

ARTICLE XVI

FLOOD DAMAGE PREVENTION, STORMWATER MANAGEMENT, AND WATERSHED PROTECTION

PART I. FLOOD DAMAGE PREVENTION (AMENDED 1/16/07)

Section 15-251 Purpose and Objective.

(a) It is the purpose of this part to promote public health, safety, and general welfare and to minimize public and private losses due to flood conditions within flood prone areas by provisions designed to:

- (1) Restrict or prohibit uses that are dangerous to health, safety, and property due to water or erosion hazards or that result in damaging increases in erosion, flood heights or velocities;
 - (2) Require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction;
 - (3) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;
 - (4) Control filling, grading, dredging, and all other development that may increase erosion or flood damage; and
 - (5) Prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or which may increase flood hazards to other lands.
- (b) The objectives of this part are:
- (1) To protect human life and health;
 - (2) To minimize expenditure of public money for costly flood control projects;
 - (3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
 - (4) To minimize prolonged business losses and interruptions;

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- (5) To minimize damage to public facilities and utilities (i.e. water and gas mains, electric, telephone, cable and sewer lines, streets, and bridges) that are located in flood prone areas;
- (6) To ensure that potential buyers are aware that property is in a Special Flood Hazard Area.

Section 15-251.1 Definitions.

Unless otherwise specifically provided, or unless clearly required by the context, the words and phrases defined in this section shall have the meaning indicated when used in this article.

1. Accessory Structure (Appurtenant Structure). A structure located on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Garages, carports and storage sheds are common urban accessory structures. Pole barns, hay sheds and the like qualify as accessory structures on farms, and may or may not be located on the same parcel as the farm dwelling or shop building.
2. Addition (to an existing building). An extension or increase in the floor area or height of a building or structure.
3. Appeal. A request for a review of the administrator's interpretation of any provision of this ordinance.
4. Area of Special Flood Hazard. See “Special Flood Hazard Area (SFHA)”
5. Basement. Any area of the building having its floor subgrade (below ground level) on all sides.
6. Base Flood. The flood having a one (1) percent chance of being equaled or exceeded in any given year.
7. Base Flood Elevation (BFE). A determination of the water surface elevations of the base flood as published in the Flood Insurance Study or, for areas not covered in the Flood Insurance Study, as may be obtained from engineering studies available from a Federal or State or other source using FEMA approved engineering methodologies. This elevation, when combined with the “Freeboard,” establishes the “Regulatory Flood Protection Elevation.”
8. Chemical Storage Facility. A building, portion of a building, or exterior area adjacent to a building used for the storage of any chemical or chemically reactive products.
9. Development. Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.

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10. Development Permit. A zoning, special use, conditional use, or sign permit required under the provisions of Article IV of this chapter.
11. Disposal. As defined in NCGS 130A-290(a)(6), the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste into or on any land or water so that the solid waste or any constituent part of the solid waste may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.
12. Elevated Building. A non-basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.
13. Encroachment. 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.
14. Existing Manufactured Home Park or Manufactured Home Subdivision. A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) was completed before the original effective date of the floodplain management regulations adopted by the town.
15. Flood or Flooding. A general and temporary condition of partial or complete inundation of normally dry land areas from:
 - (a) the overflow of inland waters; and/or
 - (b) the unusual and rapid accumulation of runoff of surface waters from any source.
16. Flood Insurance. The insurance coverage provided under the National Flood Insurance Program.
17. Flood Insurance Rate Map (FIRM). An official map provided to the town 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.
18. Flood Insurance Study (FIS). An examination, evaluation, and determination of flood hazards, corresponding water surface elevations (if appropriate), flood hazard risk zones, and other flood data provided to the town 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.
19. Flood Prone Area. See Floodplain.
20. Floodplain. Any land area susceptible to being inundated by water from any source.

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21. Floodplain Management. 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.
22. Floodplain Management Regulations. This ordinance and other zoning ordinances, subdivision regulations, 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.
23. Floodproofing. 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.
24. Floodway. 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 one (1) foot.
25. Flood Zone. Means 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.
26. Freeboard. 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". The freeboard shall be two feet.
27. Functionally Dependent Facility. 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.
28. Hazardous Waste Facility. As defined in NCGS 130A-290(a)(9), a facility for the collection, storage, processing, treatment, recycling, recovery, or disposal of hazardous waste.
29. Highest Adjacent Grade (HAG). The highest natural elevation of the ground surface, prior to construction, immediately next to the proposed walls of the structure.

30. Historic Structure. Any structure that is:
- (a) listed individually in the National Register of Historic Places (a listing maintained by the US Department of Interior) or preliminarily determined by the Secretary of Interior as meeting the requirements for individual listing on the National Register; or
 - (b) certified or preliminarily determined by the Secretary of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; or
 - (c) certified as contributing to the historical significance of any historic district that may be designated by the town.
31. Lowest Adjacent Grade (LAG). The elevation of the ground, sidewalk or patio slab immediately next to the building, or deck support, after completion of the building.
32. Lowest Floor. 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.
33. Manufactured Home. A structure, transportable in one or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”
34. Manufactured Home Park or Subdivision. A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.
35. Market Value. The building value, not including the land value and that of any accessory structures or other improvements on the lot. Market value may be established by independent certified appraisal; replacement cost depreciated for age of building and quality of construction (Actual Cash Value); or adjusted tax assessed values.
36. Mean Sea Level. For purposes of this part, the North American Vertical Datum (NAVD) as corrected in 1988 shall be used to determine elevation.
37. New Construction. Structures for which the “start of construction” commenced on or after April 22, 1975 and includes any subsequent improvements to such structures.

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38. Non-Encroachment Area. 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 one (1) foot as designated in the Flood Insurance Study report.
39. Post-FIRM. Means construction or other development for which the “start of construction” occurred on or after April 22, 1975.
40. Pre-FIRM. Construction or other development for which the “start of construction” occurred before April 22, 1975.
41. Principally Above Ground. At least 51% of the actual cash value of the structure is above ground.
42. Public Safety Hazard and/or Nuisance. Anything which is injurious to the safety or health of an entire community or neighborhood, or any considerable number of persons, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, river, bay, stream, canal, or basin.
43. Recreational Vehicle (RV). A vehicle, which is (i) built on a single chassis; (ii) 400 square feet or less when measured at the largest horizontal projection; (iii) designed to be self-propelled or permanently towable by a light duty truck; and (iv) designed primarily not for use as a permanent dwelling, but as temporary living quarters for recreational, camping, travel, or seasonal use.
44. Reference Level. The top of the lowest floor for structures within the Special Flood Hazard Area designated as Zone AE.
45. Regulatory Flood Protection Elevation. 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.
46. Remedy a Violation means to bring the structure or other development into compliance with State and community floodplain management regulations, or if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of the ordinance or otherwise deterring future similar violations, or reducing Federal financial exposure with regard to the structure or other development.
47. Riverine. Relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.
48. Salvage Yard. Any non-residential property used for the storage, collection, and/or recycling of any type of equipment, and including but not limited to vehicles, appliances and related machinery.

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49. Solid Waste. Solid waste as defined in NCGS 130A-290(a) (35).
50. Solid Waste Management Facility. As defined in NCGS 130A-290(a) (35), any facility involved in the disposal of solid waste.
51. Solid Waste Disposal Site. As defined in NCGS 130A-290(a) (36), any place at which solid wastes are disposed of by incineration, sanitary landfill, or any other method.
52. Special Flood Hazard Area (SFHA). The land in the floodplain subject to a one (1%) percent or greater chance of being flooded in any given year, as determined in Section 15-251.2(b) of this part.
53. Start of Construction. This term includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of the building, whether or not that alteration affects the external dimensions of the building.
54. Structure. A walled and roofed building, a manufactured home, or a gas, liquid, or liquefied gas storage tank that is principally above ground.
55. Substantial Damage. Damage of any origin sustained by a structure during any one-year period whereby the cost of restoring the structure to it before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. See definition of “substantial improvement.”
56. Substantial Improvement. Any combination of repairs, reconstruction, rehabilitation, addition, or other improvement of a structure, taking place during any one-year period for which the cost equals or exceeds 50 percent of the market value of the structure before the “start of construction” of the improvement. This term includes structures which have incurred “substantial damage,” regardless of the actual repair work performed. The term does not, however, include either: (i) any correction of existing violations of State or community health, sanitary, or safety code specifications which have been identified by the community code enforcement official and which are the minimum necessary to assure safe living conditions; or (ii) any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure.

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57. Variance. A grant of relief from the requirements of this ordinance as authorized in Section 15-92 of this chapter. See also Section 15-251.5.
58. Violation. The failure of a structure or other development to be fully compliant with the provisions of this part. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in this part is presumed to be in violation until such time as that documentation is provided.
59. Water Surface Elevation (WSE). The height, in relation to mean sea level, of floods of various magnitudes and frequencies in the floodplains of riverine areas.
60. Watercourse. A lake, river, creek, stream, wash, channel, or other topographic feature on or over which waters flow at least periodically.

Section 15-251.2 General Provisions.

(a) This part shall apply to all Special Flood Hazard Areas within the town's planning jurisdiction and joint planning transition area (as those latter terms are defined in Section 15-15).

(b) The provisions of this part shall apply to the following two types of Special Flood Hazard Areas:

(1) Those Special Flood Hazard Areas that are 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 Orange County, dated February 2, 2007, which are adopted by reference and declared to be a part of this ordinance.

(2) Those Special Flood Hazard Areas that are designated by the town by ordinance following appropriate engineering studies. Such SFHAs may be delineated by showing them on a map, by a written description, or any combination thereof. Such description shall be filed with the Orange County Clerk of Superior Court and Register of Deeds.

(c) As set forth in Part I of Article IV of this chapter, no development may take place within Special Flood Hazard Areas unless an appropriate permit has been issued authorizing such development, and no such permit shall be issued unless the proposed development is in full compliance with the provisions of this chapter.

(d) The provisions of this part are not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where the provisions of this part and the provisions or another ordinance conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

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(e) In the interpretation and application of this part, all provisions shall be considered as minimum requirements, liberally construed in favor of the town, and deemed neither to limit nor repeal any other powers granted under State statutes.

(f) The degree of flood protection required by this part is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Larger floods can and will occur. Actual flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the Special Flood Hazard Areas or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the town or any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

(g) A violation of the provisions of this part shall subject the violator to the penalties and remedies set forth in Article VII of this chapter.

