

Buffer Model Ordinance
City of Roxboro, NC
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Section 1. Background

Whereas, buffers adjacent to stream systems and coastal areas provide numerous environmental protection and resource management benefits which can include the following:

- (a) restoring and maintaining the chemical, physical and biological integrity of the water resources.
- (b) removing pollutants delivered in urban storm water
- (c) reducing erosion and controlling sedimentation
- (d) stabilizing stream banks
- (e) providing infiltration of storm water runoff
- ((f) maintaining base flow of streams
- (g) providing riparian wildlife habitat

It is the desire of the City of Roxboro Public Services Department to protect and maintain the native vegetation in riparian and wetland areas by implementing specifications for the establishment, protection and maintenance of vegetated buffers along all stream systems and within our jurisdictional authority.

Section II. Intent

The purpose of this ordinance is to establish minimal acceptable requirements for the riparian buffers to protect the streams, wetlands and floodplains of City of Roxboro to protect the water quality of watercourses, reservoirs, lakes, and other significant water resources within City of Roxboro; to protect City of Roxboro riparian and aquatic

ecosystems; and to provide for the environmentally sound use of City of Roxboro land resources.

Section III. Definitions

Active Channel: The area of the stream channel that is subject to continuous flows and that includes the portion of the channel below where the floodplain flattens.

Best Management Practices (BMPs): Conservation practices or management measures, which control soil loss and reduce water quality degradation caused by nutrients, animal wastes, toxins, sediment, and runoff.

Buffer: A vegetated area, including trees, shrubs and herbaceous vegetation, which exists or is established to protect a stream system, lake and reservoir. Alteration of this natural area is strictly limited.

Development: 1) The improvement of property for any purpose involving building; 2) Subdivision, or the division of a tract or parcel of land in to 2 or more parcels; 3) the combination of any two or more lots, tracks, or parcels of property for any purpose; 4) the preparation of land for any of the above purpose.

Non-point Source Pollution: Pollution which is generated by various land use activities rather than from an identifiable or discrete source, and is conveyed to waterways through natural processes, such as rainfall, storm runoff, or ground water seepage rather than direct discharge.

One Hundred Year Floodplain: The area of land adjacent to a stream that is subject to inundation during a storm event that has a recurrence interval of one hundred (100) years as delineated by flood maps.

Pollution: Any contamination or alteration of the physical, chemical, or biological properties of any waters that will render the waters harmful or detrimental to: public health, safety or welfare; domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses.

Stream Channel: Part of a water course either naturally or artificially created which contains a perennial base flow of groundwater origin. Base flows of groundwater origin can be distinguished by any of the following physical indicators:

- 1) Hydrophytic vegetation, hydric soil or other hydrologic indicators in the areas(s) where groundwater enters the stream channel, in the vicinity of the stream headwaters, channel bed or channel banks

- 2) Flowing water not directly related to a storm event
- 3) Historical records of a local high groundwater table, such as well and stream gauge records.

Stream Order: A classification system for streams based on stream hierarchy. The smaller the stream, the lower its numerical classification. For example, a first order stream does not have tributaries and normally originates from springs and/or seeps. at the confluence of two first order streams, a second order stream begins, and so on.

Stream System: A stream channel together with the following:

- 1) 100-year floodplain

Streams: Perennial and intermittent watercourses identified through site inspection and USGS maps. Perennial streams are those that are depicted on a USGS 7.5 minute maps with a solid blue line. Intermittent streams are those, which are depicted on a USGS 7.5 minute maps with a dotted blue line.

Water Pollution Hazard: A land use or activity that causes a relatively high risk of potential water pollution.

Section IV. Applications

- A) This ordinance shall apply to all proposed development adjacent to all streams, lakes, ponds, and water bodies shown on the current USGS 7.5 minute maps except for that development, which meets waiver or variance criteria as outlined in Section IX of this regulation.
- B) This ordinance shall apply to all timber harvesting activities, except those harvesting operations which are implementing a forest management plan which has been deemed to be in compliance with the regulations of the buffer ordinance and has received approval from the State of North Carolina.
- C) This ordinance shall apply to all surface mining operations except that the design standards shall not apply to active surface mining operations, which are operating in compliance with an approved State of North Carolina surface mining permit.
- D) The ordinance shall not apply to agriculture operations that are covered by an approved NRCS conservation plan that includes the application of best management practices.

