12.1 GENERAL PURPOSE AND INTENT

12.1.1 FINDINGS OF FACT

A. Erosion and Sedimentation Control: The erosion of soil from unstabilized development sites has adverse impacts on the condition of public and private property, impairs the Town of Wake Forest stormwater system, and causes pollution and accelerated siltation of lakes, streams and other watercourses. Pursuant to the North Carolina Sedimentation Pollution Control Act of 1973, as amended, the Town of Wake Forest has been directed to implement an erosion and sedimentation control program as outlined in this chapter.

B. Flood Damage Prevention: The flood prone areas within the jurisdiction of the Town of Wake Forest are subject to periodic inundation which can result in loss of life, property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures of flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. These flood losses can be caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities and by the occupancy in flood prone areas of uses vulnerable to floods or other hazards to other lands which are inadequately elevated, floodproofed, or otherwise unprotected from flood damages.

C. Stormwater Management: It has been determined that development and redevelopment can alter the hydrologic response of local watersheds and increases stormwater runoff rates and volumes, flooding, soil erosion, stream channel erosion, nonpoint and point source pollution, and sediment transport and deposition, as well as reducing groundwater recharge. These changes in stormwater runoff contribute to increased quantities of water-borne pollutants and alterations in hydrology which are harmful to public health and safety as well as to the natural environment. These effects can be managed and minimized by applying proper design and well-planned controls to manage stormwater runoff from development sites. Further, the Federal Water Pollution Control Act of 1972 ("Clean Water Act") and federal Phase II Stormwater Rules promulgated under it, as well as rules of the North Carolina Environmental Management Commission promulgated in response to federal Phase II requirements, compel certain urbanized areas, including the Town of Wake Forest, to adopt stormwater controls such as those included in this chapter.

D. Watershed Protection: The Legislature of the State of North Carolina has, in NCGS 143-21, Watershed Protection Rules, directed local governmental units to adopt regulations that meet or exceed the minimum requirements of NCGS 143-214.5 and water supply watershed protection rules adopted by the State Environmental Management Commission ~~in order~~ to protect the water supplies throughout the state.

12.1.2 PURPOSE

A. Erosion and Sedimentation Control: The erosion and sedimentation control regulations of this chapter are adopted for the purposes of regulating certain land-disturbing activities to control accelerated erosion and sedimentation in order to control water pollution from sedimentation, inhibit the accelerated erosion and sedimentation of lakes and watercourses and prevent damage to public and private property by erosion and sedimentation.

B. Flood Damage Prevention:

1. It is the purpose of this section to promote public health, safety, and general

welfare and to minimize public and private losses due to flood conditions within the flood prone areas by provisions designed to:

a. 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;

b. require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction;

c. control the alteration of natural floodplains, floodplain buffers, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;

d. control filling, grading, dredging, and all other development that may increase erosion or flood damage; and

e. prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or which may increase flood hazards to other lands.

2. Specific objectives of the flood damage prevention provisions are as follows:

a. to protect human life and health;

b. to minimize expenditure of public money for costly flood control projects;

c. to minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

d. to minimize prolonged business losses and interruptions;

e. to minimize damage to public facilities and utilities located in floodplains,

f. to help maintain a stable tax base by providing for the sound use and development of flood prone areas; and

g. to ensure that potential buyers are aware that property is in a Special Flood Hazard Area.

C. Stormwater Management: The purpose of this section is to protect, maintain and enhance the public health, safety, environment and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased post-development stormwater runoff and nonpoint and point source pollution associated with new development and redevelopment. This ordinance seeks to meet its general purpose through the following specific objectives and means:

1. Establishing decision-making processes for development that protects the integrity of watersheds and preserves the health of water resources;

2. Requiring that new development and redevelopment maintain the pre-development hydrologic response in their post-development state as practicable for the applicable design storm in order to reduce flooding, stream bank erosion, nonpoint and point source pollution and increases in stream temperature, and to maintain the integrity of stream channels and aquatic habitats;

3. Establishing minimum post-development stormwater management standards and design criteria for the regulation and control of stormwater runoff quantity and quality;

4. Establishing design and review criteria for the construction, function, and use of structural stormwater ~~BMP~~SCMs that may be used to meet the minimum post- development stormwater management standards;

5. Encouraging the use of better management and site design practices, such as the use of vegetated conveyances for stormwater and the preservation of greenspace and other conservation areas to the maximum extent

practicable;

6. Establishing provisions for the long-term responsibility for and maintenance of structural and nonstructural stormwater ~~BMP~~SCMs to ensure that they continue to function as designed, are maintained appropriately, and pose no threat to public safety;

7. Establishing administrative procedures for the submission, review, approval and disapproval of stormwater management plans, for the inspection of approved projects, and to assure appropriate long-term maintenance.

D. Watershed Protection: The Watershed Protection regulations are established to preserve and improve water quality and provide safe drinking water now and in the future.

12.1.3 PERMITS REQUIRED

A. Land Disturbance (Erosion and Sedimentation Control) Permit: No person shall undertake any land-disturbing activity for which a permit is required, as specified by the erosion and sedimentation control provisions of this chapter, until plans for controlling erosion associated with the activity have been reviewed and approved in accordance with the procedures set forth in Section 15.7.2.

B. Floodplain Development Permit: A Town of Wake Forest Permit to develop in a Flood Hazard Area (Floodplain Development Permit), shall be required in conformance with the provisions of this chapter and Section 15.7.3 prior to the commencement of any development activities within Special Flood Hazard Areas and Future Conditions Flood Hazard Areas.

C. Stormwater Approvals: Stormwater approval is required for all development and redevelopment unless exempt pursuant to Section 12.5.1.A.1. Stormwater approvals pursuant to this chapter shall be granted as part of the Development Permit process outlined in Section 15.6.1.

D. Watershed Development: A Development Permit shall be required, as outlined in Section 15.6.1, indicating conformance with the watershed protection provisions of this chapter prior to the commencement of development activities within the Watershed Protection Overlay District.

12.1.4 REQUIRED CONFORMANCE TO THE MANUAL OF SPECIFICATIONS, STANDARDS AND DESIGN (MSSD)

The Town of Wake Forest Manual of Specifications, Standards and Design (MSSD), as amended, is herein incorporated by reference. Conformance to the MSSD is required in addition to the standards in this ordinance.

12.2 APPLICABILITY

12.2.1 APPLICABILITY BY DISTRICT

The various erosion control, flood damage prevention, stormwater management and watershed protection provisions of this chapter apply according to the table below:

Regulation Type	Geographic Applicability	Relevant Subsections
Erosion and Sedimentation Control Regulations	All Districts	**12.3**
Flood Damage Prevention Regulations	Special Flood Hazard Areas and Future Conditions Flood Hazard Areas *(established in Section 12.4.1.C)*	**12.4**
Stormwater Management Regulations	All Districts *(subject to the provisions of Section 12.5.1.A)*	**12.5, 12.7**
Watershed Protection Regulations	Watershed Protection Overlay Districts *(established in Section 2.4.5)*	**12.6, 12.7**

12.3 EROSION AND SEDIMENTATION CONTROL REGULATIONS

12.3.1 SCOPE AND EXCLUSIONS

The erosion and sedimentation control regulations of this article shall apply to land-disturbing activity by any person or persons, including the town, as provided for below:

A. Applicability

1. A Land Disturbance Permit shall be required for all land-disturbing of ½ acre (21,780 square feet) or more in surface area in accordance with Section 15.7.2 of this ordinance, this includes individual residences.

2. Single family lots being graded/built by the same builder/developer at the same time within the same subdivision, whether they are contiguous or non-contiguous, must obtain a Land Disturbance Permit if the total disturbance is 1/2 acre (21,780 square feet) or more in surface area.

3. The town may require a Land Disturbance Permit for land-disturbing activities that are less than 1/2 acre (21,780 square feet) in surface area where sediment control measures are needed to protect against off-site damages, in accordance with Section 15.7.2 of this ordinance.

~~3.~~4. Additionally, the town requires a Land Disturbance Permit for activities in common place of development as a condition of NCG01 regulations.

B. Compliance Required Regardless of Land Disturbance Permit Requirement: Erosion control devices must be installed to prevent any offsite sedimentation for any construction site regardless of the size of the land disturbance. Land-disturbing activity for which a Land Disturbance Permit is not required must still comply with the erosion and sedimentation control regulations of this article, unless specifically excluded in Section 12.3.1.C, below.

C. Exclusions: This section shall not apply to the following types of land-disturbing activity:

1. An activity which is essential to protect human life during an emergency.

2. Land-disturbing activities undertaken on established bona-fide farms for the production of plants and animals, including but not limited to: forage and sod crops, grain and feed crops, tobacco, cotton, and peanuts; dairy animals and dairy products; poultry and poultry products; livestock, including the breeding and grazing of any or all such animals; bees and apiary products; and fur animals.

3. Land-disturbing activities undertaken on forestland for the production and harvesting of timber and timber products and which are conducted in accordance with Forest Practice Guidelines Related to Water Quality (best management practices) as adopted by the ~~North Carolina Department of Environment and Natural Resources.~~ NCDEQ. In order to be designated as forestland, a permit must be designated by NCDEQ in addition to NCDEQ giving a land disturbance permit. A Tree Clearing Permit may be required such activities as outlined in Section 15.7.1.

4. Land-Disturbing activities for which a permit is required under the Mining Act of 1971, Article 7 of Chapter 74 of the General Statutes.

5. Land-Disturbing activities over which the State has exclusive regulatory jurisdiction as provided in NCGS 113-56(a). Such activities include:

   a. Land-Disturbing activities conducted by the State.

   b. Land-Disturbing activities conducted by the United States.

c. Land-Disturbing activities conducted by persons having the power of eminent domain.

d. Land-Disturbing activities conducted by local governments, except that the Town of Wake Forest has declared that all the departments and agencies of the town and its contractors and subcontractors must comply with the regulations of this article according to Section 12.3.1.E, below.

e. Land-Disturbing activities funded in whole or in part by the County, State or United States.

D. Affidavit For Exclusions: Except for exclusions in the event of an emergency, as outlined in 12.3.1.C.1, the owner of the property will be required to file an application for an exclusion and an affidavit stating the use of the property. The Application for Exemption must be filed with the Administrator. The Administrator must review and grant or deny the Application within 30 working days, after receipt of the complete Land Disturbance Permit application (including fees), and provide its decision in writing to the applicant. The erosion and sedimentation control plan must be implemented according to schedule. Failure to meet the conditions of the exemption constitutes a violation of the erosion and sedimentation control regulations of this article and will be retroactive to the granted date of the original exemption. If a complete Land Disturbance Permit application package (including fees) is not received at initial submittal, the application will be automatically disapproved.

E. Expressly Applied: The erosion and sedimentation control regulations of this article shall expressly apply to all of the following land-disturbing activities:

1. Temporary access and haul roads, other than public roads, constructed or used in connection with any land-disturbing activity are considered a part of such activity.

2. When the person conducting the land-disturbing activity is also the person conducting the borrow or waste disposal activity, areas from which borrow is obtained and which are not regulated by the provisions of the Mining Act of 1971, and waste areas for surplus materials other than landfills regulated by the North Carolina Department of Energy, Mineral, and Natural Resources: Division of Solid Waste Management, or the Town of Wake Forest, will be considered as part of the land-disturbing activity where the borrow material is being used or from which the waste material originated. When the person conducting the land-disturbing activity is not the person obtaining borrow and/or disposing of the waste, these areas are considered a separate land-disturbing activity.

3. Land-Disturbing activities connected with utility construction over which the State does not have exclusive regulatory jurisdiction as provided in NCGS 113A-56(a).

F. Projects Conducted by the Town of Wake Forest: It is the intent of the town of Wake Forest that all land disturbing activity conducted by the town shall comply with the erosion and sedimentation control regulations of this article. Such projects shall be bound by the provisions for compliance, applicability and exclusions set out in Sections 12.3.1.A through 12.3.1.E.

12.3.2 EROSION & SEDIMENTATION CONTROL PLANS

A. Erosion and Sedimentation Control Plan Required: Any person engaged in land-disturbing activity, who fails to file a plan in accordance with the erosion and sedimentation control regulations of this article, or who conducts a land-disturbing activity except in accordance with provisions of an approved plan will be deemed in violation of the erosion and sedimentation control regulations of this section.

B. Erosion and Sedimentation Control Plan Content: Applications for a Land

Disturbance Permit must contain at least all the information required for Land Disturbance Permits in Section 15.7.2 of this ordinance and all the items specified on the application checklist. Developers shall include NCGO1 plan sheet in with their submission. Additional ~~D~~detailed guidelines for plan preparation may be obtained from the Administrator upon request.