Section 15-251.3 Application Requirements

As provided in Section 15-46, no development may occur without a development permit, and no such permit shall be issued unless the administrator determines, based upon the plans and information submitted, that the development will comply with all the provisions of this chapter, including those applicable to development within Special Flood Hazard Areas. Appendix A to this chapter sets forth requirements related to the information that must generally be submitted with a permit application in order to demonstrate compliance with the requirements of this chapter. However, when the lot or tract with respect to which a development permit is sought contains a SFHA, the following information shall also be submitted to the administrator:

- (1) A plot plan drawn to scale which shall include, but shall not be limited to, the following specific details of the proposed floodplain development:
 - a. 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;
 - b. The boundary of the Special Flood Hazard or a statement that the entire lot is within the Special Flood Hazard Area;
 - c. Flood zone(s) designation of the proposed development area as determined on the Flood Insurance Rate Map;
 - d. The boundary of the floodway(s) or non-encroachment area(s);
 - e. Base Flood Elevation (BFE) information;

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- f. The old and new location of any watercourse that will be altered or relocated as a result of proposed development and any changes in Special Flood Hazard Areas that occur as a consequence of such changes.

(2) Proposed elevation, and method thereof, of all development within a Special Flood Hazard Area including but not limited to:

- a. Elevation in relation to mean sea level of the proposed reference level (including basement) of all structures;
- b. Elevation in relation to mean sea level to which any non-residential structure in Zone AE will be flood-proofed; and
- c. Elevation in relation to mean sea level to which any proposed utility systems will be elevated or floodproofed;

(3) 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.

(4) Plans drawn to scale, shall include details of the proposed construction or development, and must demonstrate, among other things, that the foundation system requirements and other provisions of this ordinance are met. These details include but are not limited to:

- a. 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);
- b. Openings to facilitate equalization of hydrostatic flood forces on walls in accordance with Subsection 15-251.9(e) (3) when solid foundation perimeter walls are used in Zone AE;
- c. Usage details of any enclosed areas below the regulatory flood protection elevation.
- d. 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;
- e. Copies of all other Local, State and Federal permits required prior to development permit issuance (Wetlands, Endangered Species, Erosion and Sedimentation Control, Riparian Buffers, Mining, etc.)
- f. 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

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properties located both upstream and downstream; and a map (if not shown on the plot plan) showing the location of the proposed watercourse alteration or relocation and any changes in Special Flood Hazard Areas that occur as a consequence of such changes.

Section 15-251.4 Permit Requirements.

To the extent that a development permit is issued for a lot or tract that includes a SFHA, such permit (including the plans incorporated into the permit) shall contain at least the following information:

- (1) A description of the development to be permitted under the floodplain development permit.
- (2) The location of the Special Flood Hazard Area.
- (3) The regulatory flood protection elevation required for the reference level and all attendant utilities.
- (4) The regulatory flood protection elevation required for the protection of all public utilities.
- (5) All certification submittal requirements with timelines.
- (6) A statement that no fill material or other development shall encroach into the floodway or non-encroachment area of any watercourse, as applicable.
- (7) The flood openings requirements, if in Zone AE.

Section 15-251.5 Certification Requirements

(a) Elevation certificates or information shall be required for the construction of structures on properties where Special Flood Hazard Areas are located, as set forth in this section.

- (1) An application for a development permit authorizing the construction of a structure on a lot containing a SFHA shall include information designating the elevation of the reference level in relation to mean sea level and demonstrating that the reference level will be elevated to a level that is consistent with the requirements of Section 15-251.9.
- (2) Upon completion of the foundation survey, the permit holder shall calculate the elevation of the reference level, in relation to mean sea level, based upon the foundation survey and the approved flooring system and shall certify to the administrator that the reference level will be elevated to a level that is consistent with the requirements of Section 15-251.9.

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(3) A final as-built Elevation Certificate is required after construction is completed and prior to issuance of a Certificate of Compliance/Occupancy. For construction within a FEMA established Special Flood Hazard Area, FEMA Form 81-31 shall be used. For other construction covered by this subsection (a), the administrator may designate an alternative form. It shall be the duty of the permit holder to submit to the administrator a certification of final as-built construction of the elevation of the reference level and all attendant utilities. The administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to Certificate of Compliance/Occupancy issuance. In some instances, another certification may be required to certify corrected as-built construction. Failure to submit the certification or failure to make required corrections shall be cause to withhold the issuance of a Certificate of Compliance/Occupancy.

(b) Floodproofing Certificate. If non-residential floodproofing is used to meet the regulatory flood protection elevation requirements, a Floodproofing Certificate (FEMA Form 81-65), with supporting data and an operational plan, is required prior to the actual start of any new construction. It shall be the duty of the permit holder to submit to the building inspector a certification of the floodproofed design elevation of the reference level and all attendant utilities, in relation to mean sea level. Floodproofing certification shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same. The building inspector shall review the certificate data and plan. Failure to submit the certification or failure to make any required corrections shall be cause to deny a building permit. Failure to construct in accordance with the certified design shall be cause to withhold the issuance of a Certificate of Compliance/Occupancy.

(c) Foundation Certificate. If a manufactured home is placed within Zone AE, and the elevation of the chassis is more than 36 inches in height above grade, an engineered foundation certification is required per Section 15-253.9(d).

(d) Certificate Exemption. Accessory structures of less than 150 square feet in size, if located within Zone AE, are exempt from the elevation/floodproofing certification requirements specified in subsections (a) and (b) of this section.

(e) 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 issuance of a floodplain development permit.

Section 15-251.6 Duties and Responsibilities of the Administrator

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As set forth in Part I of Article IV of this chapter, development permits (including permits for development within Special Flood Hazard Areas), shall not be issued unless the requirements of this chapter have been satisfied. In addition to his or her permit responsibilities, the administrator's responsibilities relating to the administration and enforcement of the provisions of this part shall include but shall not be limited to the following duties:

(1) Advise permit recipients that additional Federal or State permits (Wetlands, Endangered Species, Erosion and Sedimentation Control, Riparian Buffers, Mining, etc.) may be required, and require that copies of such permits be provided and maintained on file with the development permit.

(2) Notify adjacent communities and the North Carolina Department of Crime Control and Public Safety, Division of Emergency Management, 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 (FEMA).

(3) Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

(4) Prevent encroachments into floodways and non-encroachment areas except as authorized under Section 15-251.10.

(5) Obtain actual elevation (in relation to mean sea level) of the reference level (including basement) and all attendant utilities of all new or substantially improved structures, in accordance with Subsection 15-251.5(a)(3).

(6) Obtain actual elevation (in relation to mean sea level) to which all new and substantially improved structures and utilities have been floodproofed, in accordance with Subsection 15-251.5(b).

(7) Obtain actual elevation (in relation to mean sea level) of all public utilities in accordance with Subsection 15-251.5(a) (3).

(8) When floodproofing is utilized for a particular structure, obtain certifications from a registered professional engineer or architect in accordance with Section 15-251.5 and Subsection 15-251.9(b).

(9) Where interpretation is needed as to the exact location of boundaries of the Special Flood Hazard Areas (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), make the necessary interpretation in accordance with the following principles:

- a. In areas between official cross-sections on the Flood Insurance Rate Maps, SFHA, floodway, and non-encroachment area boundaries shall be determined by scaling distances on these maps.

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- b. The base flood elevation shall in all cases be the controlling factor in locating the outer limits of a SFHA boundary.
- c. Interpretations of floodway and non-encroachment area boundaries shall be based on the current procedures for interpreting such boundaries in accordance with FEMA guidelines.
- d. Appeals of the determinations of the administrator under this subsection may be taken to the board of adjustment in accordance with the provisions of Section 15-91 of this chapter.

(10) When the lowest ground elevation of a parcel or structure in a Special Flood Hazard Area is above the Base Flood Elevation, advise the property owner of the option to apply for a Letter of Map Amendment (LOMA) from FEMA. Maintain a copy of the Letter of Map Amendment (LOMA) issued by FEMA in the floodplain development permit file.

(11) Permanently maintain all records that pertain to the administration of this ordinance and make these records available for public inspection.

(12) Make on-site inspections of work in progress. As the work pursuant to a development permit progresses, the 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 this chapter and the terms of the permit.

(13) Issue stop-work orders as pursuant to Section 15-117 of this chapter.

(14) Revoke or recommend the revocation of development permits for violations of the provisions of this part as set forth in Section 15-115.

(15) Otherwise enforce the provisions of this part as provided in Article VII of this chapter.

(16) Review, provide input, and make recommendations for variance requests.

(17) Maintain a current map repository to include, but not limited to, the FIS Report, FIRM and other official flood maps and studies adopted in accordance with Subsection 15-251.2(b) of this ordinance, including any revisions thereto including Letters of Map Change, issued by FEMA. Notify State and FEMA of mapping needs.

(18) Coordinate revisions to FIS reports and FIRMs, including Letters of Map Revision Based on Fill (LOMR-F) and Letters of Map Revision (LOMR).

Section 15-251.7 Variance Procedures

Variances from the restrictions of this part may be granted by the board of adjustment in accordance with the provisions of Section 15-92 of this chapter.

Section 15-251.8 General Standards for Flood Hazard Reductions

In all Special Flood Hazard Areas, if and to the extent any development is allowed, the following requirements shall be applicable:

(1) All new construction and substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse, and lateral movement of the structure.

(2) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(3) All new construction and substantial improvements shall be constructed by methods and practices that minimize flood damages.

(4) 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. These include, but are not limited to, HVAC equipment, water softener units, bath/kitchen fixtures, ductwork, electric/gas meter panels/boxes, utility/cable boxes, appliances (washers, dryers, refrigerators, freezers, etc.), hot water heaters, and electric outlets/switches.

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

(6) 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 flood waters.

(7) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

(8) Any alteration, repair, reconstruction, or improvements to a structure, which is in compliance with the provisions of this ordinance, shall meet the requirements of "new construction" as contained in this ordinance.

(9) Nothing in this article shall prevent the repair, reconstruction, or replacement of a building or structure existing on the effective date of this article and located totally or partially within the floodway or non-encroachment area, provided there is no additional encroachment below the regulatory flood protection elevation in the floodway or non-encroachment area, and provided that such repair, reconstruction, or replacement meets all of the other requirements of this article.

