

# CHAPTER 17. FLOOD DAMAGE PREVENTION

## SECTION 17.1. APPLICABILITY

- A.** In accordance with NCGS Chapter 143, Article 21 and Chapter 160D-923, this Chapter shall apply to all Special Flood Hazard Areas within Moore County's planning jurisdiction, and within the jurisdiction of any other community whose governing body agrees, by resolution, to such applicability.
- B.** No structure or land located within the Special Flood Hazard Area shall hereafter be located, extended, converted, altered, or developed in any way without full compliance with the terms of this Chapter and other applicable regulations.

## SECTION 17.2. BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The Special Flood Hazard Areas are those identified under the Cooperating Technical State (CTS) agreement between the State of North Carolina and FEMA in its Flood Insurance Study (FIS) and its accompanying Flood Insurance Rate Maps (FIRM), for Moore County dated October 17, 2006, and as revised, updated, or amended, which are adopted by reference and declared to be a part of this Chapter.

## SECTION 17.3. GENERAL DEVELOPMENT STANDARDS

In all Special Flood Hazard Areas, the following provisions are required.

- A.** All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
- B.** All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- C.** Electrical, heating, ventilation, plumbing, air conditioning equipment 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 flooding.
- D.** All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
- E.** 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 the flood waters.
- F.** Nothing in these standards shall prevent the repair, reconstruction, or replacement of a building or structure existing on the effective date of these standards and located totally or partially within a floodway, non-encroachment area, or stream setback, provided there is no additional encroachment below the regulatory flood protection elevation in the floodway, non-encroachment area, or stream setback, and provided that such repair, reconstruction or replacement meets all of the other requirements of these standards.
- G.** New solid waste disposal facilities and sites, hazardous waste management facilities, salvage yards, chemical storage facilities or critical facilities shall not be permitted except by variance as specified in Section 17.23, Floodplain Variance.
- H.** A structure or tank for chemical or fuel storage incidental to an allowed use or to the operation of a water treatment plant or wastewater treatment facility may be located in a Special Flood Hazard Area only if the structure or tank is either elevated or floodproofed to at least the regulatory flood protection elevation and is certified according to Section 17.21.A,(Floodproofing Certificate).
- I.** All subdivision proposals and other development proposals shall be consistent with the need to minimize flood damage, including the location of public utilities and facilities.
- J.** All development proposals shall have adequate drainage to reduce exposure to flood hazards.
- K.** All subdivision and development proposals shall have received all necessary permits from those governmental agencies for 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.

## SECTION 17.4. BASE FLOOD ELEVATION (BFE) DETERMINATION

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### SECTION 17.5. FLOODWAYS AND NON-ENCROACHMENT AREAS

- A.** The Base Flood Elevation (BFE) used in determining the regulatory flood protection elevation shall be determined by a sealed Elevation Certificate from a license land surveyor and/or other federal, State or local sources.
- B.** When BFE has been determined, all new construction and substantial improvements shall be elevated to the determined regulatory flood protection elevation.
- C.** When BFE data is not available (Approximate Zone A), the reference level shall be elevated to or above the regulatory Flood protection elevation as defined in Section 17.24, Definitions.
- D.** All subdivisions, manufactured home parks, and other development proposals shall provide Base Flood Elevation data if development is greater than five acres or has more than 50 lots/manufactured home sites.
- E.** Such BFE data shall be adopted by reference per Section 17.2, Basis for Establishing Special Flood Hazard Areas, to be utilized in implementing these standards.
- F.** When BFE is not available, no encroachments, including fill, new construction, substantial improvements or new development shall be permitted within a distance of 20 feet from top of bank or five times the width of the stream, whichever is greater, unless certification with supporting technical data by a registered professional engineer is provided demonstrating that such encroachments shall not result in any increase flood levels during the occurrence of the base flood discharge.