C. **Control Objectives:** An erosion and sedimentation control plan may be disapproved if the plan fails to adequately address the following control objectives:

1. **Identify Critical Areas:** On-site areas which are subject to severe erosion, and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation, are to be identified and receive special attention.
2. **Limit Time of Exposure:** All land-disturbing activity is to be planned and phased to limit exposure to the stabilization timeframes established in Section 12.3.3.E. The construction sequence shall explain the phasing in detail.
3. **Limit Exposed Areas:** All land-disturbing activity is to be planned and conducted to minimize the size of the area to be exposed at any one time.
4. **Mass Land Disturbing:** To help maintain remaining town topography, trees, buffers, and to limit exposed areas that are open at once, mass land disturbing will not be allowed except in conformance with an approved plan. For development over ~~20~~ 10 acres in land disturbance area, phased grading must be shown on the plans to limit the potential for soil erosion and off-site sedimentation~~.~~. Phasing shall not exceed 10 acres at a time.
5. **Control Surface Water:** Surface water runoff originating upgrade of exposed areas should be controlled to reduce erosion and sediment loss during the period of exposure via sediment control basins in accordance with NC Sediment and Erosion Control Planning and Design Manual.
6. **Control Sedimentation:** All land-disturbing activity is to be planned and conducted to prevent off-site sedimentation damage.
7. **Manage Stormwater Runoff:** Plans are to include measures to control the velocity at the point of discharge to minimize accelerated erosion and increased sedimentation of the site and stream. Such measures shall be in accordance with this section, the NC Stormwater ~~Best Management Practices Manual~~Design Manual, and the National Pollutant Discharge Elimination System.

D. **Grounds for Disapproval:** An erosion control plan may be disapproved upon finding that an applicant, or any parent or subsidiary corporation (if the applicant is a corporation):

1. Has not submitted a complete application, including the Land Disturbance checklist.
2. Is conducting or has conducted land-disturbing activity without an approved plan or has received a notice of violation on a plan previously approved and has not complied with the notice within the time specified in the notice.
3. Has failed to pay a civil penalty assessed pursuant to the North Carolina Sedimentation Pollution Control Act or a local ordinance adopted pursuant to the Act which is due and for which no appeal is pending.
4. Has been convicted of a misdemeanor pursuant to a NCGS 113A- 64(b) or any criminal provision of a local ordinance adopted pursuant to the North Carolina Sedimentation Pollution Control Act (An applicant's criminal record may be considered for only the 2 years prior to the application date); or
5. Has failed to comply with State rules or local ordinances and regulations adopted pursuant to the North Carolina Sedimentation Pollution Control Act

on properties located within Town of Wake Forest jurisdiction.

6. Owns neighboring property that is in violation of the erosion and sedimentation control regulations of this ordinance, no permit shall be issued until that violation is corrected.

E. Sale of Property: If the property associated with the approved plan is sold in whole or in part before all conditions of the approved plan are met, the permit holder must provide notice to the new owner/s of conditions of the Land Disturbance Permit and provide the Town of Wake Forest with revised financially responsible owner forms. The new owner(s) shall be required to attend a preconstruction conference with the Administrator.

F. Effect of Approval

1. Until all construction is complete, all permanent erosion and sedimentation control measures are installed, and the site has been stabilized, a copy of the approved plan must be available and accessible on site in a weather proof container. All NPDES, EPA, turbidity and other state laws must be followed. Self-inspections of erosion control sites are required per NCGS 113A-54.1(e) law 15ANCAC 04B.0131.

2. The Town of Wake Forest must forward to the Director of ~~NCDWR~~ NCDEQ Division of ~~Water Resources~~Environmental Qualtiy a copy of each plan for a land-disturbing activity that involves the utilization of ditches for de-watering or lowering the water table of the tract.

G. Revised Plans: If the town, whether upon review of a plan or upon inspection of the job site, determines that a significant risk of accelerated erosion or off-site sedimentation exists, or the plan is inadequate to meet the requirements of this article, the town may require a revised plan. Pending the approval of the revised plan, work must stop or continue only under conditions outlined by the Administrator.

12.3.3 STANDARDS

No land-disturbing activity subject to the control of this ordinance shall be undertaken except in accordance with the following mandatory standards. Persons conducting land-disturbing activities must take all reasonable measures to protect public and private property from damage caused by such activities. Whenever conflicts exist between federal, state, or local laws, ordinance, or rules, the more restrictive provision shall apply. The town reserves the right to require preparation and approval of an erosion control plan in any instance wherein extensive control measures are required.

A. Erosion Control Measure Must Conform to State Design Manual: All soil erosion and sedimentation control plans and measures must conform to the minimum applicable standards specified in the most recent North Carolina's Erosion and Sedimentation Control Planning and Design Manual.

B. Fill Material: Unless a permit for the operation of a landfill from ~~the North Carolina Department of Environment and Natural Resource~~NCDEQs is on file for the official site, acceptable fill material shall be free of organic or other degradable materials, masonry, concrete and brick in sizes exceeding 12 inches, and any materials which would cause the site to be regulated as a landfill by the State of North Carolina.

C. Sediment to Be Held on Site: The person conducting the land-disturbing activity shall install erosion and sedimentation control devices and practices that are enough to retain the sediment generated by the land disturbing activity within the boundaries of the tract during construction upon and development of said tract. All land-disturbance is required to have silt fence on the low side of the lot and a construction entrance with approved woven fabric that meets ASTM D 4632

standards.

D. Sediment Basins: Sediment basins shall have settling efficiency as outlined in the North Carolina Erosion and Sediment Control Planning and Design Manual.

E. Stabilization Required: Stabilization shall be provided whenever land-disturbing activities have ceased, or have temporarily ceased, on any portion of the site. Stabilization timeframes should match most recently published NCDEQ guidelines. In no instance shall the time of exposure be greater than the stabilization timeframes established by the following tables:

Type of Stabilization	Stabilization Timeframe
Temporary Stabilization	Must be completed within 14 days of any completed phase of grading
Permanent Stabilization	Must be completed within 10 days of competed project grading

NPDES Stormwater Discharge Permit for Construction Activities (NCGO1) NCDENR/Division of Water Quality

NEW STABILIZATION TIMEFRAMES
(Effective Aug. 3, 2011)

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
Perimeter dikes, swales, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones

F. Protection from Storm Required:

1. **Falls Lake Watershed:** Such erosion and sedimentation control measures, structures, and devices must be so planned, designed, and constructed as to provide protection from the calculated maximum peak rate of runoff from the 25-year storm. Runoff rates must be calculated using acceptable calculation procedures.

2. **All Other Watersheds:** Such erosion and sedimentation control measures, structures, and devices must be so planned, designed, and constructed as to provide protection from the calculated maximum peak rate of runoff from 10-year storm. Runoff rates must be calculated using the procedures in the USDA Natural Resources Conservation Services "National Engineering Field Manual for Conservation Practices", or other acceptable calculation procedures.

3. **HQW Zones:** In High Quality Water (HQW) zones the following design standards shall apply:

   a. Limit on Uncovered Areas: Uncovered areas in HQW zones shall be limited at any time to a maximum of twenty acres within the boundaries of the tract. Only the portion of the land disturbing activity within the HQW zone shall be governed by this section. Larger areas may be uncovered within the boundaries of the tract with the written approval of the Administrator.

   b. Maximum Peak Rate of Runoff Protection: Erosion and sedimentation control measures, structures, and devices within HQW zones shall be

planned designed and constructed to provide protection from the runoff of the twenty-five-year storm which produces the maximum peak rate of runoff as calculated according to the procedures in the United States Department of Agriculture Soil Conservation Service's "National Engineering Field Manual for Conservation Practices" or according to procedures adopted by any other agency of the state or the United States or any generally recognized organization or association.

c. Settling Efficiency: Sediment Basins within HQW zones shall be designed and constructed such that the basin shall be planned, designed, and

constructed so that the basin will have a settling efficiency of at least 70 percent for the 40 micron size soil particle transported into the basin by the runoff of the two-year storm that produces an maximum peak runoff as calculated according the procedures in the United State Department of Agriculture and Soil Conservation Services "National Engineering Field Manual for Conservation Practices" or according to procedures adopted by any other agency of the State or the United States.

d. Grade: Newly constructed open channels in HQW zones shall be planned, designed, and constructed with side slopes no steeper than two foot horizontal to one foot vertical if a vegetative cover is used for stabilization unless soil conditions permit steeper side slopes or where the side slopes are stabilized by using mechanical devices, structural devices, or other ditch liners enough to restrain accelerated erosion. The angle for side slopes shall be enough to restrain accelerated erosion.

G. Slope and Fill Angles: The angle for graded slopes and fills may not be greater than the angle that can be retained by vegetative cover or other adequate erosion control devices or structures (typically 2:1)

12.3.4 RESPONSIBILITY FOR MAINTENANCE

A. Owner Shall Be Responsible for Maintenance: During the development of a site, the financially responsible owner must install and maintain all temporary and permanent erosion and sedimentation control measures as required by the approved plan, any provision of this article, or state regulations. After site development, the land owner, association or person in possession or control of the land must maintain all necessary permanent erosion and sediment control measures, except those measures installed within a road or street right-of-way or easement accepted for maintenance by a governmental agency.

B. Maintenance Violations: It is a violation of the erosion and sedimentation control regulations of this section for any persons, companies or corporations to leave mud, dirt, dust or other material upon open public streets, sidewalks, greenways, other travel ways or off site.

C. Inspections

1. The Administrator inspects land-disturbing activities to ensure compliance with the North Carolina Sedimentation Pollution Control Act of 1973, as amended, this ordinance, or rules or orders adopted or issued pursuant to this section, and to determine whether the measures required in the Plan are effective in controlling erosion and sedimentation resulting from land-disturbing activity. Notice of the right to inspect shall be included in the certificate of approval of each plan.

2. Erosion self-inspections must be conducted by each permit holder per NCGS 15A NCAC 04B .0131.

3. Stormwater self-inspections must be conducted by each permit holder per NCG010000.

12.3.5 OPERATION IN LAKES OR NATURAL WATERCOURSES

Land disturbing activity in connection with construction in, on, over, or under a lake or natural watercourse shall comply with the watercourse buffer requirements in Section 12.7, the requirements of the NC ~~Division of Water Resources~~DEQ and the US Army Corps of Engineers.

12.3.6 CONSTRUCTION BUFFER ZONES

A. Standard Buffer: All land-disturbing activity shall adhere to the ~~watercourse~~ buffer requirements in Section 12.7. In addition, no land-disturbing activity during periods of construction or improvement to land shall be permitted in proximity to a lake or natural watercourse unless a ~~watercourse~~ buffer zone is provided along the margin of the watercourse of enough width to confine visible siltation within the 25% of the buffer zone nearest the land-disturbing activity.

1. **Projects On, Over or Under Water:** The construction buffer requirement shall not apply to a land-disturbing activity in connection with the construction of facilities to be located on, over, or under a lake or natural watercourse.

2. **Construction Buffer Measurement:** Unless otherwise provided, the width of a buffer zone is measured horizontally from the edge of the water to the nearest edge of the disturbed area, with the 25 percent of the strip nearer the land-disturbing activity containing natural or artificial means of confining visible siltation.

12.4 FLOOD DAMAGE PREVENTION

12.4.1 GENERAL PROVISIONS

A. Applicability: This section shall apply to all Special Flood Hazard Areas within the jurisdiction, including Extra-Territorial Jurisdiction (ETJ), of the Town of Wake Forest

B. Exemptions

1. All new residential construction and substantial residential improvements proposed on a parcel of land that has no buildable area outside the Special Flood Hazard Area (SFHA), and that was recorded prior to May 2, 2006 shall be permitted for development provided that all applicable provisions of this ordinance area met.

2. All subdivisions approved prior to May 2, 2006, shall be exempted from the requirements prohibiting the platting of lots located within the Special Flood Hazard Area, provided the subdivision complies with the requirements in place prior to May 2, 2006.

C. Establishment of Flood Hazard Areas

1. The Special Flood Hazard Areas are those identified under the Cooperating Technical State (CTS) agreement between the State of North Carolina and FEMA in its Flood Insurance Study (FIS) and its accompanying Flood Insurance Rate Maps (FIRM) for Wake County and Franklin County dated May 2, 2006 ~~and~~ April 16, 2013 and updated Preliminary FIRM in March 2015 (~~scheduled~~ anticipated to be adopted in ~~early 2019~~2020) and their accompanying Flood Insurance Rate Map Panels (1728, 1738, 1739, ~~1740~~, 1748, 1749, 1759, 1821, 1830, 1831, 1832, 1840, 1841, 1842, 1850 and 1851), which are adopted by reference and declared to be a part of this ordinance. The "Special Flood Hazard Areas" also include those defined through standard engineering analysis for private developments or by governmental agencies, but which have not yet been incorporated in the FIRM. Preliminary FIRM data may be used for design purposes, Conditional Letters of Map Revision, and No-Rise analysis with concurrence of the Floodplain Administrator for the floodplain development permit. Letters of

Map Change must be based on the most recently adopted effective model approved by FEMA.

