

§ 155 FLOOD HAZARD CONTROLS

(A) *General standards.*

(1) *Statutory authorization.* The Legislature of the State of South Carolina has in S.C. Code Title 5 and Title 6, and amendments thereto, 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 does ordain as follows.

(2) *Findings of fact.* The special flood hazard areas of the city are subject to periodic inundation resulting in loss of life, property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures of flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

(3) Furthermore, 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 by uses vulnerable to floods or hazardous to other lands that are inadequately elevated, floodproofed, or otherwise unprotected from flood damages.

(B) *Statement of purpose and objectives.*

(1) It is the purpose of this section to protect human life and health, minimize property damage, and encourage appropriate construction practices to minimize public and private losses due to flood conditions by requiring that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction.

(2) Uses of the floodplain that are dangerous to health, safety, and property due to water or erosion hazards, or that increase flood heights, velocities, or erosion, are restricted or prohibited.

(3) These provisions attempt to control the alteration of natural floodplains, stream channels, and natural protective barriers involved in the accommodation of flood waters, and to control filling, grading, dredging and other development that may increase flood damage or erosion.

(4) This section prevents or regulates the construction of flood barriers that will unnaturally divert floodwaters or that may increase flood hazards to other lands.

(5) The objectives of this section are to protect human life and health, 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 flood-blight areas, and to ensure that potential home buyers are notified that property is in a flood area.

(6) The provisions of this section are intended to minimize damage to public facilities and utilities, such as water and gas mains, electric, telephone, and sewer lines, streets and bridges, located in the floodplain, and prolonged business interruptions. Also, an important floodplain management objective of this section is to minimize expenditure of public money for costly flood control projects and rescue and relief efforts associated with flooding.

(7) Floodplains are an important asset to the community. They perform vital natural functions such as temporary storage of floodwaters, moderation of peak flood flows, maintenance of water quality, groundwater recharge, prevention of erosion, habitat for diverse natural wildlife populations, recreational opportunities, and aesthetic quality. These functions are best served if floodplains are kept in their natural state. Wherever possible, the natural characteristics of floodplains and their associated wetlands and water bodies should be preserved and enhanced. Decisions to alter floodplains, especially floodways and stream channels, should be the result of careful planning processes that evaluate resource conditions and human needs.

(C) *Lands to which this section applies.*

(1) This section shall apply to all areas of special flood hazard within the jurisdiction of the City of Goose Creek, as identified by the Federal Emergency Management Agency (FEMA) in its Flood Insurance Study, dated December 7, 2018, with accompanying maps, on file with the City Clerk and Office of Planning and Zoning, and other supporting data that are hereby adopted by reference and declared to be a part of this section.

(2) Upon annexation, any special flood hazard areas identified by the Federal Emergency Management Agency (FEMA) in its Flood Insurance Study for the unincorporated areas of Berkeley County, with accompanying map and other data, are adopted by reference and declared part of this section.

(D) *Establishment of development permit.* A development permit shall be required in conformance with the provisions of this section prior to the commencement of any development activities.

(E) *Compliance.* No structure or land shall hereafter be located, extended, converted, or structurally altered without full compliance with the terms of this section and other applicable regulations.

(F) *Interpretation.*

(1) In the interpretation and application of this section, all provisions shall be considered as minimum requirements, liberally construed in favor of the governing body, and deemed neither to limit nor repeal any other powers granted under state law.

(2) This section is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions.

However, where this section and another conflict or overlap, whichever imposes the more stringent restrictions, shall prevail.

(G) *Partial invalidity and severability.* If any part of this section is declared invalid, the remainder of this section shall not be affected and shall remain in force.

(H) *Warning and disclaimer of liability.*

(1) The degree of flood protection required by this section is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions.

(2) Flood heights may be increased by man-made or natural causes.

(3) This section does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages.

(4) This section shall not create liability on the part of the city, or by any officer or employee thereof, for any flood damages that result from reliance on this section, or on any administrative decision lawfully made hereunder.

(I) *Penalties for violation.*

(1) Violation of the provisions of this section or failure to comply with any of its requirements, including violation of conditions and safeguards established in connection with grants of variance or special exceptions, shall constitute a misdemeanor.

(2) Any person who violates this section or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than \$500 or imprisoned for not more than 30 days, or both. Each day the violation continues shall be considered a separate offense. Nothing herein contained shall prevent the city from taking such other lawful action as is necessary to prevent or remedy any violation.

(J) Executive Order 11988 (Floodplain Management), issued by President Carter in 1977, requires that no federally assisted activities be conducted in or have the potential to affect identified special flood hazard areas, unless there is no practicable alternative.

(K) *Administration.*

(1) *Designation of local floodplain administrator.* The Director of Planning and Zoning is hereby appointed to administer and implement the provisions of this section.

(2) *Adoption of Letters of Map Revision (LOMR).* All Letters of Map Revision (LOMR) that are issued in the areas identified in § 151.081(C) are hereby adopted.

(3) *Development permit and certification requirements.*

(a) Application for a development permit shall be made to the local floodplain administrator, on forms furnished by him or her, prior to any development activities. The development permit 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; and the location of fill materials, storage areas, and drainage facilities. Specifically, the following information is required.