### SECTION 17.5. FLOODWAYS AND NON-ENCROACHMENT AREAS

- A.** Areas located within the Special Flood Hazard Areas established in Section 17.2, Basis for Establishing Special Flood Hazard Areas, are designated as floodways and non-encroachment areas which are extremely hazardous due to the velocity of floodwaters which carries debris and potential projectiles. This includes areas along rivers and streams where BFE information is provided but there has been no floodway or non-encroachment area designation.
- B.** In addition to standards outlined in Section 17.3, General Development Standards, and Section 17.4, Base Flood Elevation Determination, the following shall apply to all development in such areas.
- C.** 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 will not increase the water surface elevation of the base flood more than one foot at any point within the community.
- D.** Once a floodway or non-encroachment area has been designated, no encroachments, including fill, new construction, substantial improvements and other developments shall be permitted unless:
  - 1.** It is demonstrated that the proposed encroachment would not result in any increase
  - 2.** In the flood levels during the occurrence of the base flood, based on hydrologic and hydraulic analyses performed in accordance with standard engineering practice and presented to the Floodplain Administrator prior to issuance of floodplain development permit or,
  - 3.** A Conditional Letter of Map Revision (CLOMR) has been approved by FEMA. A Letter of Map Revision (LOMR) must also be obtained upon completion of the proposed encroachment.
  - 4.** If these standards satisfied, all development shall comply with the applicable flood hazard reduction provisions of this ordinance.

### SECTION 17.6. STANDARDS FOR AREAS OF SHALLOW FLOODING (ZONE AO)

- A.** These areas have special flood hazards associated with base flood depths of one-to-three feet where a clearly defined channel does not occur and where the path of flooding is unpredictable and indeterminate.
- B.** The reference level shall be elevated at least as high as the depth number specified on the Flood Insurance Map (FIRM), in feet, plus a freeboard of three feet, above the highest abutting grade; or at least two feet above the highest abutting grade plus a freeboard of one foot if no depth number is specified.
- C.** Non-residential structures may, in lieu of elevation, be floodproofed to the same level as required in Section 17.8 so that the structure, together with attendant utility and sanitary facilities, below that level shall be watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and its effects of buoyancy.

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### SECTION 17.7. RESIDENTIAL CONSTRUCTION

- D.** Certification is required as per Section 17.20, Additional Certificate Requirements.
- E.** Adequate drainage paths shall be provided around structures on slopes, to guide floodwaters around and away from proposed structures.

### SECTION 17.7. RESIDENTIAL CONSTRUCTION

New construction and substantial improvement of any residential structure shall have the reference level, including basement, elevated at no lower than the regulatory flood protection elevation, as defined in Section 17.24, Definitions.

### SECTION 17.8. NON-RESIDENTIAL CONSTRUCTION

- A.** New construction and substantial improvement of any commercial, industrial, or other non-residential structure shall have the reference level, including basement, no lower than the regulatory flood protection elevation as defined in Section 17.24, Definitions.
- B.** Structures located in A, AE, and A1-30 Zones may be floodproofed to the regulatory flood protection elevation in lieu of elevation provided that all areas of the structure, together with attendant utility and sanitary facilities, below the regulatory flood protection 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.
- C.** For AO Zones, the floodproofing elevation shall be in accordance with Section 17.21 of these standards.
- D.** Soil testing and compaction standards of the International Building Code shall be met.
- E.** A registered professional engineer or architect shall certify that the standards of this sub-section are satisfied. Such certification shall be provided to the Administer as set forth in Section 17.19, Elevation Certificates, and 17.21, Additional Certificate Requirements, along with the operational and maintenance plans.

### SECTION 17.9. MANUFACTURED HOMES

- A.** Manufactured homes may only be replaced within a Special Flood Hazard Area.
- B.** No new placement of manufactured homes shall occur within the Special Flood Hazard Area or within an area bounded by flood of record, except by variance.
- C.** Replacement manufactured homes shall be elevated so that the reference level of the manufactured home is no lower than the regulatory flood protection elevation, as defined in Section 17.24, Definitions.
- D.** Manufactured homes shall be securely anchored to an adequately anchored foundation to resist flotation, collapse, and lateral movement, either by engineer certification, or in accordance with the most current edition of the State of North Carolina Regulations for Manufactured Homes adopted by the Commissioner of Insurance pursuant to NCGS 143-143.15.
- E.** Additionally, when the elevation is met by an elevation of the chassis 36 inches or less above the grade at site, the chassis shall be supported by reinforced piers or engineered foundation.
- F.** When the elevation of the chassis is above 36 inches in height, an engineering certification is required.
- G.** All enclosures or skirting below the lowest floor shall meet the requirements of Section 17.10, Elevated Buildings.
- H.** 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.
- I.** This plan shall be filed with an approved by the floodplain administrator and the local Emergency Management coordinator.