~~2.~~

~~3.~~2. In addition, upon annexation to the Town of Wake Forest or inclusion in the Extra-Territorial Jurisdiction (ETJ), the Special Flood Hazard Areas identified by the Federal Emergency Management Agency (FEMA) and/or produced under the Cooperating Technical State agreement between the State of North Carolina and FEMA as stated above, for the unincorporated areas of Wake County and Franklin County, with accompanying maps and other supporting data are adopted by reference and declared to be part of this ordinance.

~~4.~~3. A professional evaluation shall be provided of the potential changes in the Special Flood Hazard Area elevation caused by the obstruction, encroachment, alteration or relocation of areas identified to have flood hazard soils by Wake County with a total drainage area of more than 5 acres.

D. General Development Restrictions: In general, no new development is allowed in the Special Flood Hazard Areas unless one or more of the following are met:

1. The property/use is exempted from this requirement as identified in Section 12.4.1.B; or

The development is for roads, greenways, pedestrian crossings, park-related equipment, or public utilities and facilities such as waste water, gas, electrical, and water systems that are located and constructed to minimize flood damage. Structures for pedestrian crossings (e.g., footbridges, etc.), playground equipment, and other similar items may be permitted if the applicant provides certification by a Professional Engineer, architect, or landscape architect that these encroachments will not result in an increase in flood levels during the base flood.

~~2.~~

E. Warning and Disclaimer of Liability: The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Floods larger than those considered by this ordinance can and will occur on rare occasions. 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 of Wake Forest or by any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

F. Definitions: Definitions specific to the application and administration of the provisions for flood damage reduction in this section shall be indicated as such in Chapter 17 with the parenthetical note "*(Floodplain Development)*". All other terms in this section shall be defined according to their standard definition in Chapter 17, or if not listed, shall have their everyday meaning as determined by their dictionary definition.

12.4.2 PROVISIONS FOR FLOOD HAZARD REDUCTION

A. General Standards: In all Special Flood Hazard Areas the following provisions are required:

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 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. 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.

8. Nonconforming buildings or uses may not be enlarged, replaced, or rebuilt unless such enlargement or reconstruction is accomplished in conformance with the provisions of this Section. Nothing in this ordinance shall prevent the repair, reconstruction, or replacement of a building or structure existing on the effective date of this ordinance and located totally or partially within the floodway, non- encroachment area, or stream setback, provided there is no additional encroachment below the regulatory flood protection elevation in the floodway, non-encroachment area, or stream setback, and provided that such repair, reconstruction, or replacement meets all of the other requirements of this ordinance.

9. New solid waste disposal facilities and sites, hazardous waste management facilities, salvage yards, and chemical storage facilities shall not be permitted in a Special Flood Hazard Area or the non-encroachment areas. No variances shall be granted for these facilities.

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

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

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

13. 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.

B. **Specific Standards and Restrictions:** In all Special Flood Hazard Areas where Base Flood Elevation (BFE) data has been provided and in Future Conditions Flood Hazard Areas where Future Conditions Flood Elevations data has been provided, the following additional provisions are required:

1. **Residential Construction**

   a. New construction of or substantial improvements to any residential structure (including manufactured homes) shall have the reference level, including basement, elevated no lower than the ~~r~~ Regulatory ~~f~~ Flood ~~p~~ Protection ~~e~~ Elevation.

b. No proposed lot for development that is wholly or partly subject to flooding shall be approved unless there is established on the final plat a line representing an actual contour as determined by field survey of the Special Flood Hazard Area elevation as determined by the Federal Emergency Management Agency (FEMA) Special Hazard Area Maps.

Such a line shall be known and identified on the site plan or subdivision plan and final plat as the "Development Restriction Floodline."

c. Subdivisions approved after May 2, 2006, may not plat lots for development located within the Special Flood Hazard Area unless all the following exemptions are met:

i. The Special Flood Hazard Area affects a maximum area of 10% or less of the total acreage of the subdivision;

ii. There is no reason for the formation of a homeowner's association other than to retain ownership and maintenance responsibility for the Special Flood Hazard Area (e.g., covenant, other common areas); and

iii. The Special Flood Hazard Area is placed in a permanent conservation easement at plat recordation.

2. Non-Residential Construction: New construction and substantial improvement of any commercial, industrial, or other non-residential structure shall have the reference level, including basement, elevated no lower than the regulatory flood protection elevation. Structures located in A, AE, and X (Future) Zones may be floodproofed to the regulatory flood protection elevation in lieu of elevation provided that all areas of the structure, together with attendant utility and sanitary facilities, below the regulatory flood protection elevation are watertight with walls substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A Professional Engineer, Professional Land Surveyor or Registered Architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the Floodplain Administrator as set forth in Section 15.7.3.E along with the operational and maintenance plans.

3. Elevated Buildings: In new construction or substantial improvements of elevated buildings, fully-enclosed areas below the lowest floor shall conform to the following standards:

a. Such enclosed areas 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.

b. 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;

c. Such enclosed areas shall be constructed entirely of flood resistant materials below the regulatory flood protection elevation.

d. In Zones A, AE and X (Future), such enclosed areas 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:

i. Provide a minimum of two (2) flood openings on different sides of each enclosed area subject to flooding;

ii. The total combined area of all flood openings must be at least one square inch for each square foot of enclosed area subject to flooding;

iii. If a building has more than one enclosed area, each enclosed area must have flood openings to allow floodwaters to automatically enter and exit;

iv. The bottom of all required flood openings shall be no higher than one foot above the adjacent grade;

v. 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

vi. 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.

4. **Additions:** All additions must meet the applicable standards for new construction.

5. **Recreational Vehicles:** Recreational vehicles shall either:

   a. Be on site for fewer than 180 consecutive days and be fully licensed and ready for highway use with up-to-date state inspection and tags (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities, and has no permanently attached additions); or

   b. Meet all the requirements for new construction.

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

   a. Accessory structures shall not be used for human habitation.

   b. Accessory structures shall be constructed and placed on the building site to offer the minimum resistance to the flow of floodwaters.

   c. Flood openings to facilitate automatic equalization of hydrostatic flood forces shall be provided below regulatory flood protection elevation in conformance with Section 12.4.2.B.3.d.

   d. Certification requirements: 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 in accordance with Section 15.7.3.E.

7. **Temporary Non-Residential Structures**

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

      i. A specified time period for which the temporary use will be permitted. Time specified may not exceed three (3) months, renewable up to one (1) year;

      ii. The name, address, and phone number of the individual

responsible for the removal of the temporary structure;

iii. The time frame prior to the event at which a structure will be removed (i.e. minimum of 72 hours before landfall of a hurricane or immediately upon flood warning notification);

iv. A copy of the contract or other suitable instrument with the entity responsible for physical removal of the structure; and

v. Designation, accompanied by documentation, of a location outside the Special Flood Hazard Area to which the structure will be moved.

C. Standards for Floodplains Without Established Base Flood Elevations: Within the Special Flood Hazard Areas designated as Approximate Zone A where no Base Flood Elevation (BFE) data has been provided by FEMA, the following provisions shall apply:

1. No encroachments, including fill, new construction, substantial improvements or new development shall be permitted within a distance of 20 feet, each side, from the top of bank or 5 times the width of the stream, whichever is greater, unless certification with supporting technical data by a registered professional engineer is provided demonstrating that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

2. The BFE used in determining the regulatory flood protection elevation shall be determined based on one of the following criteria set in priority order:

   a. If Base Flood Elevation (BFE) data is available from other sources, all new construction and substantial improvements within such areas shall also comply with all applicable provisions of this ordinance and shall be elevated or in accordance with elevations established by the Floodplain Administrator.

   b. All subdivision, manufactured home park and other development proposals shall provide a hydraulic report prepared by a professional engineer defining the Base Flood Elevation (BFE) data if development is greater than 5 acres or has more than 50 lots/manufactured home sites. Such Base Flood Elevation (BFE) data shall be adopted by reference to be utilized in implementing this ordinance.

D. Floodway and Non-Encroachment Areas: Areas designated as floodways or non-encroachment areas are located within the Special Flood Hazard Areas. 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 following additional provisions shall apply to all development within such areas:

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

   a. the proposed encroachment would not result in any increase in the flood levels during the occurrence of the base flood, based on hydrologic and hydraulic analyses performed in accordance with standard engineering practice and presented to the Floodplain Administrator prior to issuance of floodplain development permit, or

   b. if an increase in base flood will occur due to the proposed encroachments, an evaluation of alternatives, which would not result in the base flood increase, should be provided for review by the Floodplain Administrator demonstrating why these alternatives are not feasible, upon approval by the Floodplain Administrator, a Conditional Letter

of Map Revision (CLOMR) must be approved by FEMA. A Letter of Map Revision (LOMR) must also be obtained upon completion of the proposed encroachment, or

c. Nno manufactured or mobile homes shall be permitted, except an existing manufactured home subdivision or mobile home park. A replacement manufactured, or mobile home may be placed on a lot in an existing manufactured home subdivision or mobile home park provided the anchoring and the elevation standards of this Ordinance are met 12.4.2.D.3.a.

2. If paragraph 1, above, is satisfied, all development shall comply with all applicable flood hazard reduction provisions of this ordinance.

3. No manufactured homes shall be permitted within floodways or non-encroachment areas, except replacements of existing manufactured homes which meet the following provisions:

a. ~~The anchoring and the elevation standards of Section 12.4.2.B.3.; and~~ Manufactured and mobile homes shall be anchored to prevent flotation, collapse, or lateral movement in accordance with the Regulations for Mobile Homes and Modular Housing adopted by the Commissioners of Insurance pursuant to NCGS 143.143.15. Additionally, when the chassis elevation is 36 inches or less above the grade within a floodprone area, the chassis shall be supported by reinforced piers or other foundation elements of at least equivalent strength. If the elevation of the chassis exceeds 36 inches in height an engineering certification is required.

b. The no encroachment standard of Section 12.4.2.D.1.

c. An evacuation plan shall be developed for evacuation of all residents of all new, substantially improved or substantially damaged manufactured home subdivisions or mobile home parks located within flood prone areas. This plan shall be filed with and approved by the Floodplain Administrator and the local emergency management coordinator.

d. An existing manufactured home subdivision or mobile home park on which a manufactured or mobile home has incurred "substantial damage" as the result of a flood, must be elevated on a permanent foundation such that the lowest floor of the manufactured or mobile home is elevated no lower than two (2) feet above the base flood elevation

12.5 STORMWATER MANAGEMENT

12.5.1 GENERAL PROVISIONS

A. Applicability: The stormwater management regulations of this section shall apply within the areas designated on the "Phase II Stormwater Map of Town of Wake Forest, North Carolina" (Stormwater Map) with the following exemptions:

1. Exemptions: The following types of development and redevelopment shall be exempt from the provisions of this ordinance, provided that they are not in the Falls Lake Watershed and are not part of a large plan of common development or sale:

a. Development or redevelopment that disturbs less than 1 acre;

b. All development or redevelopment in the RA-HC and UMX Districts;

c. Redevelopment in all districts with no increase in impervious coverage; and

d. All development or redevelopment of State or Federally owned properties.

2. **Illicit Discharges and Connections:** Notwithstanding the exemptions granted above, the provisions regarding illicit discharges and connections in Section 12.5.8 shall apply in all districts and for all types of development.

B. Concurrency with Clean Water Act: Activities that are exempt from the permit requirements of Section 404 of the federal Clean Water Act, as specified in 40 CFR 232 (primarily, ongoing farming and forestry activities), are exempt from the stormwater management provisions of this section.

C. Concurrency with State Neuse River Basin Standards: All development and redevelopment in the jurisdiction of this ordinance shall comply with the standards of the Neuse River Basin: Nutrient Sensitive Waters Management Strategy: Protection and Maintenance of Riparian Areas with Existing Forest Vegetation, adopted as a permanent rule 1 August 2000 (15A NCAC 2B.0233), as amended.

D. Deed Restriction or Covenants Required: The approval of a stormwater permit shall require an enforceable restriction on property usage that runs with the land, such as a recorded deed restriction or protective covenants, to ensure that future development and redevelopment maintains the site consistent with the approved plan.

E. Calculation Requirements: All stormwater calculations (runoff, pipe, ditch and inlet sizing, outlet protection, and detention routing (if required)) shall be submitted to the Administrator. Calculations shall consider inlet and outlet control, hydraulic grade line and backwater as applicable. All detention facilities shall be designed to attenuate developed condition peak discharges to the existing conditions for the given storm as described in the Manual of Specifications, Standards and Design.