(b) A plot plan that shows the 100-year floodplain contour, or a statement that the entire lot is within the floodplain, must be provided by the development permit applicant when the lot is within or appears to be within the floodplain as mapped by the Federal Emergency Management Agency or the floodplain identified pursuant to either the duties and responsibilities of the local floodplain administrator of § 151.081(L)(11), or the standards for subdivision proposals of § 151.081(S)(2) and the standards for streams without estimated base flood elevations and floodways of §151.081(S)(3). The plot plan must be prepared by or under the direct supervision of, and certified by, a registered land surveyor or professional engineer. The plot plan must show the floodway, if any, as identified by the Federal Emergency Management Agency, or the floodway identified pursuant to either the duties or responsibilities of the local floodplain administrator of § 151.081(L)(11), or the standards for subdivision proposals of § 151.081(O)(13), and the standards for streams without estimated base flood elevations and floodways of § 151.081(Q).

(c) Where base flood elevation data is provided as set forth in §151.081(C) or the duties and responsibilities of the local floodplain administrator of § 151.081 (L)(11), the application for a development permit within the flood hazard area shall show:

1. The elevation (in relation to mean sea level) of the lowest floor of all new and substantially improved structures; and

2. If the structure will be floodproofed in accordance with the non-residential construction requirements of § 151.081(O)(2), the elevation (in relation to mean sea level) to which the structure will be floodproofed.

(d) Where base flood elevation data is not provided as set forth in §151.081(C) or the duties and responsibilities of the local floodplain administrator of § 151.081(L)(11), then the provisions in the standards for streams without estimated base flood elevations and floodways of § 151.081(S)(3) must be met.

(4) Where any watercourse will be altered or relocated as a result of proposed development, the application for a development permit shall include a description of the extent of watercourse alteration or relocation, an engineering study to

demonstrate that the flood-carrying capacity of the altered or relocated watercourse is maintained, and a map showing the location of the proposed watercourse alteration or relocation.

(a) When a structure is floodproofed, the applicant shall provide certification from a registered, professional engineer or architect that the non-residential, floodproofed structure meets the floodproofing criteria in the non-residential construction requirements of § 151.081(O)(2).

(b) A lowest floor elevation or floodproofing certification is required after the lowest floor is completed. As soon as possible after completion of the lowest floor and before any further vertical construction commences, or floodproofing by whatever construction means, whichever is applicable, it shall be the duty of the permit holder to submit to the local floodplain administrator a certification of the elevation of the lowest floor, or floodproofed elevation, whichever is applicable, as built, in relation to mean sea level. The certification shall be prepared by or under the direct supervision of, and certified by, a registered land surveyor or professional engineer. Any work done prior to submission of the certification shall be at the permit holder's risk. The local floodplain administrator shall review the floor elevation survey data submitted. The permit holder immediately and prior to further progressive work being permitted to proceed shall correct deficiencies detected by the review. Failure to submit the survey or failure to make the corrections required hereby shall be cause to issue a stop-work order for the project.

(c) Upon completion of the development, a registered, professional engineer, land surveyor or architect, in accordance with state law, shall certify, according to the requirements of § 151.081(K)(4)(a) and (b), that the development is built in accordance with the submitted plans and previous pre-development certifications.

(L) *Duties and responsibilities of the local floodplain administrator.*

(1) Review all development permits to assure that the requirements of this section have been satisfied.

(2) Review proposed development to assure that all necessary permits have been received from those governmental agencies from which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334.

(3) Review permits to assure the following process is followed in the event there are proposed watercourse alterations.

(a) Notify adjacent communities and the South Carolina Department of Natural Resources, Land, Water, and Conservation Division, State Coordinator for the National Flood Insurance Program, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.

(b) In addition to the notifications required prior to watercourse alterations per §151.081(L)(3)(a), written reports of maintenance records must be maintained to show that maintenance has been provided within the altered or relocated portion of the watercourse so that the flood-carrying capacity is maintained. This maintenance must consist of a comprehensive program of periodic inspections, and routine channel clearing and dredging, or other related functions. The assurance shall consist of a description of maintenance activities, frequency of performance, and the local official responsible for maintenance performance. Records shall be kept on file for FEMA inspection.

(c) If the proposed project will modify the configuration of the watercourse, floodway, or base flood elevation for which a detailed Flood Insurance Study has been developed, the applicant shall apply for and must receive approval for a Conditional Letter of Map Revision with the Federal Emergency Management Agency prior to the start of construction.

(d) Within 60 days of completion of an alteration of a watercourse, referenced in the certification requirements of § 151.081(K)(4)(c), the applicant shall submit as-built certification, by a registered, professional engineer, to the Federal Emergency Management Agency.

(4) Prevent encroachments within floodways unless the certification and flood hazard reduction provisions of § 151.081(O)(7) are met.

(5) Cooperate with neighboring communities with respect to the management of adjoining floodplains and/or flood-related erosion areas in order to prevent aggravation of existing hazards.

(6) Notify adjacent communities prior to permitting substantial commercial developments and large subdivisions to be undertaken in areas of special flood hazard and/or flood-related erosion hazards.

(7) Obtain and certify elevations and certifications.

(a) Obtain and review actual elevation (in relation to mean sea level) of the lowest floor of all new or substantially improved structures, in accordance with administrative procedures outlined in § 151.081(K)(4)(b).

(b) Obtain the actual elevation (in relation to mean sea level) to which the new or substantially improved structures have been floodproofed, in accordance with the floodproofing certification outlined in § 151.081(K)(4)(a).

(c) When floodproofing is utilized for a particular structure, obtain certifications from a registered, professional engineer or architect in accordance with the nonresidential construction requirements outlined in § 151.081(O)(2).

(8) *Map interpretation.* Where interpretation is needed as to the exact location of boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), make the necessary interpretation. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this section.