### SECTION 17.10. ELEVATED BUILDINGS

Fully enclosed areas of new or substantially improved structures, which is below the lowest floor, shall comply with the following:

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### SECTION 17.11. ADDITIONS AND IMPROVEMENTS TO PRE-FIRM STRUCTURES

- A.** Shall not be designed or used for human habitation, but shall only be used for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the area shall be the minimum necessary for storage and entry to the living area.
- B.** The interior portion of such enclosed area shall not be finished or partitioned into separate rooms, except to enclose storage areas.
- C.** Shall be constructed entirely of flood resistant materials below the regulatory flood protection elevation.
- D.** Shall include, in Zones A, AO, AE and A1-30, flood openings to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters designed in accordance with Section 17.20, Flood Opening Design Standards.

### SECTION 17.11. ADDITIONS AND IMPROVEMENTS TO PRE-FIRM STRUCTURES

Additions or improvements to pre-FIRM structures when the addition or improvements are in combination with any interior modifications to the existing structure shall comply with the following:

- A.** If not a substantial improvement, the addition or improvements must be designed to minimize flood damages and must not be any more non-conforming than the existing structure.
- B.** A substantial improvement, both the existing structure and the addition or improvements must comply with the standards of new construction.
- C.** Where an independent perimeter load-bearing wall is provided between the addition and the existing building, the addition(s) shall be considered a separate building and only the addition must comply with the standards for new construction.

### SECTION 17.12. ADDITIONS AND IMPROVEMENTS TO POST-FIRM STRUCTURES

- A.** Additions to post-FIRM structures with no modifications to the existing structure other than a standard door in the common wall shall require only the addition to comply with the standards for new construction.
- B.** For additions or improvements to post-FIRM structures that are not considered a substantial improvement, only the addition or improvements must comply with the standards for new construction.
- C.** For additions and/or improvements for post-FIRM structures that are considered a substantial improvement, the existing structure and the additions and/or improvements must comply with the standards for new construction.
- D.** Where an independent perimeter load-bearing wall is provided between the addition and the existing building, the addition(s) shall be considered a separate building and only the addition must comply with the standards for new construction.

### SECTION 17.13. RECREATIONAL VEHICLES

Recreational vehicles shall be on site for fewer than 180 consecutive days and be 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 a quick disconnect type utilities and has no permanently attached additions).

### SECTION 17.14. TEMPORARY NON-RESIDENTIAL STRUCTURES

Prior to the issuance of a floodplain development permit for a temporary structure, the applicant must submit to the Floodplain Administrator a plan for the removal of such structure(s) in the event of a hurricane, flash flood or other type of flood warning notification. The following information shall be submitted in writing to the Floodplain Administrator for review and written approval:

- A.** A specified time period for which the temporary use will be permitted. Time specified may not exceed three months, renewable up to one year;
- B.** The name, address, and phone number of the individual responsible for the removal of the temporary structure;
- C.** The time frame prior to the event at which a structure will be removed (i.e., minimum of 72 hours before landfall of a hurricane or immediately upon flood warning notification);

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- D.** A copy of the contract or other suitable instrument with the entity responsible for physical removal of the structure; and
- E.** Designation, accompanied by documentation, of a location outside the Special Flood Hazard Area, to which the temporary structure will be moved.

### SECTION 17.15. ACCESSORY STRUCTURES

When accessory structures (sheds, detached garages, etc.) are to be placed within a Special Flood Hazard Area, the following criteria shall be met:

- A.** Accessory structures shall not be used for human habitation (including working, sleeping, living, cooking, or restroom areas);
- B.** Accessory structure shall not be temperature controlled;
- C.** Accessory structures shall be designed to have low flood damage potential;
- D.** Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters;
- E.** Accessory structures shall be firmly anchored and all service facilities such as electrical shall be installed in accordance with Section 17.3, General Development Standards, and flood openings to facilitate automatic equalization of hydrostatic flood forces shall be provided below regulatory flood protection elevation in conformance with Section 17.20, Flood Opening Design Standards.
- F.** An accessory structure with a footprint less than 150 square feet that satisfies the criteria outlined above does not require an elevation or floodproofing certificate.
- G.** Elevation or floodproofing certifications are required for all other accessory structures in accordance with Section 17.21, Additional Certificate Requirements.