Section V. Plan Requirements

- A) In accordance with Section IV of this ordinance, a plan approved by the appropriate agency is required for all development, forest -harvesting operations, surface mining operations, and agricultural operations.
- B) The plan shall set forth an informative, conceptual and schematic representation of the proposed activity by means of maps (scale 1"=100'), graphs, charts, or other written or drawn documents so as to enable the agency an opportunity to make a reasonably informed decision regarding the proposed activity.
- C) The plan shall contain the following information:
 - 1) a location or vicinity map
 - 2) field delineated and surveyed streams, springs, seeps, bodies of water, and wetlands (include a minimum of two hundred (200) feet into adjacent properties).
 - 3) field delineated and surveyed forest buffers
 - 4) limits of the ultimate one hundred year floodplain
 - 5) hydric soils mapped in accordance with the NRCS soil survey of the site
 - 6) steep slopes greater than fifteen (15) percent for areas adjacent to and within one (100) feet of streams, wetlands, or other water bodies.
- D) The buffer plan shall be submitted to the City of Roxboro Public Services Director in conjunction with the required grading plan for any development, and the riparian buffer should be clearly delineated on the final grading plan.

Section VI Design Standards for Riparian Buffers

- A) A riparian buffer for a stream system shall consist of a forested strip of land extending along both sides of a stream and its adjacent wetlands, flood plains or slopes. The riparian buffer width shall be adjusted to include contiguous sensitive areas, such as steep slopes or erodible soils, where development or disturbance may adversely affect water quality, streams, wetlands, or other water bodies.

- B) The riparian buffer shall begin at the edge of the stream bank of the active channel.
- C) The required width for all riparian buffers (i.e., the base width) shall be minimum of fifty feet, with the requirement to expand the buffer depending on: 1) stream order; 2) percent slope; 3) 100-year floodplain; 4) wetlands or critical areas. Minimum riparian buffers shall be as follows:

Minimum Riparian Buffer	Description
50 feet	Stream order 1 thru 3, slope 0 thru 5 percent, 100 year floodplain and wetlands or critical areas.
65 feet	Stream order 4 thru 10, slope 6 thru 25 percent.
75 feet	Stream order greater than 11, greater than 26 percent.
Greater than 75	Based on site conditions

D) Water Pollution Hazards

The following land uses and/or activities are designated as potential water pollution hazards, and must be set back from the edge of the stream bank of the active channel by the distance indicated below:

- 1) storage of hazardous substances (150 feet)
- 2) drain fields from on-site sewage disposal and treatment system (i.e., septic systems—100 feet)
- 3) raised septic systems (50 feet)
- 4) solid waste landfills or junkyards (200 feet)
- 5) confined animal feedlot operations (250 feet)
- 6) treatment plant (100 feet)
- 7) land application of biosolids (100 feet)

E) The riparian buffer shall be composed of two distinct zones, with each zone having its own set of allowable uses and vegetative targets as specified in this ordinance.

1) Zone 1 Streamside Zone

- a) The function of the streamside zone is to protect the physical and ecological integrity of the stream ecosystem.
- b) The streamside zone will begin at the edge of the stream bank of the active channel and extend a minimum of 30 feet from the top of the bank.
- c) Allowable uses within this zone are highly restricted to:
 - i) flood control structures
 - ii) utility rights of way perpendicular to stream
 - iii) footpaths only, if feasible
 - iv) road crossings, where permitted

The vegetative target for the streamside zone 1 is to be forested

1) Zone 2 Outer Zone

- a) The function of the outer zone is to prevent encroachment into the forest buffer and to filter runoff from residential and commercial development.
- b) The outer zone will begin at the landward edge of the zone 1 and provide a minimum width of 20 feet between zone 1 and the nearest permanent structure.
- c) There shall be no septic systems, permanent structures or impervious cover, with the exception of paths, within the outer zone.
- d) The vegetative target for the outer zone shall be native shrubs for inner 10 feet and outer 10 feet shall be native shrubs or grass, although the planting of native vegetation should be encouraged to increase the total width of the buffer.