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(10) New solid waste management facilities and sites, hazardous waste facilities, salvage yards, and chemical storage facilities shall not be permitted. 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 certified according to Subsection 15-251.5(b) of this part.

(11) All subdivision proposals and other development proposals shall be consistent with the need to minimize flood damage.

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

(13) All subdivision proposals and other development proposals shall have adequate drainage provided to reduce exposure to flood hazards.

(14) All subdivision proposals and other 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 15-251.9 Specific Standards for Flood Hazard Reductions

(a) New structures generally prohibited within SFHAs. Within a Special Flood Hazard Area, no new structure (as defined in this part) may be constructed or located, and no substantial improvement of an existing structure may take place, unless and to the extent that the permit issuing authority for the proposed use determines that, in the absence of an authorization to do so, the owner would be deprived of all reasonable use of the subject property. Notwithstanding the foregoing, manufactured homes that are nonconforming because they are located within a SFHA may be replaced with another manufactured home. If such construction (or replacement of manufactured homes) is authorized, all such construction (or replacement) shall be in conformity with the remaining provisions of this section in addition to those set forth in Section 15-251.8.

(b) Residential construction. New construction and substantial improvement of any residential structure (including manufactured homes) located within a Special Flood Hazard Area or on any lot where a SFHA is located shall have the reference level, including basement, elevated no lower than the regulatory flood protection elevation.

(c) Non-residential construction. New construction and substantial improvement of any commercial, industrial, or other non-residential structure located within a SFHA shall have the reference level, including basement, elevated no lower than the regulatory flood protection elevation. Structures located in the AE Zone may be floodproofed to the regulatory flood protection elevation in lieu of elevation provided that all areas of the structure, together with

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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. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the administrator along with the operational and maintenance plans.

(d) Manufactured homes. Manufactured homes that are located within a SFHA or on a lot where a SFHA is located 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. Additionally, when the elevation would be met by an elevation of the chassis thirty-six (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 thirty-six (36) inches in height, an engineering certification is required. Finally, all enclosures or skirting below the lowest floor shall meet the requirements of subsection (e).

(e) Elevated buildings. Fully enclosed areas of new construction and substantially improved structures that are below the lowest floor of buildings located with a SFHA:

- (1) 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 enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator). The interior portion of such enclosed area shall not be finished or partitioned into separate rooms, except to enclose storage areas;
- (2) Shall be constructed entirely of flood resistant materials below the regulatory flood protection elevation;
- (3) Shall include flood openings to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must either be certified by a professional engineer or architect or meet or exceed the following minimum 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 (1) 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;

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- d. The bottom of all required flood openings shall be no higher than one (1) foot above the adjacent 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.

(f) **Additions/Improvements.** With respect to additions and improvements to structures that are nonconforming because they are located within a Special Flood Hazard Area:

- (1) When the addition or improvement constitutes a substantial improvement as defined in Section 15-251.1, both the existing structure and the addition or improvement must comply with the standards for new construction.
- (2) When the addition or improvement does not constitute a substantial improvement, the addition or improvement must be designed to minimize flood damages and must not be any more non-conforming than the existing structure.

(g) **Accessory Structures.** When accessory structures (sheds, detached garages, etc.) are allowed to be placed within a Special Flood Hazard Area pursuant to the provisions of subsection (a) of this section, the following criteria shall be met:

- (1) Accessory structures shall not be used for human habitation (including working, sleeping, living, cooking or restroom areas);
- (2) Accessory structures shall not be temperature-controlled;
- (3) Accessory structures shall be designed to have low flood damage potential;
- (4) Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters;
- (5) Accessory structures shall be firmly anchored in accordance with Section 15-251.8;
- (6) All service facilities such as electrical shall be installed in accordance with Section 15-251.8; and

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- (7) Flood openings to facilitate automatic equalization of hydrostatic flood forces shall be provided below regulatory flood protection elevation in conformance with Subsection (e) of this section.
- (8) 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. Elevation or floodproofing certifications are required for all other accessory structures.

(h) Subsequent to the effective date of this subsection, no portion of any Special Flood Hazard Area outside of the floodway may be filled in with fill dirt or similar material for the purpose of elevating buildings. Whenever fill is placed within a SFHA for any other permitted purpose, slopes shall be adequately stabilized to withstand the erosive force of the base flood.

Section 15-251.10 Floodways and Non-Encroachment Areas

(a) Areas designated as floodways or non-encroachment areas are located within the Special Flood Hazard Areas established in Subsection 15-251.2(b) (1). The floodways and non-encroachment areas are extremely hazardous areas due to the velocity of floodwaters that have erosion potential and carry debris and potential projectiles. The requirements set forth in the remaining provisions of this section, in addition to the standards set forth in Sections 15-251.8 and 15-251.9 shall apply to all development within such areas.

(b) No encroachments, including fill, new construction, substantial improvements and other developments shall be permitted unless it has been demonstrated that:

- (1) The proposed encroachment would not result in any impact to 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 administrator prior to issuance of any development permit, or
- (2) 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.

(c) Any development within a floodway or non-encroachment area that is authorized by this section shall comply with all applicable flood hazard reduction provisions of this part.

(d) No manufactured homes shall be permitted, except replacement manufactured homes in an existing manufactured home park or subdivision, provided the following provisions are met:

- (1) The anchoring and the elevation standards of Subsection 15-251.9(d); and

- (2) The no encroachment standard of Subsection 15-251.10(b) (1).

Section 15-251.11 Special Provisions for Subdivisions

(a) An applicant for a conditional use permit or special use permit authorizing a major subdivision and an applicant for minor subdivision final plat approval shall be informed by the planning department of the use and construction restrictions contained in this Article if any portion of the land to be subdivided lies within a Special Flood Hazard Area.

(b) A conditional use permit or special use permit for a major subdivision may not be issued, and final plat approval for any subdivision may not be granted, if any portion of one or more lots lies within a Special Flood Hazard Area unless it reasonably appears that:

- (1) With respect to each lot that lies wholly or partly within a Special Flood Hazard area, either (i) a building of the type that is consistent with the zoning of the property can practicably be located in accordance with applicable regulations on the portion of such lot that is located outside the SFHA, or (ii) such lot has already been developed, or (iii) such lot is formed as the result of an adjustment of lot lines between lots in existence on the effective date of this section, and such readjustment does not result in a previously developable lot being rendered undevelopable, or (iv) it plainly appears that such lot is intended to be devoted to a permissible use that does not involve the construction of any building (e.g. that such lot is reserved or dedicated for open space purposes).
- (2) Creation of each lot that does not satisfy the criteria set forth in subdivision (1) of this subsection is necessary to avoid depriving the owner of the property of all reasonable use of the tract taken as a whole.

(c) Final plat approval for any subdivision containing land that lies within a Special Flood Hazard Area may not be given unless the plat shows the boundary of the SFHA according to the best information available at the time the final plat is approved and contains in clearly discernible print the following statement: *“Use of land within a special flood hazard area is substantially restricted by Article XVI of Chapter 15 of the Carrboro Town Code.”* If, at the time final plat approval is granted, a Conditional Letter of Map Revision (CLOMR) affecting such subdivision has been approved, or the town is otherwise aware that some action is pending that would likely alter the location of the boundary of the SFHA as it affects such subdivision, then the statement on such plat referenced immediately above shall include a note similar to the following: *“The location of the boundary of the special flood hazard area may be altered by a request for a special flood hazard map revision now pending before the Federal Emergency Management Agency.”*

Section 15-252 through 15-260 Reserved.

PART II. STORM WATER MANAGEMENT

Section 15-261 Natural Drainage System Utilized to Extent Feasible (REWRITTEN 6/27/07).

(a) To the extent practicable, all development shall conform to the natural contours of the land and natural drainage ways shall remain undisturbed.

(b) To the extent practicable, lot boundaries shall be made to coincide with natural drainage ways within subdivisions to avoid the creation of lots that can be built upon only by altering such natural drainage ways.

Section 15-262 Development Must Drain Properly. (REWRITTEN 6/27/07)

(a) All development shall be provided with a stormwater management system containing drainage facilities that are adequately designed and constructed to prevent the undue retention of surface water on the development site. Surface water shall not be regarded as unduly retained if:

- (1) The retention results from a technique, practice or device deliberately installed as part of an approved sedimentation or stormwater management plan, or
- (2) The retention is not substantially different in location or degree than that experienced by the development site in its pre-development stage, unless such retention presents a danger to health or safety.

(b) No surface water may be channeled or directed into the OWASA sanitary sewer system.

(c) Whenever practicable, the drainage system of a development shall coordinate with the drainage system or drainage ways on surrounding properties or streets.

(d) Use of drainage swales rather than curb and gutter and storm sewers in subdivisions is provided for in Section 15-216. Private roads and access ways within unsubdivided developments shall utilize curb and gutter and storm drains to provide adequate drainage if the grade of such roads or access ways is too steep to provide drainage in another manner or if other sufficient reasons exist to require such construction.

(e) The minimum design storm frequency for all drainage systems shall be the 10 year storm, except that those facilities crossing streets shall be designed for the 25 year storm.

(f) Drainage culverts and associated facilities shall be suitably sized to accommodate designated storm frequencies and shall be suitably constructed and installed to insure that the

facilities will function adequately and will not deteriorate within an unreasonably short period of time. (AMENDED 04/03/90)

Section 15-263 Management of Stormwater (REWRITTEN 6/26/07; AMENDED 6/24/08; AMENDED 10/28/08; 6/22/10)

(a) The requirements of this section shall apply to developments to the extent provided in this subsection.

- (1) For purposes of this subsection, “impervious surface” means that portion of the development of a lot or tract that is covered by a surface or material that substantially or completely prevents rainwater from reaching and being absorbed into the underlying soil. Impervious surfaces include but are not limited to streets, driveways, sidewalks, parking lots, buildings, and other roofed, paved, or graveled areas. Wooden slatted decks and the water area of swimming pools are considered pervious, as are detention ponds and other ponds.
- (2) For purposes of this subsection, “net addition of impervious surface” shall be determined by subtracting the total square footage of impervious surface prior to commencement of construction authorized by a development permit from the total square footage of impervious that is proposed to be located on the development site when all construction authorized by the development permit (including all phases thereof) is completed. If the permit issuing authority reasonably concludes that a permit applicant is seeking or has sought separate permits (simultaneously or sequentially) for different components of what is demonstrably intended to be a single development in an attempt to stay below the impervious surface threshold that triggers the requirements set forth in this section, then the permit issuing authority shall treat such multiple applications as a single application for purposes of determining whether the requirements of this section are applicable.
- (3) All unsubdivided developments that involve a net addition of more than 5,000 square feet of impervious surface shall be subject to the requirements of this section, except that these requirements shall not apply if the total of the net addition of impervious surface area plus the previously existing impervious surface area on the lot does not exceed (i) six percent (6%) of the lot area within a B-5 or WM-3 zoning district, or (ii) for lots in all other zoning districts, the amount of impervious surface area permissible on lots within the C or WR zoning districts under subsection 15-266(b) of this part.
- (4) When land is subdivided, and the permit authorizing the subdivision does not itself authorize the net addition of more than 5,000 square feet of impervious surface to the tract to be subdivided, then the requirements of this section shall not be applicable to the subdivision. The applicability of the requirements of this section to each of the individual lots so created shall then be determined as development permits are issued for each such lot.