### SECTION 17.16. FLOODPLAIN DEVELOPMENT PERMIT APPLICABILITY

- A.** A Floodplain Development Permit shall be required in conformance with the provisions of this section prior to the commencement of any development activities within Special Flood Hazard Areas determined in accordance with the provisions of Section 17.2, Basis for Establishing Special Flood Hazard Areas.
- B.** No structure of land shall hereafter be located, extended, converted, altered, or developed in any way without full compliance with the terms of this section and other applicable regulations.

### SECTION 17.17. APPLICATION REQUIREMENTS

An application for a Floodplain Development permit shall be submitted in accordance with Chapter 10, General Application Review Procedures, and the following:

- A.** An application for a flood development permit shall include a site plan drawn to scale which shall include, but shall not be limited to, the following specific details of the proposed floodplain development:
  1. The nature, location, dimensions, and elevations of the area of development/disturbance; existing and proposed structures, utility systems, grading/pavement areas, fill materials, storage areas, drainage facilities, and other development;
  2. The boundary of the Special Flood Hazard Area as delineated on the FIRM or other flood map as determined in Section 17.2 of these standards, or a statement that the entire lot is within the Special Flood Hazard Area;
  3. Flood zone(s) designation of the proposed development area as determined on the FIRM or other flood map as determined in Section 17.2;
  4. The boundary of the floodway(s) or non-encroachment area(s) as determined in Section 17.2;
  5. The Base Flood Elevation (BFE) where available;
  6. The old and new location of any watercourse that will be altered or relocated as a result of proposed development; and
  7. Certification of the plot plan by a registered land surveyor or professional engineer.

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**B.** Proposed elevation, and method thereof, of all development within a Special Flood Hazard Area including but not limited to:

1. Elevation in relation to mean sea level of the proposed reference level (including basement) of all structures;
2. Elevation in relation to mean sea level to which any non-residential structure in Zone AE, A or AO will be flood proofed; and
3. Elevation in relation to mean sea level to which any proposed utility systems will be elevated or floodproofed. If floodproofing, a Floodproofing Certificate (FEMA Form 81-65) with supporting data and an operational plan that includes, but is not limited to, installation, exercise, and maintenance of floodproofing measures.

**C.** A foundation plan, drawn to scale, which shall include details of the proposed foundation system to ensure all provisions of these standards are met. These details include but are not limited to:

1. The proposed method of elevation, if applicable (i.e. fill, solid foundation perimeter wall, solid backfilled foundation, open foundation on columns/posts/piers/piles/shear walls);
2. Openings to facilitate equalization of hydrostatic flood forces on walls in accordance with Section 16.20 (Flood Opening Design Standards), when solid foundation perimeter walls are used in Zones A, AO, AE and A1-30;

**D.** Usage details of any enclosed areas below the regulatory flood protection elevation;

**E.** Plans and/or details for the protection of public utilities and facilities such as sewer/gas/electrical, and water systems to be located and constructed to minimize flood damage;

**F.** Copies of all other Local, State, and Federal permits required prior to floodplain development permit issuance (Wetlands, Endangered Species, Erosion and Sedimentation Control, Riparian Buffers, Mining, etc.);

**G.** Documentation for placement of recreational vehicles and/or temporary structures, when applicable, to ensure Section 17.13, Recreational Vehicles, and Section 17.14, Temporary Non-Residential Structures and Section 17.15, Accessory Structures, are met; and

**H.** A description of proposed watercourse alteration or relocation, when applicable, including an engineering report on the effects of the proposed project on the flood-carrying capacity of the watercourse and the effects to properties located both upstream and downstream; and a map (if not shown on plot plan) showing the location of the proposed watercourse alteration or relocation.

### SECTION 17.18. PERMIT REQUIREMENTS

The floodplain development permit shall include, but not be limited to:

- A.** A description of the development to be permitted under the floodplain development permit.
- B.** The Special Flood Hazard Area determination for the proposed development per available data specified in Section 17.2, Basis for Establishing Special Flood Hazard Areas.
- C.** The regulatory flood protection elevation required for the reference level and all attendant utilities.
- D.** The regulatory flood protection elevation required for the protection of all public utilities.
- E.** All certification submittal requirements with timelines.
- F.** A statement that no fill material or other development shall encroach into the floodway or non-encroachment area of any watercourse, as applicable.
- G.** The flood opening requirements, if the project is located in Zones A, AO, AE or A1-30.
- H.** Limitations of below BFE enclosure uses (if applicable). (i.e., parking, building access, and limited storage only).