(9) *Prevailing authority.* Where a map boundary showing an area of special flood hazard and field elevations disagree, the base flood elevations for flood protection elevations (as found on an elevation profile, floodway data table, and the like) shall prevail. The correct information should be submitted to FEMA as per the map maintenance activity requirements outlined in § 151.081(P)(5).

(10) *Use of best available data.* When base flood elevation data and floodway data have not been provided in accordance with § 151.081(C), obtain, review, and reasonably utilize the best base flood elevation data and floodway data available from a federal, state, or other source, including data developed pursuant to the standards for subdivision proposals outlined in § 151.081(O)(13), in order to administer the provisions of this section. Data from preliminary, draft, and final Flood Insurance Studies constitutes the best available data from a federal, state, or other source. Data must be developed using hydraulic models meeting the minimum requirement of NFIP-approved model. If an appeal is pending on the study in accordance with 44 C.F.R. Ch. 1, pts. 67.5 and 67.6, the data does not have to be used.

(11) *Special flood hazard area and topographic boundaries conflict.* When the exact location of boundaries of the areas special flood hazards conflict with the current, natural topography information at the site; the site information takes precedence. When the lowest adjacent grade is at or above the BFE, the property owner may apply and be approved for a Letter of Map Amendment (LOMA) by FEMA. The local floodplain administrator will maintain a copy of the Letter of Map Amendment issued from FEMA in the permit file.

(12) *Records maintenance.* Maintain all records pertaining to the administration of this section and make these records available for public inspection.

(13) *Annexations and detachments.* Notify the South Carolina Department of Natural Resources Land, Water and Conservation Division, State Coordinator for the National Flood Insurance Program, within six months of any annexations or detachments that include special flood hazard areas.

(14) *Federally funded development.* The President issued Executive Order 11988, Floodplain Management in May 1977. E.O. 11988 directs federal agencies to assert a leadership role in reducing flood losses and losses to environmental values served by floodplains. Proposed developments must go through an eight-step review process. Evidence of compliance with the executive order must be submitted as part of the permit review process.

(15) *Substantial damage determination.* Perform an assessment of damage from any origin to the structure using FEMA's Residential Substantial Damage Estimator (RSDE) software to determine if the damage equals or exceeds 50% of the market value of the structure before the damage occurred.

(16) *Substantial improvement determination.* Perform an assessment of permit applications for improvements or repairs to be made to a building or structure that equals or exceeds 50% of the market value of the structure before the start of construction. Cost of work counted for determining if and when substantial improvement to a structure occurs shall be cumulative for a period of five years. If the improvement project is conducted in phases, the total of all costs associated with each phase, beginning with the issuance of the first permit, shall be utilized to determine whether "substantial improvement" will occur.

The market values shall be determined by one of the following methods:

(a) The current assessed building value as determined by the County Assessor's office, or the value of an appraisal performed by a licensed appraiser at the expense of the owner within the past six months.

(b) One or more certified appraisals from a registered, professional, licensed appraiser in accordance with the laws of South Carolina. The appraisal shall indicate actual replacement value of the building or structure in its pre-improvement condition, less the cost of site improvements and depreciation for functionality and obsolescence.

(c) Real estate purchase contract within six months prior to the date of the application for a permit.

(M) *Administrative procedures.*

(1) *Inspections of work in progress.* As the work pursuant to a permit progresses, the local floodplain administrator shall make as many inspections of the work as may be necessary to ensure that the work is being done according to the provisions of the local ordinance and the terms of the permit. In exercising this power, the floodplain administrator has a right, upon presentation of proper credentials, to enter on any premises within the territorial jurisdiction at any reasonable hour for the purposes of inspection or other enforcement action.

(2) *Stop-work order.* Whenever a building or part thereof is being constructed, reconstructed, altered, or repaired in violation of this section, the floodplain administrator may order the work to be immediately stopped. The stop-work order shall be in writing and directed to the person doing the work. The stop-work order shall state the specific work to be stopped, the specific reasons for the stoppage, and the conditions under which the work may be resumed. Violation of a stop-work order constitutes a misdemeanor.

(3) *Revocation of permits.* The local floodplain administrator may revoke and require the return of the development permit by notifying the permit holder in writing, stating the reason for the revocation. Permits shall be revoked for any substantial departure from the approved application, plans, or specifications; for refusal or failure to comply with the requirements of state or local laws; or for false statements or misrepresentations made in securing the permit. Any permit mistakenly issued in violation of an applicable state or local law may also be revoked.

(4) *Periodic inspections.* The local floodplain administrator and each member of his or her inspections department shall

have a right, upon presentation of proper credentials, to enter on any premises within the territorial jurisdiction of the department at any reasonable hour for the purposes of inspection or other enforcement action.

(5) *Violations to be corrected.* When the local floodplain administrator finds violations of applicable state and local laws, it shall be his or her duty to notify the owner or occupant of the building of the violation. The owner or occupant shall immediately remedy each of the violations of law on the property he or she owns.

(6) *Actions in event of failure to take corrective action.* If the owner of a building or property shall fail to take prompt corrective action, the floodplain administrator shall give the owner written notice, by certified or registered mail to the owner's last known address or by personal service, that:

(a) The building or property is in violation of the flood damage prevention ordinance;

(b) A hearing will be held before the local floodplain administrator at a designated place and time, not later than ten days after the date of the notice, at which time the owner shall be entitled to be heard in person or by counsel, and to present arguments and evidence pertaining to the matter; and

(c) Following the hearing, the local floodplain administrator may issue such order to alter, vacate, or demolish the building, or to remove fill, as appears appropriate.