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- (5) When land is subdivided, and the permit authorizing the subdivision itself authorizes the net addition of more than 5,000 square feet of impervious surface to the tract to be subdivided (regardless of whether such impervious surface consists of a road or other facilities external to the lots so created, or buildings, parking lots, and other facilities constructed within the lots so created, or a combination of the two), then the subdivision shall comply with the requirements of this section. Furthermore, the stormwater management system that is installed to comply with the provisions of this section shall be required to take into account all the stormwater reasonably expected to be generated by the development (according to generally accepted engineering standards) when all subdivided lots five acres or less in size are fully developed. When such lots are subsequently developed, they shall be exempt from further review under the provisions of this section. However, any lot within such subdivision that is greater than five acres in size and that was not included in the stormwater calculations for purposes of designing a stormwater management system that satisfies the requirements of this section shall be required to comply with the requirements of this section at the time such lot is developed, if and to the extent required to do so under subsection (a)(3) of this section.
 - (6) Notwithstanding the other provisions of this subsection, if (i) a lot is within a commercial district described in Section 15-136 or a manufacturing district described in 15-137, (ii) on the date that a development permit application is submitted and the fees paid the lot is already developed to the extent that the lot contains at least 10,000 square feet of impervious surface area, and (iii) the reasonably estimated cost of the redevelopment of the lot as proposed in the development permit application exceeds the greater of \$100,000, or fifty percent (50%) of the appraised value of the existing improvements on the lot, then the requirements of this section shall be applicable to such redevelopment. For purposes of this subdivision (a)(6), the terms “cost” and “appraised value” shall have the same meaning as provided in Subsection 15-125(c) of this chapter.
 - (7) Notwithstanding the other provisions of this subsection, the requirements of this section shall apply to any development involving the reconstruction of a previously paved area comprising at least 10,000 square feet (repaving or resurfacing shall not be considered reconstruction).
- (b) Developments must install and maintain stormwater management systems that will control and treat runoff from the first one inch of rain as follows:
- (1) Draw down the treatment volume no faster than 48 hours, but no slower than 120 hours.
 - (2) Achieve an eighty-five percent (85%) average annual removal rate for Total Suspended Solids.
 - (3) Notwithstanding the foregoing, all 22,000 uses that are included within the single family residential use areas of a village mixed use development

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shall install and maintain site development and/or building features to ensure that the environmental impact, including but not limited to storm water volume, nutrient loading, water use or greenhouse gas emissions, contributed by the development activity is managed and/or reduced through a combination of additional storm water management features or Low Impact Development/green building features that result in an overall reduction in environmental impact from that which otherwise could reasonably be expected to occur in association with development of the 22.000 use. Specific performance measures that will be evaluated to determine whether the intent of this subsection has been met are as follows: **(AMENDED 10/28/08)**

- (a) open space, if practicable, is dedicated to either the homeowners' association or the town, and
- (b) storm water best management practices (BMPs) and associated grading and stabilization occur outside any primary conservation areas and that all runoff from the BMPs be discharged in a diffuse manner that insures that erosional rills will not be created as runoff enters and flows through conservation areas, and
- (c) roof drainage is captured in sufficient quantity and in appropriately sized and sited devices to, at a minimum, provide for all on-site plantings to include but not be limited to screenings, vehicle accommodation areas, foundation plantings, garden beds, trees, shrubs, flowers, groundcover, and turf, and
- (d) nutrient loads contributed by the daycare development are limited to 2.2 pounds per acre per year of nitrogen loading, and .82 pounds per acre per year of phosphorous loading. Such loads may be met either 1) by storm water management structures or devices on the development site itself and/or 2) the retrofitting of existing or construction of new BMPs elsewhere in the VMU development, and
- (e) educational materials including, but not limited to on-site signage, brochures, and web postings on stormwater management practices are prepared and/or installed, and
- (f) that Low Impact Development techniques are used to the extent practicable

(c) To the extent reasonably practicable, the stormwater management systems designed and constructed to satisfy the requirements of this section shall utilize best management practices that reduce nutrient loadings. **(AMENDED 6/24/08; 6/22/10))**

(d) Developments shall be constructed and maintained so that their stormwater management systems meet the following minimum standards:

- (1) The post-development discharge rates shall be less than or equal to the pre-development discharge rates for the 1-, 2-, 5-, 10-, and 25-year 24-hour design storms.

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- (2) For upstream properties, the 1% chance flood elevation may not be increased.

(e) The presumption established by this section is that, to satisfy the standards set forth herein, the applicant shall design and construct all stormwater management systems required by this section in accordance with the guidelines set forth in the Town of Carrboro Storm Drainage Design Manual (Appendix I to this chapter). However, the permit issuing authority may establish different requirements when it concludes, based upon (i) the information it receives in the consideration of the specific development proposal, and (ii) the recommendations of the public works director or the town engineer, that such deviations from the presumptive guidelines are necessary to satisfy the standards set forth in this section, or that the standards can still be met with such deviations and the deviations are otherwise warranted.

(f) Approval by the town of an applicant's stormwater management plans, and construction by the applicant of the stormwater management systems as shown in such plans, shall not relieve the applicant of the responsibility of complying with the standards set forth in this section. If at any time prior to two years following the issuance of a certificate of occupancy, for an unsubdivided development, or the approval of a final plat, for a subdivision, the town determines that the stormwater management systems planned to be installed or actually installed to meet the requirements of this section do not achieve that objective, the town may require the submission of revised plans and the installation of new, altered, or additional facilities to bring the development into compliance. Prior to issuance of a certificate of occupancy or approval of a final plat, the town may require the applicant to post a performance bond or other sufficient surety to guarantee compliance with this section.

(g) Upon completion of construction of the stormwater management facilities, the permit recipient shall submit to the town "as built" plans for all such facilities in the form required by the town. Compliance with this requirement must occur prior to issuance of a certificate of occupancy, or prior to final plat approval (if applicable), unless adequate security is otherwise provided in accordance with the provisions of Sections 15-53 or 15-60.

Section 15-263.1 Maintenance of Structural BMPs.

(a) For purposes of this section, a “structural BMP” is a device constructed or installed to trap, settle out, or filter pollutants from stormwater runoff or to reduce stormwater discharge volume or velocity in order to satisfy one or more of the requirements of Section 15-263.

(b) The owner of each structural BMP installed pursuant to this ordinance shall maintain and operate it so as to preserve and continue its function in controlling stormwater quality and quantity at the degree or amount of function for which the structural BMP was designed. Such operation and maintenance shall be in accordance with the Operation and Maintenance Agreement specified in subsection (e) of this section.

(c) The owner of each structural BMP shall ensure that each such facility is inspected in accordance with the Operation and Maintenance Agreement specified in subsection (e) of this section by a qualified registered North Carolina professional or other individual specially qualified by an appropriate training, testing, and certification program. The person performing the inspections shall submit annually to the administrator a report certifying the results of such inspections. The report shall be in a format and shall contain the information prescribed by the administrator. The first report shall be due one year from the date of the as built certification required by Subsection 15-263(i), and subsequent reports shall be due on or before that anniversary date.

(d) The owner of each structural BMP shall ensure that, in accordance with the Operation and Maintenance Agreement, funds are set aside in an escrow account, sinking fund, or other arrangement, sufficient to pay major, non-routine costs associated with keeping such BMPs in proper operational condition, such as the cost of sediment removal, structural, biological, or vegetative replacement, major repair, or reconstruction. The owner shall submit annually to the administrator a report certifying that such funds have been set aside. The report shall be in a format and shall contain the information prescribed by the administrator. The first report shall be due one year from the date of the as-built certification required by Subsection 15-263(i), and subsequent reports shall be due on or before that anniversary date.

(e) Prior to final plat approval, in the case of a subdivision, or prior to the issuance of a certificate of occupancy, in the case of an unsubdivided development, the owner of a development that contains a structural BMP shall enter into an Operation and Maintenance Agreement with the town (and shall record such agreement in the Orange County Registry) that specifies that the owner, and his or her successor and assigns:

- (1) Agrees to comply with the obligations set forth in subsections (b), (c), and (d) of this section;
- (2) Authorizes the town and its employees or agents to enter the property where the structural BMPs are located at reasonable times to inspect the same for compliance with the requirements of this section, the permit issued pursuant thereto, and the provisions of the Operation and Maintenance Agreement;

- (3) Agrees that, if the owner fails to operate and maintain such structural BMPs in accordance with the requirements of this section, the permit issued pursuant thereto, and the provisions of the Operation and Maintenance Agreement, the town is authorized (but not obligated) to enter the property to perform such work as is necessary to bring such BMPs into compliance and to charge the owner with the costs of such work.

(f) If structural BMPs are to be owned by a property owners or homeowners association or similar entity, then the covenants applicable to such association shall clearly reference the obligations of the association, as owner of such BMPs, to fulfill the obligations of the owner relating to such BMPs as required by the provisions of this section, the permit issued pursuant thereto, and the provisions of the Operation and Maintenance Agreement.

Section 15-264 Sedimentation and Erosion Control

(a) No zoning, special use, or conditional use permit may be issued and final plat approval for subdivisions may not be given with respect to any development that would cause land disturbing activity subject to the jurisdiction of the Orange County Erosion Control Officer or the North Carolina Sedimentation Control Commission unless such officer or agency has certified to the town; either that:

- (1) Any permit required by such officer or agency has been issued or any erosion control plan required by such officer or agency has been approved; or
- (2) Such officer or agency has examined the preliminary plans for the development and it reasonably appears that any required permit or erosion control plan can be approved upon submission by the developer of more detailed construction or design drawings. However, in this case, construction of the development may not begin (and no building permits may be issued) until such officer or agency issues any required permit or approves any required erosion control plan.

