residential construction in special flood hazard areas outside the Chesterfield Valley.* New construction or substantial improvement of any commercial, industrial or other non-residential structure shall either have the lowest floor, including basement, elevated to a minimum of two (2) feet above the level of the base flood elevation or, together with attendant utility and sanitary facilities, be floodproofed so that below such a level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the official as set forth in Section 05-02.C.6.
4. *Non-residential construction in special flood hazard areas inside the Chesterfield Valley.* New construction or substantial improvement of any commercial, industrial or other non-residential structure shall either have the lowest floor elevated to a minimum of one (1) foot above both the level of the base flood elevation or 100-year high water elevation in the Chesterfield Valley as indicated in Section 05-01.F., or, together with the attendant utility and sanitary facilities, be floodproofed so that below such a level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the

standards of this subsection are satisfied. Such certification shall be provided to the official as set forth in Section 05-02.C.6.

5. *Residential and non-residential construction in special flood hazard areas outside the Chesterfield Valley and within the supplemental protection area.* New construction of any residential or non-residential structure shall meet the following requirements:

Table 1 – Supplemental Protection Area Requirements (outside Chesterfield Valley)

| Distance from the SFHA Boundary to Structure (Feet) | Minimum Residential Lowest Floor/Sill Elevation* | Minimum Non-residential Lowest Sill or Lowest Floor/Floodproofing Elevation* |
|---|--|--|
| 0 – 49.99 | lowest floor 2 feet above BFE** | lowest floor 2 feet above BFE |
| 50 – 99.99 | lowest sill 2 feet above BFE | lowest sill 2 feet above BFE |
| 100 – 200 | lowest sill 1 foot above BFE | lowest sill 1 foot above BFE |

* Including basement

** Lowest floor of proposed structures in subdivisions for which improvements plans were approved after October 1, 2005 and before February 28, 2006 shall be at least one (1) foot above the BFE.

Structures which existed in the supplemental protection area, and were lawful prior to the passage of the above listed requirements, shall be allowed to remain inasmuch as the structure remains unchanged. At such time that a non-conforming structure is razed or an addition added to the structure, the new construction or addition must meet the requirements of this Section.

6. *Residential and non-residential construction in areas inside the Chesterfield Valley and within the supplemental protection area.* New construction of any residential or non-residential structure shall meet the following requirements:

Table 2 – Supplemental Protection Area Requirements (inside Chesterfield Valley)

| Distance from the SFHA Boundary or 100-Year High Water to Structure (Feet) | Minimum Residential Lowest Floor Elevation | Minimum Non-residential Lowest Floor or Floodproofing Elevation |
|--|--|---|
| 0 - 200 | 1 foot above BFE or 100-Year High Water | 1 foot above BFE or 100-Year High Water |

7. *All new construction and substantial improvements in the special flood hazard area.* Fully enclosed areas below the lowest floor

that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria: A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be higher than one (1) foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

8. *Manufactured homes.*

- a.) All manufactured homes shall be anchored to resist flotation, collapse, or lateral movement. Manufactured homes must be anchored in accordance with State and local building codes and FEMA guidelines, In the event that over-the-top frame ties to ground anchors are used, the following specific requirements (or their equivalent) shall be met:
- (1) Over-the-top ties be provided at each of the four (4) corners of the manufactured home, with two (2) additional ties per side at intermediate locations and manufactured homes less than 50 feet long requiring an additional tie per side;
 - (2) Frame ties be provided at each corner of the home with five (5) additional ties per side at intermediate points and manufactured homes less than 50 feet long requiring four (4) additional ties per side;
 - (3) All components of the anchoring system be capable of carrying a force of 4,800 pounds;
 - (4) Any additions to the manufactured home be similarly anchored.
- b.) Require that all manufactured homes be placed within Zones A1-30, AH and AE on the community's FIRM, be elevated on a permanent foundation such that the lowest floor of the manufactured home is a minimum of one (1) foot above the base flood elevations, and be securely anchored to an adequately anchored foundation system in accordance with the provisions of Section 05-02.C.

9. *Recreational vehicles.* Require that recreational vehicles placed on sites within the identified floodplain on the community's FIRM either:

a.) Be on the site for fewer than 180 consecutive days, and be fully licensed and ready for highway use,*

OR

b.) Meet the permit requirements and the elevation and anchoring requirements for manufactured homes of this Article.

* 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 utilities and security devices, and has no permanently attached additions.

10. *Roadways.* All roadways within and adjacent to the special flood hazard areas shall be constructed at least one (1) foot above the base flood elevation or 100-year high water elevation in the Chesterfield Valley as indicated in Section 05-01.F. This requirement is only applicable to roadways constructed after the passage of these requirements. Repairs and improvements to roadways which were existing prior to passage of the above listed requirements shall not be required to adhere to the requirements of this Section.

D. Floodways.

Located within special flood hazard areas established in Section 05-01.F., are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions shall apply.

1. Prohibit encroachments, including fill, new construction, substantial improvements and other developments unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during occurrence of the base flood discharge.

2. If Section 05-03.D.1. is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 05-03.

3. In Zone A unnumbered, obtain, review and reasonably utilize any floodway data available through Federal, State and other sources in meeting the standards of this Article.

E. Areas of Shallow Flooding (AO and AH Zones).

Located within the special flood hazard areas established in Section 05-01.F., are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate; therefore, the following provisions apply:

1. Within AO Zones.
 - a.) All new construction and substantial improvements of residential structures shall have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as one (1) foot more than the depth number specified in feet on the community's FIRM (at least two (2) feet if no depth number is specified).
 - b.) All new construction and substantial improvements of non-residential structures shall:
 - (1) Have the lowest floor (including basement) elevated above the adjacent grade at least as high as one (1) foot above the depth number specified in feet on the community's FIRM (at least two (2) feet if no depth number is specified), or
 - (2) Together with attendant utility and sanitary facilities be completely floodproofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
 - c.) Adequate drainage paths around structures on slopes shall be required in order to guide floodwaters around and away from proposed structures.
 - d.) The anchoring requirements for manufactured homes as established in Section 05-03.C. shall be required.

2. Within AH Zone.
 - a.) The specific standards for all special flood hazard areas where base flood elevation data has been provided shall be required as set forth in Section 05-03.C.
 - b.) Adequate drainage paths around structures on slopes shall be required in order to guide floodwaters around and away from proposed structures.

F. Proof of Compliance.

1. Certification of compliance from the Director is required after completion of work related to a development permit. In no case shall any structure be inhabited or occupied for use prior to such time as an elevation certificate has been submitted to and approved by the Department.
2. Penalties for violation of this requirement are listed in Article 08 of this UDC.