12.5.2 STANDARDS FOR LOW ~~Density~~ DENSITY ~~Development~~DEVELOPMENT/IMPERVIOUS SURFACE PROJECTS

Low impervious surface projects shall include those developments that have no more than 24% built upon area for all residential and non-residential development. Total project area shall include total acreage in the tract on which the project is to be developed. In addition to complying with the project density development requirements of each water supply watershed in 12.6.1 D~~,I~~ low impervious surface projects shall comply with each of the following standards:

A. Runoff Transport: Stormwater runoff shall be transported by vegetated conveyances to the maximum extent practicable.

1. Vegetated Conveyances. Stormwater runoff from the project shall be released to vegetated areas as dispersed flow or transported by vegetative conveyances to the maximum extent practicable. Vegetative conveyances shall be maintained in perpetuity to ensure that they function as designed. Vegetative conveyances shall meet the minimum design criteria of 15A NCAC 02B.0624 5 (a).
2. Curb Outlet Systems. Curb and gutter systems with outlets to convey stormwater to grassed swales or vegetated areas may be used in lieu of vegetated conveyances if designed and constructed to meet the minimum design criterial of 15A NCAC 02B.0624 5(b).
3. Treatment swales may be used in lieu of vegetative conveyances and curb outlet systems if designed in accordance with 15A NCAC 02H.1061.

B. Watercourse Buffers (Minimum Each Side): See Section 12.7

12.5.3 STANDARDS FOR HIGH DENSITY DEVELOPMENT/IMPERVIOUS SURFACE PROJECTS

High impervious surface projects shall include those developments that have more than 24% built upon area for all residential and non-residential development. Total project area shall include total acreage in the tract on which the project is to be developed. In addition to complying with the project density requirements of each water supply watershed in 12.1.6 D, ~~H~~ high impervious surface projects shall comply with each of the following standards:

A. Runoff Volume: Stormwater control measures shall be installed that control and treat the difference in stormwater runoff volume leaving the project site between the pre- and post-development conditions for, at a minimum, the 10-year, 24-hour storm. Runoff volume drawdown time shall be a minimum of ~~24~~ 48hours, but not more than 120 hours Stormwater control measures (SCM) shall be designed, constructed and maintained so that the project achieves the "runoff volume" or "runoff volume match" defined as the volume of stormwater runoff generated from all the built-upon area of a project during a storm per the minimum required storm depth. SCM shall meet the minimum design criteria (MDC) of 15A NCAC 02H.1050 through .1062.

B. Suspended Solids: All structural stormwater treatment systems used to meet the requirements of the program shall be designed to have a minimum of 85% average annual removal for Total Suspended Solids.

C. Design Criteria: General engineering design criteria for all projects shall be in accordance with 15A NCAC 2H .1008(c), as explained in the Stormwater ~~Best Management Practice Manual~~Design Manual published by the ~~North Carolina Division of Water Resources~~NCDEQ ~~(hereafter referred to as "NC BMP~~SCM~~ Manual"),~~ or as amended.

D. Impervious Surface Maximum: New development shall not exceed 70% impervious surface on a project-by project basis. For the purpose of calculating the impervious surface area, total project area shall include total acreage in the tract on which the project is to be developed. The Administrator or approving authority may reduce the impervious cover requirement at the time of plan approval based on plans adopted for specific areas of the town or where it is impractical to meet current requirements.

E. ~~Watercourse~~ Buffers (Minimum Each Side): See Section 12.7

12.5.4 ADDITIONAL STANDARDS FOR THE FALLS LAKE WATERSHED

A. Applicability: The requirements of this section shall apply within the Falls Lake Watershed.

B. Nitrogen and Phosphorous Loading

1. Nitrogen and phosphorus loads contributed by the proposed new development shall not exceed the following unit-area mass loading rates:
   - **a.** 2.2 pounds per acre per year for nitrogen, and
   - **b.** 0.33 pounds per acre per year for phosphorus.
2. Notwithstanding 15A NCAC 2B.104(q), redevelopment subject to this ordinance that would replace or expand existing structures or improvements and would result in a net increase in built-upon area shall have the option of either meeting the loading standards identified in 12.5.4.B.1, above, or meeting a loading rate that achieves the following nutrient loads from the net increase in built-upon area:
   - **a.** 40% reduction for nitrogen, and
   - **b.** 77% reduction for phosphorus.

3. The developer shall determine the need for engineered stormwater controls to meet these loading rate targets by using the accounting tool for nutrient loading approved by the Environmental Management Commission for the relevant geography and development type under review. The accounting tool is available through the NC DWQ website at: http://portal.ncdenr.org/web/wq/ps/nps/fallslake.

C. **Control and Treatment of Runoff Volume:** Stormwater systems shall be designed to control and treat the runoff generated from all surfaces by the first inch of rainfall in the one-year, 24-hour storm event. The treatment volume shall be drawn down pursuant to standards specific to each practice as provided in the Design Manual. To ensure that the integrity and nutrient processing functions of receiving waters and associated riparian buffers are not compromised by erosive flows, stormwater flows from the development shall not contribute to degradation of waters of the State. At a minimum, the development shall not result in a net increase in peak flow leaving the site from pre-development conditions for the one-year, 24-hour storm event.

D. **Sediment Basin Design:** Basins shall be planned, designed, and constructed so that the basin will have a settling efficiency of at least 70 percent for the 40 micron size soil particle transported into the basin by the runoff of the two-year storm that produces an maximum peak runoff as calculated according the procedures in the United State Department of Agriculture and Soil Conservation Services "National Engineering Field Manual for Conservation Practices" or according to procedures adopted by any other agency of the State or the United States.

E. **Open Channels:** Newly constructed open channels shall be planned, designed, and constructed with side slopes no steeper than two foot horizontal to one foot vertical if a vegetative cover is used for stabilization unless soil conditions permit steeper side slopes or where the side slopes are stabilized by using mechanical devices, structural devices, or other ditch liners sufficient to restrain accelerated erosion. The angle for side slopes shall be sufficient to restrain accelerated erosion.

F. **Partial Offset of Nutrient Control Requirements:** Development subject to this section shall attain nitrogen and phosphorus loading rate reductions on-site, as determined by the Administrator, that meet the following criteria prior to using an offsite offset measure:

1. 30% or more reduction in both nitrogen and phosphorus loading from the untreated conditions for any single-family, detached and duplex residential development disturbing more than ½ acre but less than 1 acre.

2. 50% or more reduction in both nitrogen and phosphorus loading from the untreated conditions for any single-family, detached and duplex residential development disturbing more than 1 acre.

3. 30% or more reduction in both nitrogen and phosphorus loading from the untreated condition for other development, including multifamily residential, commercial and industrial development disturbing more than 12,000 square feet but less than one acre.

4. 50% or more reduction in both nitrogen and phosphorus loading from the untreated condition for other development, including multifamily residential, commercial and industrial development disturbing more than 1 acre.

G. **Offset Payments:** An applicant subject to this section may achieve the additional reductions in nitrogen and phosphorus loading required by this section by making offset payments to the NC Ecosystem Enhancement Program contingent upon acceptance of payments by that program. Applicants may use an offset option provided by the Town of Wake Forest. Applicants may propose other offset measures to the Town of Wake Forest, including providing his or her own offsite offset or utilizing a private seller. All offset measures permitted by this ordinance

shall meet the requirements of 15A NCAC 02B .0282 and 15A NCAC 02B .0240.

12.5.5 STANDARDS FOR STORMWATER CONTROL MEASURES

A. Evaluation According to ~~NC BMP~~SCM ~~Manual~~NC Stormwater Design Manual

1. All stormwater control measures and stormwater treatment practices (also referred to as ~~Best Management Practices~~Stormwater Control Measures, or ~~BMP~~SCM~~s~~SCM~~s~~) required under this ordinance shall be evaluated by the Administrator according to the policies, criteria, and information, including technical specifications and standards and the specific design criteria for each stormwater practice, in the Stormwater ~~Best Management Practice~~Design Manual published by the ~~North Carolina Division of Water Resources~~NCDEQ (hereafter referred to as "~~NC BMP~~SCM Manual"). The Administrator shall determine whether they will be adequate to meet the requirements of this section as amended.

2. The ~~NC BMP~~SCM Manual includes a list of acceptable stormwater treatment practices and the specific design criteria for each stormwater practice. Stormwater treatment practices that are designed, constructed, and maintained in accordance with the criteria and specifications in the ~~NC BMP~~SCM Manual will be presumed to meet the minimum water quality and quantity performance standards of this ordinance.

B. Relationship of ~~NC BMP~~SCM Manual to Other Laws and Regulations: If the specifications or guidelines of the ~~NC BMP~~SCM Manual are more restrictive or apply a higher standard than other laws or regulations, that fact shall not prevent application of the specifications or guidelines in the ~~NC BMP~~SCM Manual.

C. Changes to Standards and Specifications: If the standards, specifications, guidelines, policies, criteria, or other information in the ~~NC BMP~~SCM Manual are amended prior to the submittal of a complete application for approval pursuant to this ordinance, the new information shall control and shall be utilized in reviewing the application and in implementing this ordinance with regard to the application.

D. Alternative Stormwater Control Measures: Whenever an applicant proposes to utilize a practice or practices not designed and constructed in accordance with the criteria and specifications in the ~~NC BMP~~SCM Manual, the applicant shall have the burden of demonstrating that the practice(s) will satisfy the minimum water quality and quantity performance standards of this ordinance. The Administrator may require the applicant to provide such documentation, calculations, and examples as necessary for the Administrator to determine whether such an affirmative showing is made.

E. Dedications: The Town of Wake Forest, upon Board of Commissioners approval, may accept dedication of any existing or future stormwater management facility for maintenance, provided such facility meets all the requirements of this chapter and the requirements for easements and dedications in Section 6.10.

F. Improvement Guarantees and Performance Securities: Improvement guarantees and performance securities for the installation and maintenance of required stormwater control structures shall be provided in accordance with Section 6.12.

12.5.6 OPERATION, MAINTENANCE AND INSPECTION

A. Function of ~~BMP~~SCM~~s~~ s As Intended: The owner of each structural ~~BMP~~SCM installed pursuant to this ordinance shall maintain and operate it to preserve and continue its function in controlling stormwater quality and quantity at the degree or amount of function for which the structural ~~BMP~~SCM was designed.

B. Nuisance Conditions Prohibited: The owner of each stormwater ~~BMP~~SCM

~~SCM~~ shall maintain it so as not to create or result in a nuisance condition.

C. Annual Maintenance Inspection and Report: The person responsible for maintenance of any structural ~~BMP~~SCM~~-~~ installed pursuant to this ordinance shall submit to the Administrator an inspection report from a qualified inspector. All inspection reports shall be on forms supplied by the Administrator. An original inspection report shall be provided to the Administrator beginning one year from the date of as-built certification and each year thereafter on or before the date of the as-built certification.

D. Records of Maintenance Activities: The owner of each structural ~~BMP~~SCM~~-~~ shall keep records of inspections, maintenance, and repairs for at least 5 years and shall submit the same, upon reasonable request, to the Administrator.

E. Operation and Maintenance Agreement

1. Prior to the conveyance or transfer of any lot or building site to be served by a structural ~~BMP~~SCM~~-~~ pursuant to this ordinance, and prior to issuance of any permit for development or redevelopment requiring structural ~~BMP~~SCM~~-~~ pursuant to this ordinance, the applicant or owner of the site must execute an operation and maintenance agreement that shall be binding on all subsequent owners of the site, portions of the site, and lots or parcels served by the structural ~~BMP~~SCM. Until the transference of 80% of all property, sites, or lots served by the structural ~~BMP~~SCM, the original owner or applicant shall have primary responsibility for carrying out the provisions of the maintenance agreement.

2. The operation and maintenance agreement shall require the owner or owners to maintain, repair and, if necessary, reconstruct the structural ~~BMP~~SCM, and shall state the terms, conditions, and schedule of maintenance for the structural ~~BMP~~SCM. In addition, it shall grant to Town of Wake Forest a right of entry in the event that the Administrator has reason to believe it has become necessary to inspect, monitor, maintain, repair, or reconstruct the structural ~~BMP~~SCM; however, in no case shall the right of entry, of itself, confer an obligation on Town of Wake Forest to assume responsibility for the structural ~~BMP~~SCM.

3. The operation and maintenance agreement must be approved by the Administrator prior to plan approval, and it shall be referenced on the final plat and shall be recorded with the county Register of Deeds upon final plat approval. A copy of the recorded maintenance agreement shall be given to the Administrator within 14 days following its recordation.

F. Special Requirement for Homeowners' and Other Associations: For all structural ~~BMP~~SCM~~s~~~~-~~s~~~~s~~ required pursuant to this ordinance and that are to be or are owned and maintained by a homeowners' association, property owners' association, or similar entity, the required operation and maintenance agreement shall include all the following provisions:

1. Acknowledgment that the association shall continuously operate and maintain the stormwater control and management facilities.