### SECTION 17.19. ELEVATION CERTIFICATION REQUIREMENTS

- A.** An elevation certificate (FEMA Form 81-31) is required prior to the actual start of any new construction.

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### SECTION 17.20. FLOOD OPENING DESIGN STANDARDS

- B.** It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the elevation of the reference level, in relation to mean sea level.
- C.** The Floodplain Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder prior to beginning construction. Failure to submit the certification of failure to make the required corrections shall be cause to deny a floodplain development permit.
- D.** A final as-built elevation certificate (FEMA 81-31) is required after construction is completed and prior to the certificate of occupancy/compliance. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of final as-built construction of the elevation of the reference level and all attendant utilities.
- E.** The Floodplain Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to issuance of the certificate of occupancy/Compliance.
- F.** In some instances, another certification may be required to certify corrected as-built construction. Failure to submit the certification of failure to make required corrections shall be cause to withhold the certificate of occupancy/compliance.
- G.** If the elevation certificate is being used to obtain flood insurance through the NFIP, the certifier must provide at least two photographs showing the front and rear of the building within 90 days from the date of certification. The photographs must confirm the building description and diagram number. If the building has split level or multi-level areas, provide at least two additional photographs showing side views of the building. All photographs must be in color and measure at least three inches square. Digital photographs are acceptable.

### SECTION 17.20. FLOOD OPENING DESIGN STANDARDS

Flood openings must be certified by a professional engineer or architect or meet or exceed the following design criteria:

- A.** A minimum of two flood openings on different sides of each enclosed area subject to flooding;
- B.** The total net area of all flood openings must be at least one square inch for each square foot of enclosed area subject to flooding;
- C.** If a building has more than one enclosed area, each enclosed area must have flood openings to allow floodwaters to automatically enter and exit;
- D.** The bottom of all required flood openings shall be no higher than one foot above the abutting grade;
- E.** Flood openings may be equipped with screens, louvers or other coverings or devices, provided they permit the automatic flow of floodwaters in both directions; and
- F.** Enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and therefore, do not require flood openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires flood openings as outlined above.

### SECTION 17.21. ADDITIONAL CERTIFICATE REQUIREMENTS

#### A. FLOODPROOFING CERTIFICATE

- 1.** If non-residential floodproofing is used to meet the regulatory flood protection elevation requirements, a floodproofing certificate (FEMA 81-65), with supporting data and an operational plan, is required prior to the start of any new construction.
- 2.** It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the floodproofed design elevation of the reference level and all attendant utilities, in relation to mean sea level.
- 3.** Floodproofing certification shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same.
- 4.** The Floodplain Administrator shall review the certificate data and plan. Deficiencies detected by such review shall be corrected by the applicant prior to permit approval.

**5.** Failure to submit the certification or failure to make requires corrections shall be cause to deny a floodplain development permit. Failure to construct in accordance with the certified design shall be cause to withhold the certificate of occupancy/compliance.

**B. ENGINEERED FOUNDATION CERTIFICATION**

If a manufactured home is placed within Zone A, AO, AE, or A1-30 and the elevation of the chassis is more than 36 inches in height above grade, an engineered foundation certification is required in accordance with Section 17.9, Manufactured Homes.

**C. WATERCOURSE ALTERING**

If a watercourse is to be altered or relocated, a description of the extent of watercourse alteration or relocation; a professional engineer's certified report on the effects of the proposed project on the flood carrying capacity of the watercourse and the effects to properties located both upstream and downstream; and a map showing the location of the proposed watercourse alteration or relocation shall all be submitted by the permit applicant prior to the issuance of a floodplain development permit.

**SECTION 17.22. CERTIFICATE EXEMPTIONS**

The following structures, if located within Zone A, AO, AE or A1-30, are exempt from the elevation/floodproofing certification requirements specified in Section 17.19, Elevation Certificate Requirements, and Section 17.21, Floodproofing Certificate:

- A.** Recreational vehicles meeting requirements of Section 17.13, Recreational Vehicles;
- B.** Temporary structures meeting requirements of Section 17.14, Temporary Non-Residential Structures and;
- C.** Accessory structures less than 150 square feet meeting requirements of Section 17.15, Accessory Structures.