(b) For purposes of this section, “land disturbing activity” means any use of the land by any person in residential, industrial, educational, institutional or commercial development, highway and road construction and maintenance that results in a change in the natural cover or topography and that may cause or contribute to sedimentation. Sedimentation occurs whenever solid particulate matter, mineral or organic, is transported by water, air, gravity, or ice from the site of its origin.

(c) The Orange County Erosion Control Officer is authorized by resolution of the Carrboro Board of Aldermen to enforce within the town the Orange County Soil Erosion and Sedimentation Control Ordinance. **(AMENDED 12/7/83)**

(d) **(REPEALED 12/7/83)**

Section 15-265 Reserved.

Section 15-266 Impervious Surface Limitations (AMENDED 12/7/83; 05/15/90)

(a) Within a B-5 or WM-3 zoning district (the total area of which comprises less than one percent of the are of the University Lake Watershed and all of which is located more than one-half mile from the normal pool elevation of University Lake), not more than twenty-four percent (24%) of the land on any lot may be covered by an impervious surface such as a street, drive, sidewalk, parking lot, building, or other roofed structure, etc. In the event that the area of impervious surface is greater than six percent (6%) of the total lot, stormwater management techniques must be employed that would retain the first one inch of rainfall running off of all impervious surfaces on a lot. A registered engineer must certify that the stormwater techniques used will accomplish this objective before a permit is issued, and it shall be a continuing condition of the permit that the owner provide necessary maintenance so that the stormwater retention techniques continue to function effectively. Such stormwater retention techniques shall be subject to inspection by the Town at least annually. In granting the conditional use permit authorizing such facilities, the Board shall require the developer to post a cash bond or other sufficient security to guarantee that the developer or his successor shall adequately maintain such stormwater retention facilities so that such facilities will continue to operate as intended. (AMENDED 07/06/93; 10/15/96)

(b) Subject to subsections (c) and (d), within a C or WR zoning district the maximum impervious surface coverage permissible on any lot shall be as shown in the following Table of Impervious Surface Calculations, which establishes a sliding scale of permissible impervious surface coverage based on lot size. For purposes of applying the table, lot sizes shall be rounded to the nearest tenth of an acre. Lot sizes of less than 0.5 acres may not exceed 4200 square feet of impervious surface, and lot sizes in excess of five acres may not exceed an impervious surface area equal to 4% of the lot size. For purposes of this subsection, impervious surface includes but is not limited to areas such as a street, driveway, sidewalk, parking lot, building, or other roofed or paved structure.

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LOT SIZE		IMPERVIOUS SURFACE	
ACRES	SQUARE FOOTAGE	SQUARE FOOTAGE	PERCENTAGE
0.5	21,780	4,200	19.28
0.6	26,136	4,300	16.45
0.7	30,492	4,400	14.43
0.8	34,848	4,500	12.91
0.9	39,204	4,600	11.73
1.0	43,560	4,700	10.79
1.1	47,916	4,800	10.02
1.2	52,272	4,900	9.37
1.3	56,628	5,000	8.83
1.4	60,984	5,100	8.36
1.5	65,340	5,200	7.96
1.6	69,696	5,300	7.60
1.7	74,052	5,400	7.29
1.8	78,408	5,500	7.04
1.9	82,764	5,600	6.77
2.0	87,120	5,700	6.54
2.1	91,476	5,800	6.34
2.2	95,832	5,900	6.16.
2.3	100,188	6,000	5.99
2.4	104,544	6,100	5.83
2.5	108,900	6,200	5.69
2.6	113,256	6,300	5.56
2.7	117,612	6,400	5.44
2.8	121,968	6,500	5.33
2.9	126,324	6,600	5.22
3.0	130,680	6,700	5.13
3.1	135,036	6,800	5.04
3.2	139,392	6,900	4.95
3.3	143,748	7,000	4.87
3.4	148,104	7,100	4.79
3.5	152,460	7,200	4.72
3.6	156,816	7,300	4.66
3.7	161,172	7,400	4.59
3.8	165,528	7,500	4.53
3.9	169,884	7,600	4.47
4.0	174,240	7,700	4.42
4.1	178,596	7,800	4.37
4.2	182,954	7,900	4.32
4.3	187,308	8,000	4.27
4.4	191,664	8,100	4.23
4.5	196,020	8,200	4.18
4.6	200,376	8,300	4.14
4.7	204,732	8,400	4.10
4.8	209,088	8,500	4.07
4.9	213,244	8,600	4.03
5.0	217,800	8,712	4.00

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- (c) If a tract is subdivided, then impervious surface shall be calculated as follows:
- (1) The area of each lot shown on a proposed final plat shall be calculated. For purposes of this calculation, all street right-of-way created as part of the subdivision shall be allocated to the adjoining lots by extending lot lines. If lots are created on either side of a proposed street, lot lines shall be extended to the centerline of the right-of-way.
 - (2) Maximum impervious surface area for each lot shall be determined in accordance with subsections (a) or (b).
 - (3) The sum total of impervious surface area permissible on the entire tract shall be determined by adding together the impervious surface area available to each lot as determined under subsections (a) or (b).
 - (4) The impervious surface area within streets and other areas, (such as common areas) outside of individual lot boundaries shall be subtracted from the total area calculated pursuant to subsection (3).
 - (5) Following the calculation set forth in subsection (4), the remaining permissible impervious surface area shall be allocated by the subdivide to each lot, subject to the applicable limitations set forth in this section, and subject to the further limitation that, with respect to a cluster subdivision, in no case may the overall impervious surface area allocation for the subdivided tract exceed 4% of the area of that tract. For purposes of this calculation, the area of each lot shall exclude street right-of-way. The allocation assigned to each lot shall be indicated on the face of the subdivision final plat, and purchasers of each lot shall be bound by such allocation.

(d) If a development is completed in phases or stages, the percentage restrictions set forth in this section shall apply to each separate phase or stage.

(e) All development within the JLWP that requires a sedimentation and erosion control plan under 15A NCAC 4 or the Orange County Sedimentation and Erosion Control Ordinance shall be subject to the following requirements:

- (1) Density and built-upon area shall be limited as follows:
 - a. For single family residential subdivisions, minimum lot sizes of 20,000 square feet or maximum of two dwelling units per acre; or
 - b. Twenty-four percent built-upon area for all other residential and non-residential development; or
 - c. Three dwelling units per acre or thirty-six percent built-upon area for properties without curb and gutter systems.

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- (2) Stormwater runoff from such developments shall be transported by vegetated conveyances to the maximum extent practicable. **(AMENDED 10/15/96)**

(f) For purposes of this section, the term “built-upon area” means that portion of a development project that is covered by impervious or partially impervious cover, including buildings, pavement, gravel areas (e.g. roads, parking lots, paths), recreation facilities (e.g. tennis courts), etc. Wooden slatted decks and the water area of a swimming pool are considered pervious. **(AMENDED 10/15/96)**

Section 15-267 Additional Development Standards Within C and WR District.
(AMENDED 11/11/86; 05/15/90)

(a) Buildings and other impervious surfaces within the C and WR zoning districts shall be located, to the extent reasonably possible, so as to (i) take full advantage of the assimilative capacity of the land and (ii) avoid areas described in subsection 15-198(e) and (f). **(AMENDED 09/05/95).**

(b) To avoid the creation of lots that will be difficult to build upon in a manner that complies with the standard set forth in subsection (a) and the impervious surface limitations set forth in Section 15-266, preliminary and final plats for the subdivision of land within the C and WR zoning districts shall show buildable area and approximate driveway locations for all lots within such subdivision. Thereafter, no zoning permit may be issued for construction of buildings or driveways outside the buildable areas so designated on the final plat unless the zoning administrator makes a written finding that the proposed location complies with the provisions of subsection (a) of this section as well as section 15-266.

Section 15-268 Reserved.

PART III. WATER QUALITY BUFFERS

Section 15-269 Findings and Purpose (Repealed and Rewritten 3/24/09)

(a) The Board finds that:

- (1) Soil and pollutants carried overland from upstream land uses can be effectively trapped by leaving a relatively undisturbed strip of vegetation parallel and adjacent to a drainage feature.
- (2) Properly managed overland water flow can be directed into this water quality buffer area in a manner that will minimize the concentration of flow and promote diffuse flow and infiltration of the water.
- (3) Sediments and other pollutants carried by water will be reduced as a result of the dispersion and infiltration of flow and associated filtering, absorption, and uptake of pollutants.

(b) The purpose of this part is to protect, preserve, and enhance water quality buffers in order to maintain their pollutant removal functions and protect the quality of surface waters and water supplies.

Section 15-269.1 Definitions

For purposes of this part, the following terms shall have the meaning as indicated:

- (a) 'Access Trails' means pedestrian trails constructed of pervious or impervious surfaces, and related structures to access a surface water including boardwalks, steps, rails, signage.
- (b) Archaeological Activities' means activities conducted by a Registered Professional Archaeologist (RPA).
- (c) 'Buffer' means a water quality buffer, or an undeveloped area parallel and adjacent to a drainage feature to protect and enhance water quality.
- (d) 'Diffuse flow' means flow that generally moves down slope via sheet flow rather than concentrating in rills, gullies, and ditches and in doing so is able to infiltrate into the soil and plant root zone.
- (e) 'Ditch' means a man-made channel other than a modified natural stream as defined by the North Carolina Environmental Management Commission.
- (f) 'Ephemeral stream' means a drainage feature that only carries surface runoff in direct response to precipitation. An ephemeral stream may or may not have a well-defined channel and the stream bed is always above the water table. An ephemeral stream lacks the biological, hydrological, and physical characteristics commonly associated with perennial or intermittent streams.