2. Establishment of an account, which can be spent solely for sediment removal, structural, biological or vegetative replacement, major repair, or reconstruction of the structural ~~BMP~~SCM~~s~~~~s~~. If structural ~~BMP~~SCM~~s~~~~-~~s~~~~s~~ are not performing adequately or as intended or are not properly maintained, the Town of Wake Forest may remedy the situation, and in such instances the Town of Wake Forest shall be fully reimbursed from the account. Account funds may be spent by the association for sediment removal, structural, biological or vegetative replacement, major repair, and reconstruction of the structural ~~BMP~~SCM~~s~~~~s~~, provided that the Town of Wake Forest shall first consent to the expenditure.

3. Prior to plat recordation or issuance of construction permits, whichever shall first occur, the developer shall pay into the account an amount equal to ~~15~~25% of the initial construction cost of the structural ~~BMP~~SCMs. The remaining ~~T~~two-thirds of the total amount of sinking fund budget shall be deposited into the account within the first 5 years following initial construction, with 15% deposited each year. ~~and the full amount shall be deposited within 10 years following initial construction of the structural BMPSCMs. Funds shall be deposited each year into the account.~~ Any funds drawn down from the account shall be replaced in accordance with the schedule of anticipated work used to create the sinking fund budget.

   a. The purpose of the stormwater sinking fund is to ensure that adequate funds are available to the Town for the maintenance, repair, replacement and reconstruction of stormwater control facilities required by this UDO. Funds expended from the stormwater control facility replacement fund shall be used only for the repair, maintenance, reconstruction and/or replacement of stormwater control facilities, together with the costs incurred by the Town associated with any work and /or redesign of the facilities.

   ~~a.~~b. The payment of stormwater facility replacement fees is not intended as a substitute for security to ensure the construction and performance as specified.

~~3.~~4. The percent of developer contribution and lengths of time to fund the account may be varied by the Town of Wake Forest depending on the design and materials of the stormwater control and management facility.

~~4.~~5. Granting to the Town of Wake Forest a right of entry to inspect, monitor, maintain, repair, and reconstruct structural ~~BMP~~SCM~~s~~s.

~~5.~~6. Allowing the Town of Wake Forest to recover from the association and its members all costs the Town of Wake Forest expends to maintain or repair the structural ~~BMP~~SCM~~s~~ s or to correct any operational deficiencies. Failure to pay the Town of Wake Forest all its expended costs, after a reasonable time to be determined by the Administrator, shall constitute a breach of the agreement. The Town of Wake Forest shall thereafter be entitled to bring an action against the association and its members to pay or foreclose upon the lien hereby authorized by the agreement against the property, or both, in case of a deficiency. Interest, collection costs, and attorney fees shall be added to the recovery.

~~6.~~7. A statement that this agreement shall not obligate the Town of Wake Forest to maintain or repair any structural ~~BMP~~SCM~~s~~s, and the Town of Wake Forest shall not be liable to any person for the condition or operation of structural ~~BMP~~SCM~~s~~s.

~~7.~~8. A statement that this agreement shall not in any way diminish, limit, or restrict the right of the Town of Wake Forest to enforce any of its ordinances as authorized by law.

~~8.~~9. A provision indemnifying and holding harmless the Town of Wake Forest for any costs and injuries arising from or related to the structural ~~BMP~~SCM, unless the Town of Wake Forest has agreed in writing to assume the maintenance responsibility for the ~~BMP~~SCM and has accepted dedication of any and all rights necessary to carry out that maintenance.

G. Inspection Program

1. Inspections and inspection programs by Town of Wake Forest may be conducted or established on any reasonable basis, including but not limited to routine inspections; random inspections; inspections based upon complaints or

other notice of possible violations; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to, reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in ~~BMP~~SCM~~s~~; and evaluating the condition of ~~BMP~~SCM~~s~~s.

2. If the owner or occupant of any property refuses to permit such inspection, the Administrator shall proceed to obtain an administrative search warrant pursuant to NCGS 15-27.2 or its successor. No person shall obstruct, hamper or interfere with the Administrator while carrying out his or her official duties.

H. Deed Recordation: The applicable operations and maintenance agreement pertaining to every structural ~~BMP~~SCM shall be recorded with the county Register of Deeds upon final plat approval. If no subdivision plat is recorded for the site, then the operations and maintenance agreement shall be recorded with the county Register of Deeds so as to appear in the chain of the title of all subsequent purchasers under generally accepted searching principles.

I. Signage: Where appropriate, in the determination of the Administrator to assure compliance with this ordinance, structural ~~BMP~~SCMs shall be posted with a conspicuous sign stating who is responsible for required maintenance and annual inspection. The sign shall be maintained by the owner so as to remain visible and legible

12.5.7 INSTALLATION OF STORMWATER INFRASTRUCTURE

A. New Subdivisions: Storm drainage systems in any new subdivision shall be the sole responsibility of the developer and shall be provided and installed by the developer in accordance with specifications of the Public Works~~ and Utilities Department.~~

B. Private Property- Other Than New Subdivisions

1. The town will participate with property owners in the installation of storm drains crossing private property, other than in new subdivisions within the town's corporate limits, under the following conditions:

   a. The storm drain to be installed will carry storm drainage water discharged from an existing town street ("Public" Water) or streets dedicated for public street purpose and accepted for maintenance by the town.

   b. The property owner(s) will furnish the town without cost a duly executed good and sufficient easement, conveying to the town such perpetual right-of-way determined by the Administrator and necessary for the installation and maintenance of the storm drain, the form and sufficiency of such easement to be determined by the Town Attorney. The town will not be responsible for any shrubs, trees or structures within the right-of-way or easement and permanent structures may not be built over the right-of-way.

   c. At the time of the property owner's application to the town, the storm drain system to be installed is to be located on property on which a residential, commercial, or industrial building has existed for a period of 60 months and the desirability or necessity for such installation is not due to a planned expansion or modification of such existing building nor to an expansion or modification made to such existing building within a 60 month period prior to the date of such application.

   d. The installation of the storm drainage system shall extend throughout a dedicated easement to a natural watercourse or existing storm drain or across the entire lot in the event there is no natural water course or existing storm drain on the property. In addition, limitations are placed on

installing fences in dedicated easements. See section 6.10.2.E of the UDO and section 2.9.2 of the MSSD. Fencing in the floodplain, regardless of specifications outlined in Chapter 6 of the UDO and section 2 of the MSSD will require Administer approval.

e. The pipe, size, alignment, grade, length, discharge point, structural accessories (such as manholes, headwalls, catch basins, junction boxes) and other specifications shall be as determined by the Administrator.

2. In the event the pipe to be installed does not exceed the equivalent of 48" in diameter, the town will furnish the necessary labor and equipment or cost thereof, to install the storm drain and the property owner(s) shall furnish all required pipe and all materials for structural accessories as specified by the Administrator. The town will purchase on behalf of the property owner(s) such pipe and materials upon the property owner(s) depositing in cash the cost of the same. The following conditions shall apply:

a. Cost for each property owner shall be determined by dividing the total cost of materials by the total footage of property owners adjoining the proposed pipe location and multiplying the result by the footage of each individual owner to determine his/her share of the cost.

b. Where the size of the pipe to be installed exceeds 48" in diameter, the town shall determine the most feasible method of improving the ditch with methods such as, but not limited to piping, paving banks, culverts; concrete lining, rip rap, etc.

c. In such cases where the size of the pipe exceeds 48" in diameter, the property owner(s) share of the cost shall not exceed the cost of all materials and accessories for the installation of a pipe 48" in diameter.

3. It shall be the policy of the town to improve sections of open ditch in sufficient length as determined by the Administrator.

4. The storm drainage within publicly dedicated easements shall be the entire and sole property of the town upon completion.

5. If the property owner(s) desires that the town participate in the installation of a storm drain, such property owner(s) shall execute and deliver to the town a written application for such participation, together with a non-refundable application fee to cover the cost of processing the application.

6. Any construction to be done by the town under Section 12.5.7.B.2, above, of this policy will be done on a low priority basis and shall be done on a scheduled basis so as not to interfere with other public works projects of the town and as budgeted funds are available. Projects will normally be budgeted in subsequent fiscal year(s).

7. Storm drainage crossing private property which does not carry storm drainage from an existing town street or streets dedicated for public street purposes and accepted by the town for maintenance is the responsibility of the property owner(s) and the town; therefore, will not participate in the installation.

C. Roadside Ditch Pipe: Once driveway or roadside ditch pipe is bought and installed by a property owner abutting a street, the material remains the property of the property owner. If the pipe is determined by the town to need replacing for any reason, the town will remove the pipe from the ditch and leave it on site for the property owner to dispose of. The abutting property owner will not be charged for any pipe size increase nor will owner be given any credits.

12.5.8 ILLICIT DISCHARGES AND CONNECTIONS

A. Applicability: Notwithstanding the provisions of Section 12.5.1.A above, the following provisions for illicit discharges and connections to the Town of Wake Forest stormwater system shall apply to all areas within the jurisdiction of this ordinance.

B. Illicit Discharges: No person shall cause or allow the discharge, emission, disposal, pouring, or pumping directly or indirectly to any stormwater conveyance, the waters of the State, or upon the land in manner and amount that the substance is likely to reach a stormwater conveyance or the waters of the State, any liquid, solid, gas, or other substance, other than stormwater except as provided for in paragraph 1, below.

1. **Permitted Discharges:** Non-stormwater discharges associated with the following activities are allowed, provided that they do not significantly impact water quality:
   - **a.** Water line flushing;
   - **b.** Landscape irrigation;
   - **c.** Diverted stream flows;
   - **d.** Rising ground waters;
   - **e.** Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20));
   - **f.** Uncontaminated pumped ground water;
   - **g.** Discharges from potable water sources;
   - **h.** Foundation drains;
   - **i.** Air conditioning condensation;
   - **j.** Irrigation water;
   - **k.** Springs;
   - **l.** Water from crawl space pumps;
   - **m.** Footing drains;
   - **n.** Lawn watering;
   - **o.** Individual residential car washing;
   - **p.** Flows from riparian habitats and wetlands;
   - **q.** Dechlorinated swimming pool discharges;
   - **r.** Street wash water; and
   - **s.** Other non-stormwater discharges for which a valid NPDES discharge permit has been approved and issued by the State of North Carolina.
2. **Prohibited Substances:** Prohibited substances include but are not limited to: oil, anti-freeze, chemicals, animal waste, yard debris, paints, garbage, and litter.
3. **Spills:** Spills or leaks of polluting substances released, discharged to, or having the potential to released or discharged to the stormwater conveyance system, shall be contained, controlled, collected, and properly disposed. All affected areas shall be restored to their preexisting condition. Persons in control of the polluting substances immediately prior to their release or discharge, and persons owning the property on which the substances were released or discharged, shall immediately notify the (title of the individual in charge of managing accidental hazardous material releases in the local jurisdiction, such as a municipal Fire Chief) of the release or discharge, as well as making any required notifications under state and federal law. Notification shall not relieve

any person of any expenses related to the restoration, loss, damage, or any other liability which may be incurred as a result of said spill or leak, nor shall such notification relieve any person from other liability which may be imposed by State or other law.

C. Prohibited Connections: Connections to a stormwater conveyance or stormwater conveyance system that allow the discharge of non-stormwater, other than the exclusions described in Section 12.5.8.B.1 above, are unlawful. Prohibited connections include, but are not limited to: floor drains, waste water from washing machines or sanitary sewers, wash water from commercial vehicle washing or steam cleaning, and waste water from septic systems.

D. Amortization of Prohibited Connections

1. Where such connections exist in violation of this section and said connections were made prior to the adoption of this provision or any other ordinance prohibiting such connections, the property owner or the person using said connection shall remove the connection within one year following the effective date of this ordinance.

2. However, the one-year grace period shall not apply to connections which may result in the discharge of hazardous materials or other discharges which pose an immediate threat to health and safety, or are likely to result in immediate injury and harm to real or personal property, natural resources, wildlife, or habitat. The Administrator shall designate the time within which such connections shall be removed. In setting the time limit for compliance, the Administrator shall take into consideration:

a. The quantity and complexity of the work,

b. The consequences of delay,

c. The potential harm to the environment, to the public health, and to public and private property, and

d. The cost of remedying the damage.

E. Illicit Discharge Enforcement/Penalties

1. Whenever the Town of Wake Forest finds that any user of the municipal separate storm sewer system is violating the improper disposal provisions, the Administrator, or their designee, shall serve upon such a person a notice of violation and direct the responsible party to:

a. Comply immediately;

b. Comply in accordance with a schedule set forth in the notice; or

c. Take appropriate remedial or preventative action in the event of a continuing or threatening violation.