**SECTION 17.23. FLOODPLAIN VARIANCE****A. GENERALLY**

The Board of Adjustment, hereinafter referred to as the "appeal board," shall hear and decide requests for variances from the requirements of this Chapter. Variances may be issued for:

- 1.** The repair or rehabilitation of historic structures upon determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and that variance is the minimum necessary to preserve the historic character and design of the structure.
- 2.** Functionally dependent facilities is determined to meet the definition in Section 17.24, Definitions, provided provisions of Section 17.23(E) 2,3, and 5 have been satisfied, and such facilities are protected by methods that minimize flood damages.
- 3.** Any other type of development, provided is meets the requirements stated in this section.

**B. APPLICATION REQUIREMENTS**

- 1.** An application for a variance from these standards shall be submitted in accordance with Chapter 14.
- 2.** A written report, signed and sealed by a licensed engineer in the State of North Carolina, addressing each of the factors listed in Section 17.23(C) shall be submitted with the application for a variance.

**C. TECHNICAL EVALUATION, FACTORS AND STANDARDS**

In passing upon variances, the appeal board shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this ordinance, and:

- 1.** The danger that materials may be swept onto other lands to the injury of others;
- 2.** The danger to life and property due to flooding or erosion damage;
- 3.** The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- 4.** The importance of the service provided by the proposed facility to the community;
- 5.** The necessity to the facility of a waterfront location as defined under Chapter 19 (Definitions) of this ordinance as a functionally dependent facility, where applicable;

- 6.** The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;
- 7.** The compatibility of the proposed use with existing and anticipated development;
- 8.** The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
- 9.** The safety of access to the property in times of flood for ordinary and emergency vehicles;
- 10.** 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; and
- 11.** 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.

**D. CRITERIA FOR APPROVAL**

- 1.** Variances shall not be issued when the variance will make the structure in violation of other Federal, State, or local laws, regulations, or ordinances;
- 2.** Variances shall not be issued within any designated floodway or non-encroachment area if the variance would result in any increase in flood levels during the base flood discharge;
- 3.** Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief;
- 4.** Variances shall only be issued prior to development permit approval;
- 5.** Variances shall only be issued upon a showing of good and sufficient cause;
- 6.** Variances shall only be issued upon a determination that failure to grant the variance would result in exceptional hardship; and
- 7.** Variances shall only be issued upon a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense, create nuisance, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

**E. HAZARDOUS WASTE MANAGEMENT FACILITIES**

- 1.** A variance may be issued for solid waste disposal facilities or critical facilities located in Special Flood Hazard Areas or within an area bounded by a flood of record contour, provided that all of the following conditions are met:
  - i.** The use serves a critical need in the community.
  - ii.** No feasible location exists for the use outside the Special Flood Hazard Area.
  - iii.** The reference level of any structure is elevated or floodproofed to at least the regulatory flood protection elevation or flood of record contour elevation.
  - iv.** Critical facilities shall have at least one access road connected to land outside of the area bounded by a flood of record contour that is capable of supporting a 4,000-pound vehicle. The top of the access road must be no lower than one-half (0.5) feet below either the regulatory flood protection elevation or the flood of record contour elevation.
  - v.** The use complies with all other applicable Federal, State and local laws.
  - vi.** The County of Moore has notified the Secretary of the North Carolina Department of Crime Control and Public Safety of its intention to grant a variance at least 30 calendar days prior to granting the variance.
- 2.** A variance may not be issued for hazardous waste management facilities, salvage yards, and chemical storage facilities

**F. CONDITIONS OF APPROVAL**

Upon consideration of the factors listed above and the purposes of this section, the Board of Adjustment may attach such conditions to the granting of variances as it deems necessary to further the purposes and objectives of this UDO.

**G. ACTION FOLLOWING APPROVAL**

- A. The Director shall maintain the records of all appeal actions and report any variances to the Federal Emergency Management Agency and the State of North Carolina upon request.
- B. Any applicant to whom a variance is granted shall be given written notice specifying the difference between the Base Flood Elevation (BFE) or flood of record elevation and the elevation to which the structure is to be built and that such construction below the Base Flood Elevation increases risks to life and property, and that the issuance of a variance to construct a structure below the Base Flood Elevation will result in increased premium rates for flood insurance up to \$25 per \$100 of insurance coverage.
- C. Such notification shall be maintained with a record of all variance actions, including justification for their issuance.
- D. Any person aggrieved by the decision of the Board of Adjustment may appeal such decision to the Superior Court for Moore County in accordance with Section 160D-1402 of the North Carolina General Statutes.