Section VII. Buffer Management and Maintenance

A) The riparian buffer, including wetlands and floodplains, shall be managed to enhance and maximize the unique value of these resources. Management includes specific limitations on alteration of the natural conditions of these resources. The following practices and activities are restricted within zones 1 of the riparian buffer, except with approval by Public Services Director:

- 1) Clearing of existing vegetation
- 2) Soil disturbance by grading, stripping, or other practice
- 3) Filling or dumping
- 4) Drainage by ditching, under drains, or other systems
- 5) Use, storage, or application of pesticides, except for the spot
- 6) spraying of noxious weeds or non-native species consistent with
- 7) recommendations of the State Forestry Service
- 8) Housing, grazing, or other maintenance of livestock
- 9) Storage or operation of motorized vehicles, except for maintenance
- 10) and emergency use approved by the Public Service Director

B) The following structures, practices, and activities are permitted in the riparian buffer, with specific design or maintenance features, subject to the review of the Public Services Director:

- 1) Crossings, bridges, paths, and utilities:
 - a) An analysis shall be conducted to ensure that no economically feasible alternative is available.
 - b) The right of way shall be the minimum width needed to allow for maintenance access and installation
 - c) The angle of the crossing shall be perpendicular to the stream buffer in order to minimize clearing requirements
 - d) The minimum number of crossings should be used within each subdivision, and no more than one crossing is allowed for every 500 feet of buffer.

2) Storm water Management:

- e) An analysis shall be conducted to ensure no economically feasible alternative is available, and that the project is either necessary for flood control, or significantly improves the water quality or habitat in the stream.
 - f) In new developments, on-site and non-structural alternatives will be preferred over larger facilities within the stream buffer.
 - g) When constructing storm water management facilities (i.e., BMPs), the area cleared will be limited to the area required for construction, and adequate maintenance access, as outlined in the most recent edition of North Carolina State Standard Manual.
 - h) Material dredged or otherwise removed from a BMP shall be stored outside the buffer.
- 3) Stream restoration projects, facilities and activities approved by the State of North Carolina are permitted within the riparian buffer.
- 4) Water quality monitoring and stream gauging are permitted within the riparian buffer, as approved by the State of North Carolina.
- 5) Individual trees within the riparian buffer may be removed which are in danger of falling, causing damage to dwellings or other structures, or causing blockage of the stream.
- 6) Other timber cutting techniques approved by the Public Services Director may be undertaken within the riparian buffer under the advice and guidance of State and/or Federal Forestry Agency, only if necessary to preserve the forest from extensive pest infestation, disease infestation, or threat from fire.

C) All plats prepared for recording and all right-of-way plats shall clearly:

- 1) Show the extent of any riparian buffer on the subject property by metes and bounds
- 2) Label the riparian buffer
- 3) Provide a note to reference any riparian buffer stating: "There shall be no clearing, grading, construction or disturbance of

vegetation except as permitted by the City of Roxboro's Public services Director."

- 4) Provide a note to reference any protective covenants governing All riparian buffers areas stating: "Any riparian buffer show hereon is subject to protective covenants which may be found in the land records and which restrict disturbance and use of these areas."
- D) All riparian buffer areas shall be maintained through a declaration of protective covenant, which is required to be submitted for approval by public Services Director. The covenant shall be recorded in the land records and shall run with the land and continue in perpetuity
- E) All lease agreements must contain a notation regarding the presence and location of protective covenants for forest buffer areas, and which shall contain information on the management and maintenance requirements for the riparian buffer for the new property owner.
- F) An offer of dedication of a riparian buffer area to the City of Roxboro's Public services Director shall not be interpreted to mean than this automatically conveys to the general public the right of access to this area.
- G) The City shall inspect the buffer annually and immediately following severe storms for evidence of sediment depositions, erosion, or concentrated flow channels and corrective actions taken to ensure the integrity and functions of the riparian buffer.
- H) Riparian buffer areas may be allowed to grow into their vegetative target state naturally, but methods to enhance the successional process such as active reforestation may be used when deemed necessary by Public Services Director to ensure the preservation and propagation of the buffer area. Riparian buffer areas may also be enhanced through reforestation or other growth techniques as a form of mitigation for achieving buffer preservation requirements.

Section VIII Enforcement Procedures

- A) The Public Services Director is authorized and empowered to enforce the requirements of this ordinance in accordance with the procedures of this section.
- B) If, upon inspection or investigation, the director or his/her designee is of the opinion that any person has violated any provision of this ordinance, he/she shall with reasonable promptness issue a correction notice to the person. Each such notice shall be in writing and shall describe the nature of the violation, including a reference to the provision within this ordinance, which has been violated. In

addition, the notice shall set a reasonable time for the abatement and correction of the violation.