2. No penalty shall be assessed without following the outlined notice of violation procedures for stormwater in section 16.3.5 of the UDO. Civil penalties also apply as listed in 16.3.7.

F. Appeals Process

1. Any person who has been served a notice of violation or assessed a civil penalty under this section may request an appeal hearing from the Administrator, or designee, provided such appeal is taken within 30 days of the challenged action as outlined in Chapter 15 of the UDO.

2. Appeals of the decisions of the Administrator shall be heard by the Board of Adjustment in accordance with Section 15.12.

~~d.~~**a.**

12.6 WATER SUPPLY WATERSHED PROTECTION REGULATIONS

12.6.1 WATER SUPPLY WATERSHED PROTECTION OVERLAY (FALLS LAKE, RICHLAND CREEK AND SMITH CREEK)

A. Applicability: The following regulations shall apply to all parcels or portions of parcel that fall within designated watershed areas as noted on the official zoning map. Where the standards of these regulations differ from the base district (e.g., density, maximum impervious surface) these regulations shall take precedence. The Water Supply Watershed Protection Overlay District shall apply to all Special Flood Hazard Areas within the Town and its extraterritorial jurisdiction area (ETJ). The Special Flood Hazard Areas are those identified under the Cooperating Technical State (CTS) agreement between the State of North Carolina and FEMA in its Flood Insurance Study (FIS) for Wake County dated May 2, 2006 and updated Preliminary FIS dated March 2015 (currently under review), and its accompanying Flood Insurance Rate Map (FIRM) Panels (1729, 1738, 1739, 1749, 1830, 1831 1832, 1840, 1841, 1842, 1850 and 1851) which are adopted by reference and declared to be a part of this Ordinance. The "Special Flood Hazard Areas" also include those defined through standard engineering analysis for private developments or by governmental agencies, but which have not yet been incorporated in the FIRM.

B. Authority: These regulations are adopted pursuant to NCGS 143-214.5, as amended, and the Water Supply Watershed Protection Rules established by the North Carolina Environmental Management Commission. The purpose of the Watershed Protection Overlay Districts is to ensure the protection, availability and quantity of public water supplies for recreational and aesthetic purposes, to minimize sedimentation of streams, and to protect the environment, health, and general welfare of present and future residents of the Town and the Triangle Region under the authority set forth in Sec. 1.2 *Authority* of this Ordinance and in NCGS 160A-174. In addition, the Legislature of the State of North Carolina has, in Chapter 143, Article 21 of the North Carolina General Statutes, entitled Water and Air Resources, directed local governmental units to adopt regulations designed to promote the public health, safety, and general welfare pursuant to the more specific requirements set forth in 15A NCAC 2B .0100, 15A NCAC 2B .0200, and in the Falls Lake Reservoir Water Supply Nutrient Strategy Rules 15A NCAC 2B . 0276,.0277, .0281 and .0282 and Neuse River Basin-Nutrient Sensitive Waters Management Strategy Rules 15A NCAC 02B.0232 and .0233. Additional authority is pursuant to the Federal Water Pollution Control Act of 1972 (Clean Water Act), federal Phase II Stormwater rules promulgated under it, and NCGS 143-215.1 and S.L. 2006-246, the Town is required to obtain a Phase II National Pollutant Discharge Elimination System (NPDES) permit for stormwater management for its municipal separate storm sewer system and to adopt, among other things, requirements and procedures to control the adverse effects of increased post development stormwater runoff and nonpoint and point source pollution associated with new development and redevelopment.

C. Surface Water Classification: The regulations of this section apply according to the Surface Fresh Water Classifications pursuant to 15A NCAC 02B.0101 of the water supply watersheds established by NC DEQ.

1. **Water Supply IV (WS-IV) Surface Waters:** WS-IV waters located within the jurisdiction of the Town of Wake Forest and its ETJ include Horse Creek in

the Falls Lake Watershed and Richland Creek. In the Upper Neuse River Basin. WS-IV waters are used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I, II or III classification is not feasible.WS-IV waters are generally in moderately to highly developed watersheds or Protected Areas.

2. **Water Supply II (WS-II) Surface Waters:** WS-II waters located within the jurisdiction of the Town of Wake Forest and its ETJ include ~~Smith Creek~~ the Wake Forest Reservoir and Smith Creek Watershed from its source to the Wake Forest Reservoir dam. WS-II Waters are used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I classification is not feasible. WS-II waters are generally in predominantly undeveloped watersheds. All WS-II waters are designated as High-Quality Waters (HQW) by supplemental classification.

D. Specific Standards by Water Supply Watershed Area: The following standards shall apply to all mapped watershed areas and shall take precedence over the underlying zoning district standards. In each watershed area ~~the applicant may choose whether to abide by the~~ standards for ~~the~~ Low ~~Impervious Surface~~ Density Development Options ~~or the~~ and High ~~Impervious Surface~~ Density Development Options pursuant to the March 1, 2019 revisions to the Water Supply Watershed Protection Rules 15A NCAC 02B.0624 as outlined in the tables below: Note: Changed the term "impervious area" are mainly artificial surfaces which are covered by impenetrable materials like asphalt, brick, stone etc.. for "built-upon area" means impervious surface and partially impervious surfaces to the extent that the partially impervious surfaces do not allow water to infiltrate into the subsoil. Built-upon area is referenced in Appendix A-4 of the NCDEQ Stormwater Manual.

1. Falls Lake Water Supply Watershed (Class WS-IV)			
Development Type	**Location Classification**	**Maximum Density**	**Maximum Impervious Surface Coverage**
~~Single Family Residential Development~~	~~Critical Area (FL-CA)~~	~~1 unit/2 acres~~	~~6%~~
	~~Watershed Management Area (FL-WMA)~~	~~1 unit/acre~~	~~12% w/o municipal water & sewer OR 24% with municipal water & sewer~~
~~All Other Development~~	~~Critical Area (FL-CA)~~	~~Follows base zoning~~	~~6%~~
	~~Watershed Management Area (FL-WMA)~~	~~Follows base zoning~~	~~12% w/o municipal water & sewer (Low Impervious Surface Option); 24% with municipal water & sewer (Low Impervious Surface Option); OR 70% (High Impervious Surface Option) *~~

Falls Lake Water Supply Watershed/Horse Creek (Class WS-IV)				
Water Supply Classification	**Location in Watershed**	**Maximum Allowable Project Density or Minimum Lot Size**		
		Low Density Development Option		**High Density Development Option**
		Single Family Residential	**Non-Residential and All Other Development**	**All Types**
WS-IV*	Critical Area-Not located within the current Town Limits or ETJ	1 dwelling unit per 2 acres or 80,000 sq. ft. lot or 6% built-upon area	6% built-upon area	6% built-upon area
	Protected Area-Wake County west of Horse Creek not located within the current Town Limits or ETJ	1 dwelling unit per acre or 40,000 sq. ft. lot or 12% built-upon area; excluding roadway right-of-way (ROW)	12% built-upon area without municipal water or 24% with municipal water & sewer and storm water management devices*	24% built-upon area without municipal water & sewer and with curb & gutter to 30% without curb & gutter or 70% built-upon area with

				municipal water & sewer
	Protected Area-Located East of Horse Creek located within the current Town Limits & ETJ	Follows Base Zoning	12% built-upon area without municipal water or 24% with municipal water & sewer and storm water management devices*	24% built-upon area without municipal water & sewer and with curb & gutter to 30% without curb & gutter or 70% built-upon area with municipal water & sewer

*Stormwater management devices are required for initial half-inch of runoff if impervious area is greater than 12 percent.

2. Richland Creek Water Supply Watershed (Class WS-IV)

Development Type	Location Classification	Maximum Density	Maximum Impervious Surface Coverage
~~Single Family Residential Development~~	~~Critical Area (RC-CA)~~	~~2 units/acre~~	~~24% (Low Impervious Surface Option)~~
		~~Follows base zoning~~	~~50% (High Impervious Surface Option)*~~
	~~Watershed Management Area (RC-WMA)~~	~~Follows base zoning~~	~~70% (High Impervious Surface Option)*~~
~~All Other Development~~	~~Critical Area (RC-CA)~~	~~Follows base zoning~~	~~24% (Low Impervious Surface Option)~~
			~~50% (High Impervious Surface Option)*~~
	~~Watershed Management Area (RC-WMA)~~	~~Follows base zoning~~	~~70% (High Impervious Surface Option)*~~

Upper Neuse River Basin Water Supply Watershed/Richland Creek (Class WS-IV)				
Water Supply Classification	**Location in Watershed**	**Maximum Allowable Project Density or Minimum Lot Size**		
		Low Density Development Option		**High Density Development Option**
		Single Family Residential	**Non-Residential and All Other Development**	**All Types**
WS-IV	Critical Area-Not located within the the Current Town Limits or ETJ	2 dwelling units per acre or 20,000 sq. ft. lot, excluding roadway ROW or 24% built-upon area	24% built-upon area	24% (Low Density) to 50% (High Density) built-upon area
	Protected Area along Richland Creek WS-IV	2 dwelling units per acre or 20,000 sq. ft. lot, excluding roadway ROW or 24% built-upon area; or 3 dwelling units per acre; or 36% built-upon area without curb and gutter street system	24% built-upon area; or 36% built-upon area without curb and gutter street system	24% to 70% built-upon area*

ROW Roadway Right-of Way
* Engineered stormwater controls are required to control runoff from the first one-inch of rainfall.

3. Smith Creek Water Supply Watershed (Class WS-II)

Development Type	Location Classification	Maximum Density	Maximum Impervious Surface Coverage
	~~Critical Area (SC-CA)~~	~~1 unit/2 acres~~	~~6%~~

~~Single Family Residential Development~~		~~1 unit/2 acres~~	~~24% (High Impervious Surface Option)*~~
	~~Watershed Management Area (SC-WMA)~~	~~1 unit/acre~~	~~12% (Low Impervious Surface Option)~~ ~~30% (High Impervious Surface Option)*~~
~~All Other Development~~	~~Critical Area (SC-CA)~~	~~Follows base zoning~~	~~6%~~ ~~24% (High Impervious Surface Option)*~~
	~~Watershed Management Area (SC-WMA)~~	~~Follows base zoning~~	~~12% (Low Impervious Surface Option)~~ ~~30% (High Impervious Surface Option)*~~

** All high impervious surface options require municipal water and sewer service*

Smith Creek Water Supply Watershed including Wake Forest Reservoir (Class WS-II)				
Water Supply Classification	**Location in Watershed**	**Maximum Allowable Project Density or Minimum Lot Size**		
		Low Density Development Option		**High Density Development Option**
		Single Family Residential	**Non-Residential and All Other Development**	**All Types**
WS-II	Critical Area from Source to the Wake Forest Reservoir Dam (WS_II, HQW, NSW, CA)	1 dwelling units per 2 acres or 80,000 sq. ft. lot, excluding roadway ROW or 6% built-upon area	6% built-upon area	6% (Low Density) to 24% (High Density) built-upon area*
	Protected Area WS-II Watershed	1 dwelling units per 1 acre or 40,000 sq. ft. lot, excluding roadway ROW or 12% built-upon area	12% built-upon area	12% to 30% built-upon area*
Class C, NSW	Balance of Watershed South of Wake Forest Dam Class C Waters	Follows Base Zoning	Follows Base Zoning	Follows Base Zoning

* Engineered stormwater controls shall be used to control runoff from the first one-inch of rainfall.

E. Watercourse Buffers (Minimum Each Side): See Section 12.7

F. Exceptions: All land in the Watershed Protection Overlay Districts shall be developed in accordance with the requirements of this section except for the following:

1. Development existing prior to the date indicated for each water supply watershed in the table below is exempt from these requirements, but expansions to structures, other than single-family development, shall be treated as new development and meet the requirements of this section. In these instances, the built-upon area of the existing development is not required to be included in the density or impervious surface area calculations for the expansion.

Water Supply Watershed	Date
Falls Lake Water Supply Watershed	July 1, 1993
Richland Creek Water Supply Watershed	April 1, 2005
Smith Creek Water Supply Watershed	July 1, 1993

2. Redevelopment or reconstruction of existing development is allowed if the rebuilding activity does not have a net increase in built-upon area or provides equal or greater storm water control than the previous development as allowed by this section, except that there are no restrictions on single-family residential development.

3. A deeded single-family lot owned by an individual prior to the date indicated

for each water supply watershed in the table in Section 12.6.1.F.1 above, provided it is developed for single-family use.

4. A non-conforming lot of record, not contiguous to any other lot owned by the same party, provided it is developed for single-family use.

5. Any lot or parcel created as part of a family subdivision on or after the date indicated for each water supply watershed in the table Section 12.6.1.F.1 above, provided it is developed for one single-family detached residence and if it is exempt from the subdivision regulations.