**SECTION 17.24. DEFINITIONS**

The terms used in this Chapter shall be defined in accordance with the following table.

FLOOD DAMAGE PREVENTION DEFINITIONS	
TERM	DEFINITION
<b>AREA OF SHALLOW FLOODING</b>	A designated Zone AO on a community's Flood Insurance Rate Map (FIRM) with base flood depths determined to be from 1 to 3 feet. These areas are located where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident.
<b>BASE FLOOD (FLOODPLAIN)</b>	A flood having a one 1% chance of being equaled or exceeded in any given year.
<b>BASE FLOOD ELEVATION (BFE) (FLOODPLAIN)</b>	A determination of the water surface elevations of the base flood as published in the Flood Insurance Study. When the BFE has not been provided in a Special Flood Hazard Area, it may be obtained from engineering studies available from a Federal or State other source using FEMA approved engineering methodologies. This elevation, when combined with the Freeboard, establishes the Regulatory Flood Protection Elevation.
<b>BASEMENT (FLOODPLAIN)</b>	Any area of the building having its floor subgrade (below ground level) on all sides.
<b>ELEVATED BUILDING (FLOODPLAIN)</b>	A non-basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.
<b>ENCROACHMENT (FLOODPLAIN)</b>	The advance or infringement of uses, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.
<b>FIRM, POST (FLOODPLAIN)</b>	Construction or other development for which the start of construction occurred on or after the effective date of the initial Flood Insurance Rate Map for the area.
<b>FIRM, PRE (FLOODPLAIN)</b>	Construction or other development for which the start of construction occurred before the effective date of the initial Flood Insurance Rate Map for the area.
<b>FLOOD BOUNDARY AND FLOODWAY</b>	An official map of a community, issued by the Federal Emergency Management Agency, on which the Special Flood Hazard Areas and the floodways are

## FLOOD DAMAGE PREVENTION DEFINITIONS

TERM	DEFINITION
<b>MAP (FBFM) (FLOODPLAIN)</b>	delineated. This official map is a supplement to and shall be used in conjunction with the Flood Insurance Rate Map (FIRM).
<b>FLOOD INSURANCE RATE MAP (FIRM) (FLOODPLAIN)</b>	An official map of a community, issued by the Federal Emergency Management Agency, on which both the Special Flood Hazard Areas and the risk premium zones applicable to the community are delineated.
<b>FLOOD INSURANCE STUDY (FIS)</b>	An examination, evaluation, and determination of flood hazards, corresponding water surface elevations (if appropriate), flood hazard risk zones, and other flood data in a community issued by the Federal Emergency Management Agency. The Flood Insurance Study report includes Flood Insurance Rate Maps (FIRMs) and Flood Boundary and Floodway Maps (FBFMs), if published.
<b>FLOOD OF RECORD ELEVATION</b>	The peak elevation of the water surface above mean sea level recorded during an historic flood, where the recorded elevation exceeds the base flood elevation.
<b>FLOOD OR FLOODING (FLOODPLAIN)</b>	A general and temporary condition of partial or complete inundation of normally dry land areas from: The overflow of inland or tidal waters; and/or the unusual and rapid accumulation of runoff of surface waters from any source.
<b>FLOOD PRONE AREA</b>	See Floodplain.
<b>FLOOD ZONE</b>	A geographical area shown on a Flood Hazard Boundary Map or Flood Insurance Rate Map that reflects the severity or type of flooding in the area.
<b>FLOODPLAIN</b>	Any land area susceptible to being inundated by water from any source.
<b>FLOODPLAIN ADMINISTRATOR</b>	The individual appointed to administer and enforce the floodplain management regulations. The Administrator serves as the Floodplain Administrator for this Ordinance.
<b>FLOODPLAIN DEVELOPMENT PERMIT</b>	Any type of permit that is required in conformance with the provisions of this Ordinance, prior to the commencement of any development activity.
<b>FLOODPLAIN MANAGEMENT</b>	The operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including, but not limited to, emergency preparedness plans, flood control works, floodplain management regulations, and open space plans.
<b>FLOODPLAIN MANAGEMENT REGULATIONS</b>	This Ordinance and other building codes, health regulations, special purpose Ordinances, and other applications of police power which control development in flood-prone areas. This term describes federal, state or local regulations, in any combination thereof, which provide standards for preventing and reducing flood loss and damage.
<b>FLOODPROOFING</b>	Any combination of structural and nonstructural additions, changes, or adjustments to structures, which reduce or eliminate flood damage to real estate or improved real property, water and sanitation facilities, structures, and their contents.
<b>FLOODWAY</b>	The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than 1 foot.
<b>FLOOR AREA (FOR DETERMINING OFF-</b>	The gross total horizontal area of all floors below the roof, including usable basements, cellars, and accessory storage areas such as counters, racks, or closets, but excluding, in the case of non-residential facilities, arcades, porticos,