(7) *Order to take corrective action.* If, upon a hearing held pursuant to the notice prescribed above, the floodplain administrator shall find that the building or development is in violation of the flood damage prevention ordinance, he or she shall make an order in writing to the owner, requiring the owner to remedy the violation within such period, not less than 60 days, the floodplain administrator may prescribe; provided that where the floodplain administrator finds that there is imminent danger to life or other property, he or she may order that corrective action be taken in such lesser period as may be feasible.

(8) *Appeal.* Any owner who has received an order to take corrective action may appeal from the order to the local elected governing body by giving notice of appeal in writing to the floodplain administrator and the Clerk within ten days following issuance of the final order. In the absence of an appeal, the order of the floodplain administrator shall be final. The local governing body shall hear an appeal within a reasonable time and may affirm, modify and affirm, or revoke the order.

(9) *Failure to comply with order.* If the owner of a building or property fails to comply with an order to take corrective action from which no appeal has been taken, or fails to comply with an order of the governing body following an appeal, he or she shall be guilty of a misdemeanor and shall be punished in the discretion of the court.

(10) *Denial of flood insurance under the NFIP.* If a structure is declared in violation of this section, and after all other penalties are exhausted to achieve compliance with this section, then the local floodplain administrator shall notify the Federal Emergency Management Agency (FEMA) to initiate a Section 1316 of the National Flood Insurance Act of 1968 action against the structure, upon the finding that the violator refuses to bring the violation into compliance with this section. Once a violation has been remedied, the local floodplain administrator shall notify FEMA of the remedy and ask that the Section 1316 be rescinded.

(11) The following documents are incorporated by reference and may be used by the local floodplain administrator to provide further guidance and interpretation of this section, as found on FEMA's website at www.fema.gov:

(a) FEMA 55, *Coastal Construction Manual*;

(b) All FEMA technical bulletins;

(c) All FEMA floodplain management bulletins;

(d) FEMA 348, *Protecting Building Utilities from Flood Damage*;

(e) FEMA 499, *Home Builder's Guide to Coastal Construction Technical Fact Sheets*

(N) *Provisions for flood hazard reduction; general standards.* Development may not occur in the special flood hazard area (SFHA), where alternative locations exist, due to the inherent hazards and risks involved. Before a permit is issued, the applicant shall demonstrate that new structures cannot be located out of the SFHA, and that encroachments onto the SFHA are minimized. In all areas of special flood hazard, the following provisions are required.

(1) *Reasonably safe from flooding.* Review all permit applications to determine whether proposed building sites will be reasonably safe from flooding.

(2) *Anchoring.* All new construction and substantial improvements shall be anchored to prevent flotation, collapse, and lateral movement of the structure.

(3) *Flood-resistant materials and equipment.* All new construction and substantial improvements shall be constructed with flood-resistant materials and utility equipment resistant to flood damage, in accordance with Technical Bulletin 2, *Flood Damage-Resistant Materials Requirements*, dated August 2008, and available from the Federal Emergency Management Agency.

(4) *Minimize flood damage.* All new construction and substantial improvements shall be constructed by methods and practices that minimize flood damages.

(5) *Critical development.* Critical development shall be elevated to the 500-year flood elevation, or be elevated to the

highest known historical flood elevation (where records are available), whichever is greater. If no data exists establishing the 500-year flood elevation or the highest known historical flood elevation, the applicant shall provide a hydrologic and hydraulic engineering analysis that generates 500-year flood elevation data.

(6) *Utilities.* Electrical, ventilation, plumbing, heating and air conditioning equipment (including ductwork), and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of the base flood plus one foot.

(7) *Water supply systems.* All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

(8) *Sanitary sewage systems.* New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems, and discharges from the systems into floodwaters. On-site waste disposal systems shall be located and constructed to avoid impairment to them, or contamination from them, during flooding.

(9) *Gas or liquid storage tanks.* All gas or liquid storage tanks, either located above ground or buried, shall be anchored to prevent floatation and lateral movement resulting from hydrodynamic and hydrostatic loads.

(10) *Alteration, repair, reconstruction, or improvement.* Any alteration, repair, reconstruction, or improvement to a structure that is in compliance with the provisions of this section, shall meet the requirements of "new construction" as contained in this section. This includes post-FIRM development and structures.

(11) *Nonconforming buildings or uses.* Nonconforming buildings or uses may not be enlarged, replaced, or rebuilt unless such enlargement or reconstruction is accomplished in conformance with the provisions of this section. Provided, however, nothing in this section shall prevent the repair, reconstruction, or replacement of an existing building or structure located totally or partially within the floodway, provided that the bulk of the building or structure below base flood elevation in the floodway is not increased, and provided that such repair, reconstruction, or replacement meets all of the other requirements of this section.

(12) *American with Disabilities Act (ADA).* A building must meet the specific standards for floodplain construction outlined in § 151.081(O), as well as any applicable ADA requirements. The ADA is not justification for issuing a variance or otherwise waiving these requirements. Also, the cost of improvements required to meet the ADA provisions shall be included in the costs of the improvements for calculating substantial improvement.

(O) *Specific standards.* In all areas of special flood hazard (Zones A, AE, AH, AO, A1-A30, V, and VE) where base flood elevation data has been provided, as set forth in § 151.081(C), or outlined in the duties and responsibilities of the local floodplain administrator, § 151.081(L), the following provisions are required.

(1) *Residential construction.* New construction and substantial improvement of any residential structure (including manufactured homes) shall have the lowest floor elevated no lower than one foot above the base flood elevation. No basements are permitted. Should solid foundation perimeter walls be used to elevate a structure, flood openings sufficient to automatically equalize hydrostatic flood forces, shall be provided in accordance with the elevated buildings requirements in § 151.081(O)(2).