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- (g) ‘Greenway / Hiking Trails’ means pedestrian and bicycle trails constructed of pervious or impervious surfaces and related structures including but not limited to boardwalks, steps, rails, and signage.
- (h) ‘Intermittent stream’ means a well-defined channel that contains water for only part of the year, typically during winter and spring when the aquatic bed is below the water table. The flow may be heavily supplemented by stormwater runoff. An intermittent stream often lacks the biological and hydrological characteristics commonly associated with the conveyance of water.
- (i) ‘Perennial stream’ means a well-defined channel that contains water year round during a year of normal rainfall with the aquatic bed located below the water table for most of the year. Groundwater is the primary source of water for a perennial stream, but it also carries stormwater runoff. A perennial stream exhibits the typical biological, hydrological, and physical characteristics commonly associated with the continuous conveyance of water.
- (j) For purposes of this Article only, ‘Public utility’ means any governmental entity, nonprofit organization, corporation, or any entity defined as a public utility for any purpose by Section 62.3 of the North Carolina General Statutes that is engaged in the production, generation, transmission, delivery, collection, or storage of water, sewage electricity, gas, oil, or electronic signals
- (k) ‘Riparian buffer enhancement’ is defined as the process of converting a non-forested riparian area, where woody vegetation density is greater than or equal to 100 trees per acre but less than 200 trees per acre, to a forested riparian buffer area. The enhanced, forested riparian buffer area shall include at least two native hardwood tree species planted at a density sufficient to provide 320 trees per acres at maturity, and diffuse flow through the riparian buffer shall be maintained.
- (l) ‘Riparian buffer restoration’ is defined as the process of converting a non-forested riparian area, where woody vegetation density is less than 100 trees per acre, to a forested riparian buffer area. The restored, forested riparian buffer area shall include predominately native hardwood tree species planted at a density sufficient to provide 320 trees per acres at maturity, and diffuse flow through the riparian buffer shall be maintained.
- (m) ‘Stream’ means a body of concentrated flowing water in a natural low area or natural channel on the land surface.
- (n) ‘Stream restoration’ is defined as the process of converting an unstable, altered or degraded stream corridor, including adjacent riparian zone and flood-prone areas to its natural or referenced, stable conditions considering recent and future watershed conditions. This process also includes restoring the geomorphic dimension, pattern, and profile as well as biological and chemical integrity, including transport of water and sediment produced by the stream’s watershed in order to achieve dynamic equilibrium. ‘Referenced’ or ‘referenced reach’ means a stable stream that is in dynamic equilibrium with its valley and contributing watershed.

A reference reach can be used to develop natural channel design criteria for stream restoration projects. ‘Stump diameter’ means the diameter of a tree measured at six inches above the ground surface level.

- (o) ‘Surface waters’ means any ephemeral, intermittent, or perennial stream, lake, pond, or reservoir.
- (p) ‘Temporary road’ means a road constructed temporarily for equipment access to build or replace hydraulic conveyance structures or water dependent structures, or to maintain public traffic during construction.
- (q) Water dependent structures are those structures for which the use requires access or proximity to or siting within surface waters to fulfill its basic purpose, such as boat ramps, boat houses, docks and bulkheads.

Section 15-269.2 Required Buffers

(a) Subject to the remaining provisions of this part, the water quality buffer areas described in this section are hereby designated as described below. The width of these buffers shall be as prescribed in Section 15-269.3. Disturbance of the area within these buffers is restricted or prohibited as provided in Section 15-269.5

- (b) Buffers shall be established adjacent to all surface waters designated as such on either the most recent version of the soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture, the most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic maps prepared by the United States Geologic Survey (USGS), or other more accurate mapping approved by the N.C. Environmental Management Commission.
 - (1) If surface water is not designated as such on any of the foregoing maps, then the buffer requirements of this article applicable to perennial streams, intermittent streams, lakes, or ponds that are shown on such maps shall not apply, but buffers applicable to ephemeral streams may apply.
 - (2) Where the specific initiation point of an intermittent stream is in question, a publication of the N.C. Division of Water Quality entitled Identification Methods for the Origins of Intermittent and Perennial Streams shall be used to establish that point.
 - (3) When a landowner or other affected party believes that surface waters shown on the above described maps have or have not been appropriately designated as perennial streams, intermittent stream, lakes or ponds, then such landowner or other affected party may have an on-site evaluation completed by a party who has successfully completed the NC Division of Water Quality *Surface Water Identification Training Certification* course, its successor, or other equivalent training curriculum approved by the Division, and submit the results of that evaluation to the town. The decision as to the type of surface water, if any, present on the site shall be made by the permit issuing authority when it makes a final decision on the issuance of the permit.

- (c) Buffers shall also be established adjacent to all ephemeral streams and ponds not shown on the above described maps that have a contributing drainage area that is at least five acres in size, as depicted in the Town's GIS database.
 - (1) When a landowner or other affected party believes that the designation of an area by the town as an ephemeral stream or pond with a contributing drainage area of at least five acres is in error, such landowner or other affected party may request that Town staff perform an onsite visit and/or submit to the Town data sufficient to make this case. Upon request, Town staff shall make a site visit and consider the information submitted by the landowner or other affected party as well as other relevant information.
 - (2) The decision as to the existence of an ephemeral stream or pond with a contributing drainage area of at least five acres shall be made by the permit issuing authority when it makes a final decision on the issuance of the permit.
- (d) The administrator may require that the precise location of any surface water be surveyed and accurately shown on development plans whenever necessary to ensure that a proposed development complies with the provisions of this article.

Section 15-269.3 Width of Buffers

- (a) ZONES OF THE RIPARIAN BUFFER. The protected riparian buffer shall have two zones as follows:
 - (1) A streamside zone ("Zone 1") shall consist of an undisturbed area except as provided for in Section 15-269.5. The function of the streamside zone is to protect the physical and ecological integrity of the stream ecosystem, and filter runoff received from Zone 2. The desired vegetation for Zone 1 is mature forest. The location of Zone 1 shall be as follows:
 - a. Zone 1 shall begin at the most landward limit of the top of the bank. Zone 1 shall extend landward on either side of the stream as indicated in Table 1, measured horizontally on a line perpendicular to a vertical line marking the origin of the buffer as defined above.
 - b. For ponds, lakes and reservoirs, Zone 1 shall begin at the most landward limit of the normal water level and extend landward as indicated in Table 1, measured horizontally on a line perpendicular to a vertical line marking the edge of the surface water.
 - (2) Zone 2 shall consist of an undisturbed area except as provided for in Section 15-269.5. The functions of this zone are to: protect the streamside zone, to filter runoff from upland development, and deliver runoff to Zone 1 in a dispersed fashion. Grading and revegetating Zone 2 is allowed provided that the

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health of the vegetation in Zone 1 is not compromised. Zone 2 shall begin at the outer edge of Zone 1 and extend landward as indicated in Table 1 as measured horizontally on a line perpendicular to the surface water. The desired vegetation for this zone is mature native vegetation; forest cover is encouraged.

(3) The total buffer width shall be the sum of the widths of the two zones, as indicated in Table 1, and shall extend on all sides of the waterbody.

Table 1: Required Minimum Buffer Width (*)

Waterbody type	Zone 1 width		Zone 2 width		Total width	
	Watershed	Outside of Watershed	Watershed	Outside of Watershed	Watershed	Outside of Watershed
Perennial Streams, Ponds, Lakes, Reservoirs	100'	50'	--	50'	100'	100'
Intermittent Streams, Ponds	60'	30'	--	30'	60'	60'
Ephemeral Streams, Ponds	--	--	30'	15'	30'	15'

* “Watershed” means within the University Lake Watershed, and “Outside of watershed” means the remainder of the Town’s planning jurisdiction. For streams, the width indicated is in one direction from the stream channel; the total width is therefore twice the width indicated.

(4) Notwithstanding the other provisions of this section, in no case shall the width of any buffer be less extensive than the special flood hazard area for the same stream, pond, or lake drainage feature designated in accordance with the provisions of Part I of this article.

Section 15-269.4 Diffuse Flow Requirement

To the maximum extent practicable and in consideration especially of topography and existing uses, diffuse flow of runoff at non-erosive velocities shall be established before the runoff enters the buffer, and maintained in the buffer by dispersing runoff that has concentrated into rills, gullies, and ditches, and reestablishing vegetation where concentrated flow has displaced vegetation. Corrective action to restore diffuse flow shall be taken if necessary to impede the formation or expansion of erosion rills or gullies. Where site conditions constrain the ability to ensure diffuse flow through both Zones 1 and 2, emphasis will be placed on ensuring diffuse flow through Zone 1, as provided for in 15-269.3. No new engineered stormwater devices or conveyances are allowed in the buffers except as provided for in Section 15-269.5.

Section 15-269.5 Exempt and Allowable Activities

(a) The table set forth in subsection (d) below sets out the activities and their designation under this part as exempt, allowable, or allowable with mitigation, except as provided for in 15-269.2. All activities not designated as exempt, allowable, or allowable with mitigation are prohibited within the buffer unless a variance is granted pursuant to Section 15-269.8.

(b) Activities designated in the table below as exempt, allowable, and allowable with mitigation shall be subject to the following requirements. All activities shall be designed, constructed and maintained to minimize soil and vegetation disturbance and to provide the maximum water quality treatment capacity of the buffer.

(1) Exempt. Activities designated as exempt are allowed within the buffer. In addition, exempt uses shall meet the requirements listed in the table and the accompanying notes for the specific use.

(2) Allowable. Activities designated as allowable are permissible within the buffer provided that there are no practical alternatives to the requested use as determined in accordance with Section 15-269.6.

(3) Allowable With Mitigation. Activities designated as allowable with mitigation are permissible within the buffer provided that there are no practical alternatives to the requested use as determined in accordance with Section 15-269.6, and an appropriate mitigation strategy has been approved pursuant to Section 15-269.7.

(c) For public utilities as defined in this Article, the activities and their designation as set forth in the table in subsection (d) apply to expansions and extensions. The requirements do not apply to routine or emergency maintenance and repairs.