## FLOOD DAMAGE PREVENTION DEFINITIONS

TERM	DEFINITION
<b>STREET PARKING AND LOADING REQUIREMENTS)</b>	and similar areas open to the outside air which are accessible to the general public and which are not designed or used as areas for sales, display, storage, service, or production. However, "floor area", for the purpose of measurement for off-street parking spaces shall not include: floor area devoted to primarily storage purposes (except as otherwise noted above); floor area devoted to off-street parking or loading facilities, including aisles, ramps, and maneuvering space; or basement floor other than area devoted to retailing activities, to the production or processing of goods, or business or professional offices.
<b>FREEBOARD</b>	The height added to the Base Flood Elevation (BFE) to account for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization on the watershed. The Base Flood Elevation plus the freeboard establishes the Regulatory Flood Protection Elevation.
<b>FUNCTIONALLY DEPENDENT FACILITY</b>	A facility which cannot be used for its intended purpose unless it is located in close proximity to water, such as a docking or port facility necessary for the loading and unloading of cargo or passengers, shipbuilding, or ship repair. The term does not include long-term storage, manufacture, sales, or service facilities.
<b>HIGHEST ADJACENT GRADE (HAG)</b>	The highest natural elevation of the ground surface, prior to construction, immediately next to the proposed walls of the structure.
<b>LOWEST ADJACENT GRADE (LAG)</b>	The elevation of the ground, sidewalk, or patio slab immediately next to the building, or deck support, after completion of the building.
<b>LOWEST FLOOR (FLOODPLAIN)</b>	Lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or limited storage in an area other than a basement area is not considered a building's lowest floor, provided that such an enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this Ordinance.
<b>MEAN SEA LEVEL</b>	For purposes of this Ordinance, the National Geodetic Vertical Datum (NGVD) as corrected in 1929, the North American Vertical Datum (NAVD) as corrected in 1988, or other vertical control datum used as a reference for establishing varying elevations within the floodplain, to which Base Flood Elevations (BFEs) shown on a FIRM are referenced. Refer to each FIRM panel to determine datum used.
<b>NEW CONSTRUCTION (FLOODPLAIN)</b>	Structures for which the start of construction commenced on or after the effective date of the original version of the community's Flood Damage Prevention Ordinance and includes any subsequent improvements to such structures.
<b>NON-ENCROACHMENT AREA</b>	The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than 1 foot as designated in the Flood Insurance Study report.
<b>REFERENCE LEVEL</b>	The top of the lowest floor, excluding the foundation system, for structures within all Special Flood Hazard Areas designated as Zone AE, A, or AO.

## CHAPTER 17. FLOOD DAMAGE PREVENTION

### SECTION 17.24. DEFINITIONS

#### FLOOD DAMAGE PREVENTION DEFINITIONS

TERM	DEFINITION
<b>REGULATORY FLOOD PROTECTION ELEVATION</b>	The Base Flood Elevation plus the Freeboard. In Special Flood Hazard Areas where Base Flood Elevations (BFEs) have been determined, this elevation shall be the BFE plus two (2) feet of freeboard. In Special Flood Hazard Areas where no BFE has been established, this elevation shall be at least 2 feet above the highest adjacent grade.
<b>SPECIAL FLOOD HAZARD AREA (SFHA)</b>	The land in the floodplain subject to a one 1% or greater chance of being flooded in any given year.