G. **Calculation of Impervious Surface/Built-Upon Area:** For the purpose of calculating the impervious surface/built-upon area, total project area shall include total acreage in the tract on which the project is to be developed. Impervious surface area shall include, but not be limited to, all existing public and private streets, proposed public streets, sidewalks, driveways, rooftops, parking lots, patios, and all other impervious and partially impervious surfaces, including coarse aggregate base course (CABC) and gravel within the development and any material which reduces and prevents absorption of storm water into previously undeveloped land. ~~such as roads, parking lots, paths, and recreation facilities such as tennis courts.~~ Impervious surface area does not include wooden slatted decks, the water area of a swimming pool, or pervious or partially pervious paving material to the extent that the paving material absorbs water or allows water to infiltrate through the paving material and underlying substrate. Other pervious materials may be excluded from the calculation of impervious area as provided by the North Carolina environmental Management Commission Manual as amended. Impervious surface/built-upon s area calculations shall be made based on the total acreage of built-upon area within a proposed development, divided by the total acreage of the lot area. Density calculations for expansions shall be based on the total acreage of built-upon area proposed for expansion, divided by the total acreage of lot area proposed for expansion.

1. *New Construction BUA Calculation*:

Built-Upon Area (%) = Proposed Built-Upon Area Acreage / Total Project Site Area Acreage x 100

Example:

A proposed 50-acre site will be developed to include 12 acres of built-upon area. Calculation of built-upon area for the site would be:

%Built-upon Area = (12 acres) / (50 acres) x 100 = 24%

2. *Development/Redevelopment of and Existing BUA Calculation Options*:

Option A: Addition of a New and Separate BUA on an Existing BUA Developed Property

Built-Upon Area (%) = [Built-Upon Area Increased by Redevelopment / (Total Parcel Acreage – Total Existing or Adjusted BUA Acreage)] x 100

Example:

A 20-acre site is located in a watershed that has a 24% BUA high density development limit. The site has 2 acres of existing BUA constructed prior to the effective ordinance date. Redevelopment in an undeveloped portion of the site is proposed to increase the BUA by 4 acres to a total of 6 acres. The % BUA is calculated dividing the proposed redeveloped BUA acreage by the total

project acreage less the existing pervious area as follows:

% BUA = [4 acres / (20 acres - 2 acres)] x 100 = 22.2% BUA

Since the proposed 22.2% BUA does not exceed 24% BUA, the project is considered Low Density. However, the total impervious surface area is increased to 6 acres or a total BUA of 30%which would be considered High Density.

Option C: "No Net Increase in the Impervious Surface Area" Redevelopment BUA Calculation Alternative Methods

Example

A proposed 2.1-acre site is located in a watershed that has a 24% BUA high density development limit. The site has 2 acres of existing BUA that existed prior to the effective ordinance date. Redevelopment is proposed that would change the existing 2 acres of BUA with no net increase in impervious area. The % BUA is calculated using the proposed redeveloped BUA over the existing pervious area as follows:

Alternative BUA Calculation Method 1:

% BUA = [1.1 acre / (2.1 acres - 0.9 acres)] x 100 = 91.7% BUA

Since the proposed 91.7% BUA exceeds 24% BUA, the project is considered High Density, but there is no net increase in the total impervious surface area.

Alternative BUA Calculation Method 2:

Considers the no net increase in impervious surface area and assigns the redevelopment BUA 0% as follows:

% BUA = [0 acres / (2.1 acres – 2 acres)] x 100 = 0% BUA

Since the proposed 0% BUA is does not exceed 24% BUA, the project is considered Low Density.

3. Drainage Area Considerations for New Development BAU Calculations:

Drainage area determinations should be made based upon the site area(s) within the project boundaries that drain to a common point. A proposed project site could contain multiple drainage areas that need to be evaluated individually. To determine the drainage area(s) of a particular project, locate the point at which a stream or drainage feature leaves the property. Any on-site area that drains to that point is considered a distinct drainage area for BUA calculations. Off-site drainage should not be included in this calculation. BAU calculations can allow distinct drainage areas to be combined into one drainage area for evaluation if the distinct drainage areas converge together off-site near the project boundary. The determination of "near" the project boundary will need to be established in this Ordinance.

3.a. Separate Drainage Area Calculation Approach Example:

A proposed 50-acre project site has two distinct drainage areas that drain to separate and independent streams/drainage features described as follows:

- Area A: 30 acres with 4.1 acres of built-upon area
- Area B: 20 acres with 8 acres of built-upon area

For this example, the high density development limit is 24%. Calculation of the BUA percentage would be as follows:

%Built-upon Area A = (4.1 acres) / (30 acres) x 100 = 13.7%

%Built-upon Area B = (8 acres) / (20 acres) x 100 = 40%

Therefore Area A is Low Density and Area B is High Density.

3.b. Combined Drainage Area BAU Calculations:

A proposed 50-acre project site has two distinct drainage areas described as follows, but the streams/drainage features converge just off-site.

- Area A: 30 acres with 4.1 acres of built-upon area
- Area B: 20 acres with 8 acres of built-upon area

The high density development limit is 24%. Calculation of the BAU percentage would be as follows:

%Built-upon Area A & B = (4.1 acres + 8 acres) / (50 acres) x 100 = 24.2%

Since the built-upon percentage exceeds 24% the high density threshold, the entire project site would be considered High Density.

H. Prohibited Uses: The following uses are prohibited in the Water Supply Watershed Protection Overlay Districts:

1. Processing of mineral products;
2. Lumber mills and saw mills;
3. Processing of animal and vegetable products;
4. The storage of toxic and hazardous materials unless a spill containment plan is implemented;
5. Landfills and discharging landfills;
6. Sites for land application of sludge/residuals or petroleum contaminated soils;
7. Discharges of sewage, domestic wastewater, industrial wastes, non-process industrial wastes, or other wastes except as permitted by the Division of Environmental Health, N.C. Department of Environment, Health and Natural Resources or successor authority;
8. Any use determined by the Town of Wake Forest to be detrimental to the quality of water in water supply watersheds by posing a threat of run-off, leaching or other types of pollution.

I. Hazardous Materials

1. Existing and new industrial development shall maintain an inventory of all hazardous materials used and stored on the premises; and, prepare a spill/failure containment plan and implement safeguards against contamination; and, encourage waste minimization and the appropriate recycling of materials.
2. New industrial development shall incorporate adequately designed, constructed

and maintained spill containment structures if hazardous materials are used, stored or manufactured on the premises.

12.6.2 IMPERVIOUS SURFACE AVERAGING

A. Purpose: Impervious surface averaging allows development plans for 2 noncontiguous parcels to be submitted together and treated as a single project to meet the requirements of this section. This option is intended to enhance water supply watershed protection and provide greater development flexibility for properties in Water Supply Watershed Protection Overlay Districts by allowing the transfer of impervious area "credits" across parcels.

B. Limitations: In order to qualify for an impervious surface averaging allowance:

1. All other requirements of this ordinance must be met;
2. The property from which the impervious area credits are taken must not have been used in the calculation of impervious area allowance for an existing or approved development project;
3. No parcel for which a watershed variance has been granted, or would be required, may be included as a part of a parcel pair; and
4. The development proposal for the parcel pair shall conform to the intent and requirements of this section, shall be consistent with the orderly and planned distribution of development throughout the community, and shall assure protection of the public interest.

C. Location

1. Parcels from which development "credits" are taken must be located in a Watershed Protection Overlay District.
2. Parcels to which development "credits" are applied must be located within the same water supply watershed as the paired-parcel.

D. Combined Impervious Surface Area Limit: The total amount of development (impervious surface area) allowed for the paired parcels taken together cannot exceed the amount of development that would be allowed if the parcels were developed separately.

E. Overall Density Limit: Overall density of the paired-parcel, averaged-impervious surface development, calculated either by dwelling units per acre or built upon area shall not exceed the density that would be allowed if the parcels were developed separately.

F. Runoff Volume: Peak flow must be controlled on the developing lot or project using the acreage or area of the developing lot or project only, to minimize drainage impact on downstream properties.

G. Stormwater Flow: Plans shall be designed to:

1. Minimize stormwater runoff impact to the receiving waters by minimizing concentrated stormwater flow;
2. Maximize the use of sheet flow through vegetated areas and vegetated conveyances;
3. Minimize impervious surface areas;
4. Locate development away from surface waters and drainage ways to the maximum extent practicable; and
5. Where concentrated flow is unavoidable, convey stormwater from developed areas by vegetated swales to the maximum extent practicable.

H. Procedure for Approval

1. An impervious surface averaging allowance shall be conveyed as part of a Development Permit, in accordance with Section 15.6.1. Only owners of both of the paired parcels may submit an application for a development using an impervious surface averaging allowance.
2. Included with the Development Permit application shall be a site plan, registered plats/sealed boundary survey for both properties, a description of both properties, appropriate calculations and documentation of the proposed impervious surface averaging agreement, and documentation indicating the intent to convey the undeveloped parcel(s) or portion(s) thereof to the town.
3. If an impervious surface averaging allowance is granted as part of a Development Permit, no change in the development proposal authorized for either parcel shall be made unless the impervious surface averaging allowance is amended and reapproved by the Administrator.
4. Before a Building Permit is issued, the undeveloped parcel(s) or portion(s) thereof shall be deeded (fee simple and at no cost) to the Town of Wake Forest and the town shall place a permanent conservation easement on the same, as provided under NCGS 121-35, granted to the town, a land conservation organization, or other entity capable of providing for the ongoing maintenance of the undeveloped property. No such agreement shall be accepted without approval of the Town Attorney as to the legal sufficiency of the documents involved.
5. Once ownership of such land is conveyed, a plat showing the properties and conservation easements involved in the development and outlining the impervious surface averaging requirements associated with the parcel pair must be reviewed, approved, and recorded prior to the issuance of the building permit.41

I. **Agreements Shall Continue Indefinitely:** Applicants shall agree to bind themselves and their successors in title, individually and collectively, to maintain the pattern of development proposed for so long as the requirements of this section are applicable. Parties to enforcement of such agreement shall include the town.

12.7 WATERCOURSE ~~(RIPARIAN)~~ BUFFER AREAS

It is the intent of this section to seek to maximize retention of the natural beauty of vegetation along creeks, streams, rivers, and lakes, and other bodies of water while simultaneously providing for the retention of surface water run-off from areas adjacent to these natural and/or built features, resulting in a net reduction of pollutants that enter these water features. Natural resource buffers are intended to provide an area where stormwater flows in a diffuse manner so that the stormwater runoff does not become channeled and infiltration of the stormwater and filtering of pollutants can occur. The following rules apply to all required watercourse buffers. No new clearing, grading, or development shall occur, nor shall any new building permits be issued in violation of this section. No exemptions shall be permitted from this section except for any use, development, or activity that has been specifically exempted by any applicable state law from local regulations of the type established by this Ordinance. Activities impacting Zone 1 and/or 2 of a riparian buffer in the Falls Lake Watershed or in the Neuse River Basin, including activities conducted under the authority of the State, the United States, multiple jurisdictions, or local units of government, silviculture and/or agricultural activities shall be administered by the NC Department of Environmental Quality (NC DEQ) in accordance with 15A NCAC 02B.0622 dated March 1, 2019.

12.7.1 ESTABLISHMENT OF BUFFERS

A. Applicability:

1. All protected drainageways and surface waters shall have riparian buffers directly adjacent to such surface waters of the width specified in 12.7.2

below. When multiple watercourse buffer standards apply, the more stringent standard shall dictate.

2. Riparian buffers shall be delineated and recorded on final subdivision plats or at the time of development of the property

3. Riparian buffers shall be maintained for all perennial an intermittent streams, lakes and ponds in accordance with 12.7.1.B of this Ordinance.

B. Location of Buffers

1. For the purposes of this section, intermittent streams, perennial streams, upper watershed drainageways that drain more than 5 acres, water supply impoundments, lakes, ponds and wetlands shall be deemed to be present if the feature is indicated on the most recent versions of the following:

   a. United States Geological Survey 1:24,000 scale (7.5 minute quadrangle) topographic maps;

   b. A soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture;

   c. The North Carolina Division of ~~Water Resources~~Environmental Quality (~~NCDWR~~NCDEQ) identification methodology for determination of perennial and intermittent streams; or

   d. Other site-specific evidence.

2. Wetlands may also be identified, as either a bordering or isolated wetland, using the 1987 Corp of Engineers ~~technique~~ Federal Unified Method and/or supplemental Corps-approved methodology.

3. In order to determine the amount of land drained by an upper watershed drainageway, USGS or Wake County topographic maps may be used.

4. Where obvious conflicts between actual field conditions and USGS and county soil survey maps exist, appeals may be made to the Administrator or, for appeals related to Neuse River Basin buffer requirements, the North Carolina Division of ~~Water Resources~~Environmental Quality.