(d) Table of Exempt and Allowable Activities in Water Quality Buffers

Activity	Exempt	Allowable	Allowable with Mitigation
Drainage, Stormwater, Erosion Control, and other Water-based activities			
Dam maintenance activities: <ul style="list-style-type: none"> • Dam maintenance activities that do not cause additional buffer disturbance beyond the footprint of the existing dam or those covered under the U.S. Army Corps of Engineers Nationwide Permit No. 3 • Dam maintenance activities that do cause additional buffer disturbance beyond the footprint of the existing dam or those not covered under the U.S. Army Corps of Engineers Nationwide Permit No. 3 	X	X	
Drainage of a pond in a natural drainage way provided that a new buffer that meets the requirements of this Section is established adjacent to the new channel			X

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Activity	Exempt	Allowable	Allowable with Mitigation
<p>Stormwater BMPs:</p> <ul style="list-style-type: none"> • Constructed wetlands in Zone 1, if not closer than 30' to surface waters • Wet detention, bioretention, and constructed wetlands in Zone 2 if diffuse flow of discharge is provided into Zone 1 • In stream management measures for impaired streams that require DWQ approval of a 401 Water Quality Certification. 	X	X	
<p>Stream relocation</p> <p>The alteration of location of the channel, including daylighting, of a stream so long as the newly created buffer area provides equal or better runoff treatment capabilities than the buffer in its original location, subject to State and Federal requirements</p>		X	
<p>Stream restoration</p>	X		
<p>Stream bank stabilization using natural channel design practices presented in the document Stream Restoration: A Natural Channel Design Handbook. NC Stream Restoration Institute, 2003.</p>	X		
<p>Stream bank stabilization using other practices, including armoring of stream banks with rip rap or retaining walls</p>		X	
<p>Temporary sediment and erosion control devices:</p> <ul style="list-style-type: none"> • In Zone 2, provided that the vegetation in Zone 1 is not compromised and that discharge is released as diffuse flow in accordance with Section 15-269.5 and erosion control for upland areas is addressed to the maximum extent practical. • In-stream temporary erosion and sediment control measures for work within a stream channel 		X	
<p>Water dependent structures</p>		X	

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Activity	Exempt	Allowable	Allowable with Mitigation
Water wells <ul style="list-style-type: none"> • Single family residential water wells • All other water wells 	X	X	
Wetland, stream and buffer restoration that results in impacts to the riparian buffers: <ul style="list-style-type: none"> • Wetland, stream and buffer restoration that requires DWQ approval for the use of a 401 Water Quality Certification • Wetland, stream and buffer restoration that does not require DWQ approval for the use of a 401 Water Quality Certification 	X	X	
Miscellaneous			
Archaeological activities	X		
Fences: <ul style="list-style-type: none"> • Fences provided that disturbance is minimized and installation does not result in removal of trees as defined in Section 15-316 • Fences provided that disturbance is minimized and installation results in removal of trees as defined in Section 15-316 	X	X	
Grading and revegetation in Zone 2 only provided that diffuse flow and the health of existing vegetation in Zone 1 is not compromised and disturbed areas are stabilized until they are revegetated		X	

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Activity	Exempt	Allowable	Allowable with Mitigation
<p>Mining activities:</p> <ul style="list-style-type: none"> • Mining activities that are covered by the Mining Act provided that new buffers that meet the requirements of this section are established adjacent to the relocated channels • Mining activities that are not covered by the Mining Act OR where new buffers that meet the requirements of this section are not established adjacent to the relocated channels • Wastewater or mining dewatering wells with approved NPDES permit 	X	X	X
<p>Preservation or maintenance of historic or cultural sites</p>	X		
<p>Protection of existing structures, facilities and stream banks when this requires additional disturbance of the riparian buffer or the stream channel</p>		X	
<p>Removal of previous fill or debris provided that diffuse flow is maintained, a stabilizing ground cover sufficient to restrain erosion is established, and any woody vegetation removed is restored</p>		X	
Recreation			
<p>Access trails: Pedestrian access trails leading to the surface water, docks, fishing piers, boat ramps and other water dependent activities:</p> <ul style="list-style-type: none"> • Pedestrian access trails that are restricted to the minimum width practicable and do not exceed 4 feet in width of buffer disturbance, and provided that installation and use does not result in removal of trees as defined in Section 15-316 and no impervious surface is added to the buffer • Pedestrian access trails that exceed 4 feet in width of buffer disturbance, the installation or use results in removal of trees as defined in this Section or impervious surface is added to the buffer 	X	X	

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Activity	Exempt	Allowable	Allowable with Mitigation
Railroad impacts other than crossings of streams and other surface waters subject to this Section.		X	
Railroad crossings of streams and other surface water drainage features subject to this Part: <ul style="list-style-type: none"> • Railroad crossings that impact equal to or less than 40 linear feet of riparian buffer • Railroad crossings that impact greater than 40 linear feet but equal to or less than 150 linear feet or one-third of an acre of riparian buffer • Railroad crossings that impact greater than 150 linear feet or one-third of an acre of riparian buffer 	X	X	X
Road relocation: Relocation of existing private access roads associated with public road projects where necessary for public safety: <ul style="list-style-type: none"> • Less than or equal to 2,500 square feet of buffer impact • Greater than 2,500 square feet of buffer impact 		X	X
Temporary roads, provided that restoration activities, such as soil stabilization and revegetation, occur immediately after construction:: <ul style="list-style-type: none"> • Less than or equal to 2,500 square feet of buffer disturbance • Greater than 2,500 square feet of buffer 	X	X	

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Activity	Exempt	Allowable	Allowable with Mitigation
Transportation (vehicular, pedestrian, bike) crossings of streams and other surface waters subject to this Section: <ul style="list-style-type: none"> • Transportation crossings that impact equal to or less than 40 linear feet of riparian buffer • Transportation crossings that impact greater than 40 linear feet but equal to or less than 150 linear feet or one-third of an acre of riparian buffer • Transportation crossings that impact greater than 150 linear feet or one-third of an acre of riparian buffer 	X	X	X
Transportation impacts other than crossings of streams and other surface waters subject to this Section			X
Vehicle access roads and boat ramps leading to the surface water, docks, fishing piers, and other water dependent activities: <ul style="list-style-type: none"> • Vehicular access roads and boat ramps to the surface water but not crossing the surface water that are restricted to the minimum width practicable not to exceed 10 feet in width • Vehicular access roads and boat ramps to the surface water but not crossing the surface water that are restricted to the minimum width practicable and exceed 10 feet in width 		X	X
Utilities			
Electric utility, aerial, perpendicular crossings ^{2,3,4} : <ul style="list-style-type: none"> • Disturb equal to or less than 100 linear feet of buffer • Disturb greater than 100 linear feet of buffer 	X	X	

² Provided that within 30 feet of surface waters, all of the following BMPs for overhead utility lines are used. If all of these BMPs are not used, then the overhead utility lines shall require a no practical alternative evaluation by the Administrator as defined in Section 15-269.6.

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Activity	Exempt	Allowable	Allowable with Mitigation
Electric utility, aerial, other than perpendicular crossings ³ : <ul style="list-style-type: none"> • Impacts greater than 50 feet from surface waters • Impacts within 30-50 feet of surface waters • Impacts within 30 feet of surface waters^{2,4} 	X	X	X
Electric utility, underground, perpendicular crossings ^{3,4,5} : <ul style="list-style-type: none"> • Disturb less than or equal to 40 linear feet of buffer • Disturb greater than 40 linear feet of buffer 	X	X	

-
- A minimum zone of 10 feet wide immediately adjacent to the water body shall be managed such that only vegetation that poses a hazard or has the potential to grow tall enough to interfere with the line is removed.
 - Woody vegetation shall be cleared by hand. No land grubbing or grading is allowed.
 - Vegetative root systems shall be left intact to maintain the integrity of the soil. Stumps shall remain where trees are cut.
 - Riprap shall not be used unless it is necessary to stabilize a tower.
 - No fertilizer shall be used other than a one-time application to re-establish vegetation.
 - Construction activities shall minimize the removal of woody vegetation, the extent of the disturbed area, and the time in which areas remain in a disturbed state.
 - Active measures shall be taken after construction and during routine maintenance to ensure diffuse flow of stormwater through the buffer.
 - In wetlands, mats shall be utilized to minimize soil disturbance.
- ³ Perpendicular crossings are those that intersect the surface water at an angle between 75 degrees and 105 degrees.
- ⁴ Provided that poles or aerial infrastructure shall not be installed within 10 feet of a water body unless the Administrator completes a no practical alternative evaluation as defined in Section 15-269.6
- ⁵ Provided that, in Zone One, all of the following BMPs for underground utility lines are used. If all of these BMPs are not used, then the underground utility line shall require a no practical alternative evaluation by the Administrator, as defined in Section 15-269.6.
- Woody vegetation shall be cleared by hand. No land grubbing or grading is allowed.
 - Vegetative root systems shall be left intact to maintain the integrity of the soil. Stumps shall remain, except in the trench created for the line installation.
 - Underground cables shall be installed by vibratory plow or trenching.
 - The trench shall be backfilled with the excavated soil material immediately following cable installation.
 - No fertilizer shall be used other than a one-time application to re-establish vegetation.
 - Construction activities shall minimize the removal of woody vegetation, the extent of the disturbed area, and the time in which areas remain in a disturbed state.

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Activity	Exempt	Allowable	Allowable with Mitigation
Electric utility, underground, other than perpendicular crossings ^{3,5} : <ul style="list-style-type: none"> • Impacts greater than 50 feet from surface waters • Impacts within 30-50 feet of surface waters • Impacts within 30 feet of surface waters 	X	X	X
Non-electric utility, perpendicular crossings ^{3,5} : <ul style="list-style-type: none"> • Disturb equal to or less than 40 linear feet of buffer with a maintenance corridor equal to or less than 10 feet in width • Disturb equal to or less than 40 linear feet of buffer with a maintenance corridor greater than 10 feet in width • Disturb greater than 40 linear feet but equal to or less than 150 linear feet of buffer with a maintenance corridor equal to or less than 10 feet in width • Disturb greater than 40 linear feet but equal to or less than 150 linear feet of buffer with a maintenance corridor greater than 10 feet in width • Disturb greater than 150 linear feet of buffer 	X	X X	X X
Non-electric utility, other than perpendicular crossings ^{3,5} : <ul style="list-style-type: none"> • Impacts greater than 50 feet from surface waters • Impacts within 30-50 feet of surface waters • Impacts within 30 feet of surface waters 	X	X	X
Vegetation Management			
Forest harvesting – See Section 15-319.1			
Fertilizer application: <ul style="list-style-type: none"> • One-time fertilizer application to establish vegetation 	X		

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Activity	Exempt	Allowable	Allowable with Mitigation
Vegetation management:			
• Emergency fire control measures provided that topography is restored	X		
• Mowing and harvesting of plant products in Zone 2 only	X		
• Planting vegetation to enhance the riparian buffer	X		
• Pruning forest vegetation provided that the health and function of the forest vegetation is not compromised	X		
• Removal of individual trees which are in danger of causing damage to dwellings, other structures or human life	X		
• Removal of poison ivy	X		
• Removal of invasive exotic vegetation as defined by the North Carolina Botanical Gardens	X		

(e) Additional Setback Requirements for Specific Water Pollution Hazards

The following activities are designated as potential water pollution hazards, and must be set back from any stream or waterbody by the required buffer width provided in 15-269.3 or the distance indicated below, whichever is greater:

Activity	Setback
Above or below ground storage of hazardous substances, petroleum or biofuels	150 feet
Animal feedlot operations	250 feet
Land application of biosolids	100 feet
Solid waste landfills or junkyards	300 feet

(f) Because it is not the intent of this part to render undevelopable lots of record on the effective date of this part, intrusions into the protective buffer are permitted in the event that a lot of record would otherwise be made undevelopable by the provisions of this part, to the extent necessary for the lot in question to be developed as permitted by the underlying zoning designation and in such a manner as to minimize the disruption of the protective buffer.