(2) *Non-residential construction.* New construction and substantial improvement of any commercial, industrial, or non-residential structure (including manufactured homes) shall have the lowest floor elevated no lower than one foot above the level of the base flood elevation. Should solid foundation perimeter walls be used to elevate a structure, flood openings sufficient to automatically equalize hydrostatic flood forces, shall be provided in accordance with the elevated buildings requirements in § 151.081(O)(2). No basements are permitted. Structures located in A Zones may be floodproofed in lieu of elevation, provided that all areas of the structure below the required elevation are watertight, with walls substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy.

A registered, professional engineer or architect shall certify that the standards of this division are satisfied. Such certifications shall be provided to the official as set forth in the floodproofing certification requirements in § 151.081(K)(4)(a). A variance may be considered for wet floodproofing agricultural structures in accordance with the criteria outlined in § 151.081(S)(5). Agricultural structures not meeting the criteria of §151.081(S)(5) must meet the non-residential construction standards and all other applicable provisions of this section. Structures that are floodproofed are required to have an approved maintenance plan with an annual exercise. The local floodplain administrator must approve the maintenance plan and notification of the annual exercise shall be provided to it.

(3) *Manufactured homes.* Manufactured homes that are placed or substantially improved on sites outside a manufactured home park or subdivision, in a new manufactured home park or subdivision, in an expansion to an existing manufactured home park or subdivision, or in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood, must be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated no lower than one foot above the base flood elevation, and must be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

Manufactured homes that are to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the provisions for residential construction in § 151.081(O)(1) must be elevated so that the lowest floor of the manufactured home is elevated no lower one foot than above the base flood elevation, and must be securely anchored to an adequately anchored foundation to resist flotation, collapse, and lateral movement.

Manufactured homes shall be anchored to prevent flotation, collapse, and lateral movement. For the purpose of this

requirement, manufactured homes must be anchored to resist flotation, collapse, and lateral movement in accordance with Section 40-29-10 of the *South Carolina Manufactured Housing Board Regulations*, as amended. Additionally, when the elevation requirement would be met by an elevation of the chassis 36 inches or less above the grade at the site, the chassis shall be supported by reinforced piers or engineered foundation. When the elevation of the chassis is above 36 inches in height, an engineering certification is required.

An evacuation plan must be developed for evacuation of all residents of all new, substantially improved or substantially damaged manufactured home parks or subdivisions located within flood-prone areas. This plan shall be filed with and approved by the local floodplain administrator and the local emergency preparedness coordinator.

(4) *Elevated buildings.* New construction and substantial improvements of elevated buildings that include fully enclosed areas below the lowest floor that are usable solely for the parking of vehicles, building access, or limited storage in an area other than a basement, and that are subject to flooding, shall be designed to preclude finished space, and to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.

Designs for complying with this requirement must either be certified by a professional engineer or architect, or meet or exceed all of the following minimum criteria.

(a) Provide a minimum of two openings on different walls, having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding.

(b) The bottom of each opening must be no more than one foot above the higher of the interior or exterior grade immediately under the opening.

(c) Only the portions of openings that are below the base flood elevation (BFE) can be counted towards the required net open area.

(d) Openings may be equipped with screens, louvers, valves, or other coverings or devices, provided they permit the automatic flow of floodwaters in both directions.

(e) Fill placed around foundation walls must be graded so that the grade inside the enclosed area is equal to or higher than the adjacent grade outside the building on at least one side of the building.

(5) *Hazardous velocity.* Hydrodynamic pressure must be considered in the design of any foundation system where velocity waters or the potential for debris flow exists. If flood velocities are excessive (greater than five feet per second), foundation systems other than solid foundations walls should be considered so that obstructions to damaging flood flows are minimized.

(6) *Enclosures below the lowest floor.*

(a) Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door), or limited storage of maintenance equipment used in connection with the premises (standard exterior door), or entry to the living area (stairway or elevator).

(b) The interior portion of such enclosed area shall not be finished or partitioned into separate rooms, must be void of utilities except for essential lighting as required for safety, and cannot be temperature-controlled.

(c) One wet location switch and/or outlet connected to a ground fault interrupt breaker may be installed below the required lowest floor elevation specified in the specific standards outlined in § 151.081(O)(1)(a), (b), and (c).

(d) All construction materials below the required lowest floor elevation specified in the specific standards outlined in § 151.081(O)(1), (2), (3), and (4) should be of flood-resistant materials.

(7) *Floodways.* Located within areas of special flood hazard established in § 151.081(C), are areas designated as floodways. The floodway is an extremely hazardous area due to the velocity of floodwaters that carry debris and potential projectiles, and has erosion potential. The following provisions shall apply within such areas.

(a) No encroachments, including fill, new construction, substantial improvements, additions, and other developments shall be permitted unless:

1. It has been demonstrated, through hydrologic and hydraulic analyses performed in accordance with standard engineering practice, that the proposed encroachment would not result in any increase in the flood levels during the occurrence of the base flood. Such certification and technical data shall be presented to the local floodplain administrator.

2. A Conditional Letter of Map Revision (CLOMR) has been approved by FEMA. A Letter of Map Revision must be obtained upon completion of the proposed development.

(b) If § 151.081(O)(7)(a) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of § 151.081(N).

(c) No manufactured homes shall be permitted, except in an existing manufactured home park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or subdivision, provided the anchoring and the elevation standards of § 151.081(O)(3) and the encroachment standards of § 151.081(O)(5) are met.