5. All surface waters shall be determined by a qualified person that has successfully completed the NC DEQ's *Surface Water Identification Training Certification* course, its successor, or other equivalent training curriculum approved by the NC DEQ using the most recent version of Identification Method for the Origins of Intermittent and Perennial Streams and verified by qualified Town Staff and/or the NC ~~Division of Water Resources~~DEQ.

C. Buffer Measurement: The width of each required riparian buffer shall be measured perpendicular to the banks of the protected drainageway, beginning at the most landward limit of the top of bank. When no watercourse banks exist, the centerline of the watercourse shall be used. All building setbacks shall be a minimum of 10 feet and all vehicular roads and parking lots shall be set back a minimum of five (5) feet from the edge of a riparian buffer.

D. Surface waters that appear on the maps used to determine surface water classifications shall not be subject to the requirements of Section 12.7.1 if a site evaluation reveals any of the following cases:

1. Man-made or isolated ponds and lakes that are not part of a natural drainage way or hydraulically connected or have significant nexus to waters of the United States (WOTUS) as determined by the US Army Corps of Engineers (USACE) that is classified in accordance with 15A NCAC 2B .0100, including

ponds and lakes created for animal watering, irrigation, or other agricultural uses. A pond or lake is included as a part of a natural drainage way when its source is an intermittent or perennial stream or when it has a direct discharge point to an intermittent or perennial stream as determined by a qualified person in accordance with 12.7.1.B.5 of this Ordinance. Details can be found in the Town of Wake Forest's *Manual of Specifications, Standards and Design (MSSD)* and *Public Policy Manual.*

2. Ephemeral streams or streams that only flow briefly during and following a period of rainfall in the immediate area.

3. The absence on the ground of a corresponding intermittent or perennial stream, lake, reservoir, or pond.

4. Ditches or man-made water conveyances, other than modified natural streams.

E. Diffuse Flow Requirement

All stormwater runoff from new man-made stormwater control facilities, including new ditches or canals, which flow into a watercourse natural resource buffer or into riparian surface water buffer shall be diffused flow so as not to concentrate stormwater or form gullies. Diffuse flow of surface runoff shall be maintained in watercourse buffers by dispersing concentrated flow and reestablishing vegetation. The requirement for diffuse flow is provided for in 15A NCAC 02B.0233.(5). Options for achieving diffuse flow are presented in the NDDEQ-DWR Memo dated March 7, 2014 "Options for Meeting Diffuse Flow Provisions of Stormwater and Riparian Buffer Programs", including Diffuse Flow Options 1 to 4.

1. Concentrated runoff from new ditches or manmade conveyances shall be converted to diffuse flow before the runoff enters the riparian buffer.

2. Periodic corrective action to restore diffuse flow shall be taken if necessary to impede the formation of erosion gullies.

3. As set out in this Ordinance, Zones of the Riparian Buffer and 12.7.3.A respectively, no new stormwater conveyances are allowed through the buffers except for those which may be authorized under 12.7.3.A of this Ordinance.

~~WATERCOURSE~~ BUFFER TABLES

All development within both the Primary Watershed Protection District and the Secondary Watershed Protection District shall be designed to comply with the standards of the low-density development or standards for the high-density development options unless specified for a specific section or reach of a watershed or river basin. Buffer requirements for each watershed protection district and water quality classification are provided in the Tables as follows:

A. General Buffers and Setbacks	The following watercourse buffer standards shall apply for all development projects.		
Surface Water Features	**Zone 1 Buffer**	**Zone 2 Buffer**	**Additional Standards**
1. Intermittent and Perennial Streams (not subject to Neuse River Buffer or Falls Lake Riparian Buffer Rules)	30 ft	20 ft	See Section 12.7.3
2. Wetlands (included as part of buffer if within 50 feet of surface waters)	Not Applicable	10 ft	
3. Agricultural Activities Setback from Outer Buffer Boundary	Not Allowed	10 ft	

4.Roadways and Parking Lots Setbacks from the Outer Buffer Boundary	Not Allowed	5 ft	
5. Building or structures Ssetback from Outer Buffer Boundary	Not Allowed	20 ft	

B. Watershed Protection District Buffers		When located in the Falls Lake, Richland Creek or Smith Creek Water Supply Watersheds *(both the Critical Area & Watershed Management Area)*, the following watercourse buffer standards shall apply for all development projects.		
Surface Water Features	**Zone 1 Buffer**	**Zone 2 Buffer**	**Zone 32 Buffer**	**Additional Standards**
1. Intermittent Stream	~~50~~ 30 ft	**20 ft**	~~Not required~~**50 ft**	All buildings and structures shall be set back a minimum 10 ft from the edge of any required buffer. See Section 12.6 and 12.7.3
2. Perennial Waterbodies and Streams (w/ Low ~~Impervious Surface~~ Density Development Option)	~~50~~ 30 ft	20ft		
3. Perennial Waterbodies and Streams (w/ High ~~Impervious Surface~~ Density Development Option)	~~100 ft~~ 30ft or by permit	20		
4. Watershed Drainageway (drains more than 5 acres but less than 25 acres)	~~30 ft~~ 30ft or by permit	30 ft		
5. Water Supply Impoundments (Drains 25 acres or more)	~~100 ft~~ 30ft or by permit	20 ft		
6. WS-II Waterbodies and Streams (Smith Creek~~), WS-III~~ & WS-IV Waterbodies and Streams (Falls Lake & Richland Creek)*	~~100 ft~~20	20 ft		

~~* Excludes tributaries~~

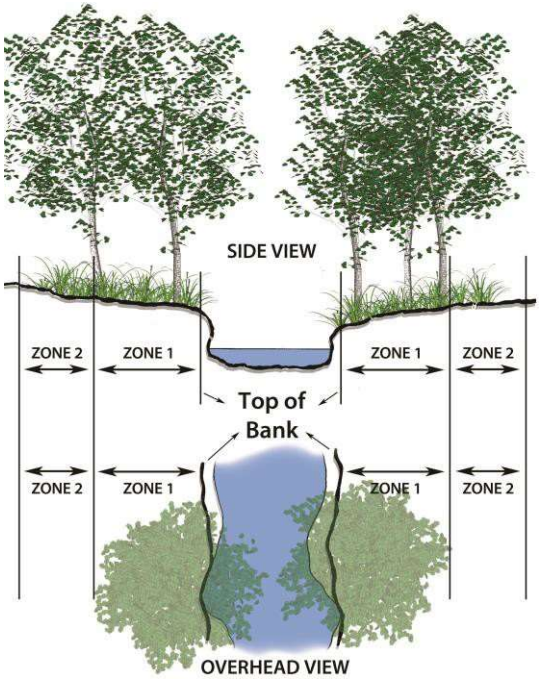
C. Neuse River Basin Buffers	When located in the Neuse River Basin, the state regulations for water management as outlined in 15 A NCAC 2B.0233 shall apply for all development projects.		
Surface Water Features	**Zone 1 Buffer**	**Zone 2 Buffer**	**Additional Standards**
All intermittent streams, perennial streams, water supply impoundments, lakes and ponds	30 feet min.	20 feet min.	All buildings and structures shall be set back a minimum 10 ft from the edge of any required buffer. See Section 12.7.3

A. Delineation of Buffer Zones

1.0 Non-Perennial and Perennial Streams. The protected riparian buffer for non-perennial watercourses shall have two (2) zones, including zone 1 and zone 2 only. The combined width of zone 1 and zone 2 shall be 50 feet total on all sides of the surface water. The riparian buffer zones are described as follows:

Zone 1: Zone 1 shall consist of a vegetated area that is undisturbed except for uses provided in Section 12.7.3.A. Zone 1 begins at the landward limit of the top of bank for ~~intermittent streams and~~ perennial streams and extends landward a distance of 30 feet on all sides of the water body along non-perennial watercourses and ~~50~~ 20 feet along all perennial watercourses. For all water bodies, Zone 1 begins at the top of bank or mean high water line. Zone 1 is an undisturbed area of vegetation.

Zone 2: Zone 2 shall consist of a vegetated area that is undisturbed except for uses provided in Section 12.7.3.A. Zone 2 begins at the outer edge of Zone 1 and extends landward a distance of 20 feet on all sides of the water body along non-perennial watercourses and 50 feet on all sides along perennial watercourses. Zone 2 consists of a stable vegetated area that may be graded and revegetated provided that the health of vegetation in Zone 1 is not compromised.



The combined width of Zones 1 and 2 along non-perennial watercourses shall be 50 feet on all sides of the surface water. The combined width of Zones 1 and 2 along perennial watercourses shall be 100 feet on all sides of the surface water.

2.0 Intermittent Streams: The protected riparian buffers for intermittent streams shall have two (2) zones as follows:

Zone 1: Zone 1 shall consist of a vegetated area that is undisturbed except for uses provided in Section 12.7.3.A. Zone 1 shall begin at the most landward limit of the top of bank and extend landward a distance of 30 feet on all sides of the surface water.

Zone 2: Zone 2 shall consist of a vegetated area that is undisturbed except for uses provided in Section 12.7.3.A. Zone 2 shall begin at the outer edge of Zone 1 and extend landward a distance of 20 feet. The combined width of Zones 1 and 2 shall be 50 feet combined on all sides of the surface water.

The combined width of Zones 1 and 2 shall be 50 feet on all sides of the surface water.

3.0 Lakes, Impoundments and Ponds: Depending on the size of the watershed, the protected riparian buffer for lakes, impoundments and ponds that are part of a natural drainage way shall consist of Zones 1 and 2 as described below: unless the lake or pond joins with a perennial stream in which case the riparian buffer shall have Zones 1 and 2, as follows:

3.1 Non-Water Supply and Water Supply Watershed Lakes, Impoundments and Ponds with Drainage Area of 5 Acres but Less than 25 Acres

Zone 1: Zone 1 shall consist of a vegetated area that is undisturbed except for uses provided in Section 12.7.3.A. Zone 1 shall begin at the most landward limit of the top of bank and extend landward a distance of 30 feet on all sides of the surface water.

3.2 Non-Water Supply Watersheds with Drainage of 25 Acres or More

Zone 1: Zone 1 shall consist of a vegetated area that is undisturbed except for uses provided in Section 12.7.3.A. Zone 1 shall begin at the most landward limit of the top of bank and extend landward a distance of 30 feet on all sides of the surface water.

Zone 2: Zone 2 shall consist of a vegetated area that is undisturbed except for uses provided in Section 12.7.3.A. Zone 2 shall begin at the outer edge of Zone 1 and extend landward a distance of 20 feet.

The combined width of Zones 1 and 2 shall be 50 feet on all sides of the surface water.

3.3 Water Supply Watershed with Drainage Area of 25 Acres or More

Zone 1: Zone 1 shall consist of a vegetated area that is undisturbed except for uses provided in Section 12.7.3.A. Zone 1 shall begin at the most landward limit of the top of bank and extend landward a distance of 50 feet on all sides of the surface water.

Zone 2: Zone 2 shall consist of a vegetated area that is undisturbed except for uses provided in Section 12.7.3.A. Zone 2 shall begin at the outer edge of Zone 1 and extend landward a distance of 50 feet.

The combined width of Zones 1 and 2 shall be 100 feet on all sides of the surface water.

12.7.3 WATERCOURSE BUFFER STANDARDS

A. Permitted Uses in Watercourse Buffers: All required buffers shall remain natural and undisturbed except as allowed by Neuse River Basin: Nutrient Sensitive Waters Management Strategy: Protection and Maintenance of Existing Riparian Buffers Rules, as amended, or as may be necessary to accommodate any of the uses (Allowable and Allowable with Mitigation) permitted in 15 A NCAC 2B.0233.6. These activities shall minimize built-upon surface area, direct run-off away from the surface waters and maximize the utilization of best management practices (~~BMP~~SCM's).

B. Additional Neuse River Buffer Standards: The Neuse River regulations of this section and 15 A NCAC 2B.0233 shall not apply to riparian buffer areas with existing and ongoing uses established as of July 27, 1997. Existing forest vegetation of any width present after this date must be protected and maintained in accordance with the Neuse River regulations of this section and 15 A NCAC 2B.0233.

C. Buffers to be Shown on Plans: All required watercourse buffers shall be shown on all approved site plans and subdivision plans. Where designated by the Administrator, the placement of signs may be required to relay the buffer protection requirements to the public.

D. Exclusion of Watercourse Buffer Areas from Lots: Single-family lots created through a site and/or subdivision plan shall not be platted in~~to~~ a watercourse buffer area except through the approval of the Administrator when all of the following conditions are met:

1. The subdivision is limited in size and has no homeowners association;
2. There is no other reason for the formation of a homeowners association (e.g., covenant, other common areas, engineered stormwater control structures);
3. The buffer is placed in a permanent conservation or other legal instrument dedicated to the town or other approved conservation or governmental entity (required documents must be provided prior to recordation of the plat for the impacted area).