- C) If it is determined that the violation or violations continue after the time fixed for abatement and correction has expired, the director shall issue a citation by certified mail to the person who is in violation. Each such notice shall be in writing and shall describe the nature of the violation, including a reference to the provision within this ordinance, which has been violated, and what penalty, if any, is proposed to assessed. The person charged has thirty (30) days within which to contest the citation or proposed assessment of penalty and to file a request for a hearing with the director or his designee. At the conclusion of this hearing, the director or his designee will issue a final order, subject to appeal to the appropriate authority. If, within thirty (30) days from the receipt of the citation issued by the director, the person fails to contest the citation or proposed assessment of penalty, the citation or proposed assessment of penalty shall be deemed the final order of the director.
- D) Any person who violates any provision of this ordinance may be liable for any cost or expenses incurred as a result thereof by the City of Roxboro for replacement of damaged or disturbed vegetation. Additional penalties may be assessed under paragraph E of this section.
- E) Penalties which may be assessed for those deemed to be in violation may include:
 - 1) A civil penalty not to exceed five hundred dollars (\$500.00) for each violation with each day's continuance considered a separate violation.
 - 2) A criminal penalty in the form of a fine of not more than five hundred dollars (\$500.00) for each violation or imprisonment for not more than ninety (90) days, or both. Every day that such violations shall continue will be considered a separate offense.
 - 3) Anyone who knowingly makes any false statements in any application, record, plat, or plan required by this ordinance shall upon conviction be punished by a fine of not more than five hundred dollars (\$500.00) for each violation or imprisonment for not more than thirty (30) days, or both
- F) In addition to any other sanctions listed in this ordinance, a person who fails to comply with the provisions of this buffer ordinance shall be liable to the City of Roxboro in a civil action for damages in an amount equal to twice the cost of restoring the buffer. Damages that are recovered in accordance with this action shall be used for the restoration of buffer systems or for the administration of programs for the protection and restoration of water quality, streams, wetlands, and floodplains.

Section IX Waivers/Variances

- A) This ordinance shall apply to all proposed development except for that development which was prior to the effective date of this ordinance:
- 1) Is covered by a valid, unexpired plat in accordance with development regulations
 - 2) Is covered by a current, executed public works agreement
 - 3) Is covered by a valid, unexpired building permit
 - 4) Has been accepted to apply for a building permit
 - 5) Has been granted a waiver in accordance with current development regulations
- B) The Public Services Director, City of Roxboro may grant a variance for the following:
- 1) Those projects or activities where it can be demonstrated that strict compliance with the ordinance would result in practical difficulty or financial hardship
 - 2) Those projects or activities serving a public need where no feasible alternative is available
 - 3) The repair and maintenance of public improvements where avoidance and minimization of adverse impacts to nontidal wetlands and associated aquatic ecosystems have been addressed.
 - 4) For those developments which have had buffers applied in conformance with previously issued requirements.
- C) Waivers for development may also be granted by the following condition, if deemed appropriate by the director:
- 1) The buffer width may be relaxed and the buffer permitted to become narrower at some points as long as the average width of the buffer meets the minimum requirement. This averaging of the buffer may be used to allow for the presence of an existing structure or to recover a lost lot, as long as the streamside zone (Zone I) is not disturbed by the narrowing, and no new structures are built within the one hundred (100) year floodplain.

- D) The applicant shall submit a written request for a variance to the City of Roxboro's Public Services Director. The application shall include specific reasons justifying the variance and any other information necessary to evaluate the proposed variance request. The agency may require an alternative analysis that clearly demonstrates that no other feasible alternatives exist and that minimal impact will occur as a result of the project or development.

- E) In granting a request for a variance, the City of Roxboro's Public Services Director may require site design, landscape planting, fencing, the placement of signs, and the establishment of water quality best management practices in order to reduce adverse impacts on water quality, streams, wetlands, and floodplains.

Section X. Conflict With Other Regulations

Where the standards and management requirements of this buffer ordinance are in conflict with other laws, regulations, and policies regarding streams, steep slopes, erodible soils, wetlands, floodplains, timber harvesting, land disturbance activities or other environmental protective measures, the more restrictive shall apply.