(g) No new lot may be created through a major or minor subdivision process that would be undevelopable under the provisions of this part because of the amount or dimensions of protective buffer land included in it, unless such lot has already been developed, or it plainly appears that such lot is intended to be devoted to permanent open space use.

(h) Areas set aside as protective stream buffers as required by this part may be counted towards

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required open space as set out in Sections 15-198, so long as they meet all the provisions of that section.

(i) Nothing in this part shall prevent a single family residence (including a mobile home) from being located within the required protective stream buffer areas if such home: 1) replaces a home that had been located within such buffer prior to the effective date of this part and is located on the same location as the previous home; or 2) is located on a mobile home pad or foundation that was in existence on the effective date of this part.

(j) Nothing in this part shall prevent the expansion of an existing single family detached residence (including an attached garage) into any buffer area that adjoins an ephemeral stream, if and to the extent that such area was not a regulated stream buffer under the provisions of this chapter in effect prior to the effective date of this section.

Section 15-269.6 Determination of “No Practical Alternatives”

(a) Persons who wish to undertake uses designated as allowable or allowable with mitigation under Section 15-269.5 shall submit a written request to the permit issuing authority for a “no practical alternatives” determination. The applicant shall certify that the criteria identified in subsection (b) are met and may submit any information deemed relevant to the permit issuing authority determination, in addition to the plans and other information submitted as part of the application for a permit under Article IV of this chapter. A “no practical alternatives” determination shall only be made for proposed developments with respect to which permit applications under Article IV are pending.

(b) The permit issuing authority shall make a “no practical alternatives” determination if s/he concludes, after reviewing the project plans and any other applicable information, that:

(1) The basic project purpose cannot be practically accomplished in a manner that would better minimize disturbance, preserve aquatic life and habitat, and protect water quality, and;

(2) Best management practices shall be used if necessary to minimize disturbance, preserve aquatic life and habitat, and protect water quality.

(c) Requests for a “no practical alternatives” determination shall be reviewed and either approved or denied. The permit issuing authority shall issue his/her decision in writing.

Section 15-269.7 Mitigation for Water Quality Buffers

(a) PURPOSE. The purpose of this section is to set forth the mitigation requirements for water quality buffer protection

(b) THE AREA OF MITIGATION. Staff shall determine the required area of mitigation, which shall apply to all mitigation options identified in this section, according to the following:

(1) The impacts in square feet to each zone of the buffer shall be determined by adding the area of the footprint of the activity causing the impact to the riparian buffer, including any clearing and grading within the buffer necessary to accommodate other

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activities, and the area of any ongoing maintenance corridors within the buffer associated with the activity.

(2) The required area of mitigation shall be determined by applying the following multipliers to the impacts determined in subsection (b)(1) to each zone of the riparian buffer:

- a. Impacts to Zone one of the riparian buffer shall be multiplied by three;
- b. Impacts to Zone two of the riparian buffer shall be multiplied by one and one-half.

(c) **THE LOCATION OF MITIGATION.** The mitigation effort shall be located within the Town's planning jurisdiction, and as close to the location of the impact as feasible.

(d) **OPTIONS FOR MEETING THE MITIGATION DETERMINATION.** The mitigation determination may be met through one of the following options:

- (1) Payment of a compensatory mitigation fee to the Town's Water Quality Enhancement Fund;
- (2) Donation of real property or of an interest in real property pursuant to subsection (e) of this Section;
- (3) Riparian buffer enhancement, or riparian buffer restoration. This shall be accomplished by the applicant after submittal and approval of a restoration plan pursuant to Item (f) of this Section.

(e) **PAYMENT TO THE WATER QUALITY ENHANCEMENT FUND.** Persons who choose to satisfy their mitigation determination by paying a compensatory mitigation fee to the Water Quality Enhancement Fund as allowed here shall use the following procedure:

- (1) The Town shall establish annually, and include on the Miscellaneous Fees and Charges Schedule, a per square foot buffer mitigation fee. The fee shall be based upon a reasonable estimate of the per square foot cost of accomplishing riparian buffer restoration.
- (2) The amount of the compensatory mitigation fee due shall be determined by multiplying the area in square feet of mitigation calculated in accordance with subsection (b) by the per square foot buffer mitigation fee.
- (3) The required fee shall be submitted to the Town prior to construction plan approval.

(f) **DONATION OF PROPERTY.** Persons who choose to satisfy their mitigation determination by donating real property or an interest in real property to the Town shall meet the following requirements:

- (1) The donation of real property interests may be used to either partially or fully satisfy the payment of a compensatory mitigation fee to the Water Quality Enhancement Fund. The value of the property interest shall be determined by an appraisal performed in accordance with subsection (f)(4)d of this Section. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the donated property interest is less than the required fee, the applicant shall pay the remaining balance due.
- (2) The donation of conservation easements to satisfy compensatory mitigation requirements shall be accepted only if the conservation easement is granted in perpetuity.
- (3) Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:
 - a. The property shall contain riparian buffers that are in need of restoration.

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- b. The restorable riparian buffer on the property shall have a minimum length of 100 linear feet along a surface water and a minimum width of 15 feet as measured horizontally on a line perpendicular to the surface water.
 - c. The size of the restorable riparian buffer on the property to be donated shall equal or exceed the acreage of riparian buffer required to be mitigated under the mitigation responsibility determined pursuant to Item (b) of this Section.
 - d. The property shall not require excessive measures for successful restoration, such as removal of structures or infrastructure. Restoration of the property shall be capable of fully offsetting the adverse impacts of the requested use.
 - e. The property shall be suitable to be successfully restored, based on existing hydrology, soils, and vegetation.
 - f. The estimated cost of restoring and maintaining the property shall not exceed the value of the property minus site identification and land acquisition costs.
 - g. The property shall not contain any building, structure, object, site, or district that is listed in the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C. 470 as amended.
 - h. The property shall not contain any hazardous substance or solid waste.
 - i. The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations.
 - j. The property and adjacent properties shall not have prior, current, and known future land use that would inhibit the function of the restoration effort.
 - k. The property shall not have any encumbrances or conditions on the transfer of the property interests.
- (4) At the expense of the applicant or donor, the following information shall be submitted to the Town with any proposal for donations or dedications of interest in real property:
- a. Documentation that the property meets the requirements laid out in subsection (f)(3) of this Section;
 - b. Documentation showing the location of the property to be donated along with information on existing site conditions, vegetation types, presence of existing structures and easements;
 - c. A current property survey performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the State Board of Registration for Professional Engineers and Land Surveyors in "Standards of Practice for Land Surveying in North Carolina." Copies may be obtained from the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609;
 - d. A current appraisal of the value of the property performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal Practice." Copies may be obtained from

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the Appraisal Foundation, Publications Department, P.O. Box 96734, Washington, D.C. 20090-6734; and

e. A title certificate from a licensed NC attorney.

(g) **RIPARIAN BUFFER RESTORATION OR ENHANCEMENT.** Persons who choose to meet their mitigation requirement through riparian buffer restoration or enhancement shall meet the following requirements:

(1) The applicant may restore or enhance a non-forested riparian buffer if either of the following applies:

a. The area of riparian buffer restoration is equal to the required area of mitigation determined pursuant to subsection (b) of this Section; or

b. The area of riparian buffer enhancement is three times larger than the required area of mitigation determined pursuant to subsection (b) of this Section.

(2) The location of the riparian buffer restoration or enhancement shall comply with the requirements in subsection (d) of this Section.

(3) The width of the riparian buffer restoration or enhancement site shall comply with Section 15-269.3.

(4) The applicant shall submit a restoration or enhancement plan for approval. The restoration or enhancement plan shall contain the following:

a. A map of the proposed restoration or enhancement site;

b. A vegetation plan. The vegetation plan shall include a minimum of at least two native hardwood tree species planted at a density sufficient to provide 320 trees per acre at maturity;

c. A grading plan. The site shall be graded in a manner to ensure diffuse flow through the riparian buffer;

d. A fertilization plan; and

e. A schedule for implementation.

(5) Within one year after the permit issuing authority has approved the restoration or enhancement plan, the applicant shall present proof that the riparian buffer has been restored or enhanced. If proof is not presented within this timeframe, then the person shall be in violation of the riparian buffer protection program.

(6) The mitigation area shall be placed under a perpetual conservation easement that will provide for protection of the property's water quality enhancement functions.

(7) The applicant shall submit annual reports for a period of five years after the restoration or enhancement showing that the trees planted have survived and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees that do not survive and restore diffuse flow if needed during that five-year period.

(h) The Town may determine that the option described in 15-269.7(e) does not apply to a public utility as defined in this Article if the mitigation options specified above in 15-269.7(f) and (g) are found to not be feasible.

Section 269.8 Permits and Enforcement of Buffer Requirements.

Like the other requirements of this chapter, the provisions of Part III of Article XVI (water quality buffers) shall ordinarily be enforced by requiring compliance as development permits (i.e., zoning, special use, or conditional use permits) are issued. Accordingly, a determination as to whether a proposed disturbance of a buffer is exempt, allowable, or allowable with mitigation will ordinarily be made in the context of the review process for such a development permit. To the extent that the activities identified in the Table of Exempt and Allowable Activities (set forth in Subsection 15-269.5(d) above) are proposed to be conducted or undertaken under circumstances where no such development permit is likely to be required (e.g., archeological activities or the installation of playground equipment), such activities may not be conducted or undertaken until a buffer disturbance permit has been issued by the zoning administrator. Such permit shall be issued if the administrator concludes, based upon the information submitted with the application for such permit, that the proposed disturbance will be consistent with the requirements of this article.