(d) Permissible uses within floodways may include: general farming, pasture, outdoor plant nurseries, horticulture, forestry, wildlife sanctuary, game farm, and other similar agricultural, wildlife, and related uses. Lawns, gardens, play areas,

picnic grounds, and hiking and horseback riding trails are also acceptable uses, provided that they do not employ structures or fill. Substantial development of a permissible use may require a no-impact certification. The uses listed in this division are permissible only if and to the extent that they do not cause any increase in base flood elevations or changes to the floodway configuration.

(8) *Recreational vehicles.*

(a) A recreational vehicle is **READY FOR HIGHWAY USE** if it is:

1. On wheels or jacking system;
2. Attached to the site only by quick-disconnect-type utilities and security devices; and
3. Has no permanently attached additions

(b) Recreational vehicles placed on sites shall either be on site for fewer than 180 consecutive days, or be fully licensed and ready for highway use, or meet the development permit and certification requirements of § 151.081(K), the general standards outlined in § 151.081(N)(l), and the manufactured homes standards in §151.081(O)(1), (3) and (4).

(9) *Accessory structures.*

(a) A detached accessory structure or garage, the cost of which is greater than \$3,000, must comply with the requirements as outlined in FEMA's Technical Bulletin 7-93, *Wet Floodproofing Requirements*, or be elevated in accordance with § 151.081(O)(1) and (4), or dry floodproofed in accordance with §151.081(O)(2).

(b) If accessory structures of \$3,000 or less are to be placed in the floodplain, the following criteria shall be met:

1. Accessory structures shall not be used for any uses other than the parking of vehicles and storage;
2. Accessory structures shall be designed to have low flood-damage potential;
3. Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters;
4. Accessory structures shall be firmly anchored to prevent flotation, collapse and lateral movement of the structure;
5. Service facilities such as electrical and heating equipment shall be installed in accordance with §151.081(N)(l)

(e);

6. Openings to relieve hydrostatic pressure during a flood shall be provided below base flood elevation in conformance with § 151.081(O)(4)(a); and

7. Accessory structures shall be built with flood-resistant materials in accordance with Technical Bulletin 2*Flood Damage-Resistant Materials Requirements*, dated August 2008, and available from the Federal Emergency Management Agency. Class 4 and 5 materials, referenced therein, are acceptable flood-resistant materials.

(10) *Swimming pool utility equipment rooms.* If the building cannot be built at or above the BFE because of functionality of the equipment, then a structure to house the utilities for the pool may be built below the BFE, with the following provisions:

(a) Meet the requirements for accessory structures in §151.081(O)(9); and

(b) The utilities must be anchored to prevent flotation, and shall be designed to prevent water from entering or accumulating within the components during conditions of the base flood.

(11) *Elevators.*

(a) Install a float switch system or another system that provides the same level of safety necessary for all elevators, where there is a potential for the elevator cab to descend below the BFE during a flood, per FEMA's Technical Bulletin 4-93, *Elevator Installation for Buildings Located in Special Flood Hazard Areas*

(b) All equipment that may have to be installed below the BFE, such as counterweight roller guides, compensation cable and pulleys, and oil buffers for traction elevators, and the jack assembly for a hydraulic elevator, must be constructed using flood-resistant materials where possible, per FEMA's Technical Bulletin 4-93, *Elevator Installation for Buildings Located in Special Flood Hazard Areas*.

(12) *Fill.* An applicant shall demonstrate that fill is the only alternative to raising the building to meet the residential and non-residential construction requirements of § 151.081(O)(1) and (2), and that the amount of fill used will not affect the flood-storage capacity or adversely affect adjacent properties. The following provisions shall apply to all fill placed in the special flood hazard area.

(a) Fill may not be placed in the floodway unless it is in accordance with the requirements in §151.081(O)(7)(a).

(b) Fill may not be placed in tidal or non-tidal wetlands without the required state and federal permits.

(c) Fill must consist of soil and rock materials only. A registered, professional geotechnical engineer may use dredged material as fill only upon certification of suitability. Landfills, rubble fills, dumps, and sanitary fills are not permitted in the floodplain.

(d) Fill used to support structures must comply with ASTM Standard D-698, and its suitability to support structures certified by a registered, professional engineer.

(e) Fill slopes shall be no greater than two horizontal to one vertical. Flatter slopes may be required where velocities may result in erosion.

(f) The use of fill shall not increase flooding or cause drainage problems on neighboring properties.

(g) Fill may not be used for structural support in the coastal high hazard areas.

(h) Fill will meet the requirements of FEMA Technical Bulletin 10-01 *Ensuring That Structures Built On Fill in or Near Special Flood Hazard Areas Are Reasonable Safe from Flooding*.

(13) *Standards for subdivision proposals and other development.*

(a) All subdivision proposals and other proposed new development shall be consistent with the need to minimize flood damage, and are subject to all applicable standards in these regulations.

(b) All subdivision proposals and other proposed new development shall have public utilities and facilities, such as sewer, gas, electrical, and water systems, located and constructed to minimize flood damage.

(c) All subdivision proposals and other proposed new development shall have adequate drainage provided to reduce exposure to flood damage.

(d) The applicant shall meet the requirement to submit technical data to FEMA in §151.081(P) when a hydrologic and hydraulic analysis is completed that generates base flood elevations.

(P) *Map maintenance activities; requirement to submit new technical data.* The National Flood Insurance Program (NFIP) requires that flood data be reviewed and approved by FEMA. This ensures that flood maps, studies and other data identified in § 151.081(C) accurately represent flooding conditions so appropriate floodplain management criteria are based on current data. The following map maintenance activities are identified.

(1) For all development proposals that impact floodway delineations or base flood elevations, the community shall ensure that technical or scientific data reflecting such changes is submitted to FEMA as soon as practicable, but no later than six months of the date such information becomes available. These development proposals include; but not limited to:

(a) Floodway encroachments that increase or decrease base flood elevations or alter floodway boundaries;

(b) Fill sites to be used for the placement of proposed structures where the applicant desires to remove the site from the special flood hazard area;

(c) Alteration of watercourses that result in a relocation or elimination of the special flood hazard area, including the placement of culverts; and

(d) Subdivision or large-scale development proposals requiring the establishment of base flood elevations in accordance with § 151.081(O)(6)(a).

(2) It is the responsibility of the applicant to have technical data, required in accordance with §151.081(P), prepared in a format required for a Conditional Letter of Map Revision or Letter of Map Revision, and submitted to FEMA. Submittal and processing fees for these map revisions shall also be the responsibility of the applicant.

(3) The local floodplain administrator shall require a Conditional Letter of Map Revision prior to the issuance of a floodplain development permit for:

(a) Proposed floodway encroachments that increase the base flood elevation; and

(b) Proposed development that increases the base flood elevation by more than one foot in areas where FEMA has provided base flood elevations but no floodway.

(4) Floodplain development permits issued by the local floodplain administrator shall be conditioned upon the applicant obtaining a Letter of Map Revision from FEMA for any development proposal subject to § 151.081(P).

(5) *Right to submit new technical data.* The floodplain administrator may request changes to any of the information shown on an effective map that does not impact floodplain or floodway delineations or base flood elevations, such as labeling or planimetric details. Such a submission shall include appropriate supporting documentation made in writing by the local jurisdiction and may be submitted at any time.

(Q) *Standards for streams without established base flood elevations and floodways.* Located within the areas of special flood hazard (Zones A and V) established in § 151.081(C), are small streams where no base flood data has been provided, and where no floodways have been identified. The following provisions apply within such areas.

(1) In all areas of special flood hazard where base flood elevation data are not available, the applicant shall provide a hydrologic and hydraulic engineering analysis that generates base flood elevations for all subdivision proposals and other proposed developments containing at least 50 lots or five acres, whichever is less.

(2) No encroachments, including fill, new construction, substantial improvements and new development shall be permitted within 100 feet of the stream bank, unless certification with supporting technical data by a registered, professional

engineer is provided, demonstrating that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

(3) If § 151.081(O)(1) is satisfied and base flood elevation data is available from other sources, all new construction and substantial improvements within such areas shall comply with all applicable flood hazard ordinance provisions of § 151.081(N), and shall be elevated or floodproofed in accordance with elevations established in accordance with § 151.081(M)(11).

(4) Data from preliminary, draft, and final Flood Insurance Studies constitutes the best available data. Refer to FEMA Floodplain Management Technical Bulletin 1 -98, *Use of Flood Insurance Study (FIS) Data as Available Data* If an appeal is pending on the study in accordance with 44 C.F.R. Ch. 1, pts. 67.5 and 67.6, the data does not have to be used.

(5) When base flood elevation (BFE) data is not available from a federal, state, or other source, one of the following methods may be used to determine a BFE. For further information regarding the methods for determining BFEs listed below, refer to FEMA's manual, *Managing Floodplain Development in Approximate Zone A Areas*

(a) *Contour interpolation.*

1. Superimpose approximate Zone A boundaries onto a topographic map and estimate a BFE.
2. Add one-half of the contour interval of the topographic map that is used to the BFE.

(b) *Data extrapolation.* A BFE can be determined if a site within 500 feet upstream of a reach of a stream reach for which a 100-year profile has been computed by detailed methods, and the floodplain and channel bottom slope characteristics are relatively similar to the downstream reaches. No hydraulic structures shall be present.

(c) *Hydrologic and hydraulic calculations.* Perform hydrologic and hydraulic calculations to determine BFEs using FEMA-approved methods and software.

(R) *Standards for streams with established base flood elevations but without floodways.* Along rivers and streams where base flood elevation (BFE) data is provided, but no floodway is identified for a special flood hazard area on the FIRM or in the FIS.

No encroachments including fill, new construction, substantial improvements, or other development shall be permitted, unless certification with supporting technical data by a registered, professional engineer is provided, demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

(S) *Variance procedures.*

(1) *Establishment of appeal board.* The Zoning Board of Appeals, as established by the city, shall hear and decide requests for variances from the requirements of this section.

(2) *Right to appeal.* Any person aggrieved by the decision of the appeal board or any taxpayer may appeal such decision to the court.

(3) *Historic structures.* Variances may be issued for the repair or rehabilitation of historic structures, upon the determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure, and the variance is the minimum necessary to preserve the historic character and design of the structure.

(4) *Functionally dependent uses.* Variances may be issued for development necessary for the conduct of a functionally dependant use, provided the criteria of this section are met, no reasonable alternative exists, and the development is protected by methods that minimize flood damage and create no additional threat to public safety.

(5) *Agricultural structures.* Variances may be issued to wet floodproof an agricultural structure, provided it is used solely for agricultural purposes. In order to minimize flood damages during the base flood and the threat to public health and safety, the structure must meet all of the conditions and considerations of § 151.081(S)(8), this section, and the following standards.

(a) Use of the structure must be limited to agricultural purposes as listed below:

1. Pole frame buildings, with open or closed sides, used exclusively for the storage of farm machinery and equipment;
2. Steel grain bins and steel frame corncribs;
3. General-purpose barns for the temporary feeding of livestock that are open on at least one side;
4. For livestock confinement buildings, poultry houses, dairy operations, and similar livestock operations, variances may not be issued for structures that were substantially damaged. New construction or substantial improvement of such structures must meet the elevation requirements of § 151.081(O)(2); and

(b) The agricultural structure must be built or rebuilt, in the case of an existing building that is substantially damaged, with flood-resistant materials for the exterior and interior building components, and elements below the base flood elevation.

(c) The agricultural structure must be adequately anchored to prevent flotation, collapse, or lateral movement. All of the structure's components must be capable of resisting specific flood-related forces, including hydrostatic, buoyancy,

hydrodynamic, and debris-impact forces. Where flood velocities exceed five feet per second, fast-flowing floodwaters can exert considerable pressure on the building's enclosure walls or foundation walls.

(d) The agricultural structure must meet the venting requirement of §151.081(O)(4).

(e) Any mechanical, electrical, or other utility equipment must be located above the base flood elevation (BFE), plus any required freeboard, or be contained within a watertight, floodproofed enclosure that is capable of resisting damage during flood conditions in accordance with § 151.081(N)(l)(e).

(f) The agricultural structure must comply with the floodway encroachment provisions of §151.081(O)(7).

(g) Major equipment, machinery, or other contents must be protected. Such protection may include protective, watertight floodproofed areas within the building, the use of equipment hoists for readily elevating contents, permanently elevating contents on pedestals or shelves above the base flood elevation, or determining that property owners can safely remove contents without risk to lives, and that the contents will be located to a specified site out of the floodplain.

(6) *Considerations.* In passing upon such applications, the appeal board shall consider all technical evaluations, all relevant factors, all standards specified in other divisions of this section, and:

(a) The danger that materials may be swept onto other lands to the injury of others;

(b) The danger to life and property due to flooding or erosion damage, and the safety of access to the property in times of flood for ordinary and emergency vehicles;

(c) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

(d) The importance of the services provided by the proposed facility to the community;

(e) The necessity to the facility of a waterfront location, where applicable;

(f) The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;

(g) The compatibility of the proposed use with existing and anticipated development, and the relationship of the proposed use to the comprehensive plan and floodplain management program for that area;

(h) The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site;

(i) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, and streets and bridges; and

(j) Agricultural structures must be located in wide, expansive floodplain areas, where no other alternative location for the agricultural structure exists. The applicant must demonstrate that the entire farm acreage, consisting of a contiguous parcel of land on which the structure is to be located, must be in the special flood hazard area, and no other alternative locations for the structure are available.

(7) *Findings.* Findings listed above shall be submitted to the appeal board, in writing, and included in the application for a variance. Additionally, comments from the Department of Natural Resources, Land, Water and Conservation Division, State Coordinator's Office, must be taken into account and included in the permit file.

(8) *Floodways.* Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result, unless a CLOMR is obtained prior to issuance of the variance. In order to ensure the project is built in compliance with the CLOMR for which the variance is granted, the applicant must provide a bond for 100% of the cost to perform the development.

(9) *Conditions.* Upon consideration of the factors listed above and the purposes of this section, the appeal board may attach such conditions to the granting of variances as it deems necessary to further the purposes of this section. The following conditions shall apply to all variances.

(a) Variances may not be issued when the variance will make the structure in violation of other federal, state, or local laws, regulations, or ordinances.

(b) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

(c) Variances shall only be issued upon a showing of good and sufficient cause, a determination that failure to grant the variance would result in exceptional hardship, and a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create a nuisance, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

(d) Any applicant to whom a variance is granted shall be given written notice, specifying the difference between the base flood elevation (BFE) and the elevation to which the structure is to be built, and a written statement that the cost of flood insurance will be commensurate with the increased risk. Such notification shall be maintained with a record of all variance actions.

(e) The local floodplain administrator shall maintain records of all appeal actions, and shall, upon request, report any

variances to the Federal Emergency Management Agency (FEMA).

(f) Variances shall not be issued for unpermitted development or other development that is not in compliance with the provisions of this section. Violations must be corrected in accordance with § 151.081(M)(5).

(T) *Legal status provisions.*

(1) *Effect on rights and liabilities under the existing flood damage prevention ordinance.* This section in part comes forward by re-enactment of some of the provisions of the flood damage prevention ordinance enacted March 14, 2017, and it is not the intention to repeal, but rather to re-enact and continue to enforce without interruption of such existing provisions, so that all rights and liabilities that have accrued there under are reserved and may be enforced. The enactment of this section shall not affect any action, suit or proceeding instituted or pending. All provisions of the flood damage prevention ordinance of the city, enacted on March 14, 2017, as amended, which are not reenacted herein, are repealed.

(2) *Effect upon outstanding building permits.* Nothing herein contained shall require any change in the plans, construction, size or designated use of any building, structure, or part thereof, for which a building permit has been granted by the Chief Building Inspector, or his or her authorized agents, before the time of passage of this section; provided, however, that when start of construction has not occurred under such outstanding permit within a period of 60 days subsequent to passage of this section, the construction or use shall be in conformity with the provisions of this section.

(1985 Code, Art. V, § 502) (Ord. 91-08, passed 9-10-1991; Ord. 96-013, passed 11-26-1996; Ord. 06-007, passed 3-14-2006; Ord. 17-004, passed 3-14-2017; Ord. 18-028, passed 11-27-2018)