

ORDINANCE NO. 97-044

TO AMEND CHAPTERS 32 AND 40 OF THE NEW CASTLE COUNTY CODE TO ESTABLISH A RIPARIAN BUFFER AREA OVERLAY ZONE

WHEREAS, New Castle County is committed to protecting the quality of water in streams and waterbodies as is evidenced by the adoption of several overlay zoning districts including floodplain, steep slopes and water resource protection areas and,

WHEREAS, the county also recognizes that forest quality and quantity plays an important role in ecosystem sustainability, species diversity, and habitat fragmentation in New Castle County and,

WHEREAS, it has been shown that riparian buffer areas provide numerous benefits, including, but not limited to, the following:

- improving water quality by trapping and removing sediment, pollutants, and excessive nutrients,
- mitigating flood impact through absorption of stormwater runoff,
- providing food, cover, and thermal protection for fish and other wildlife,
- protecting against streambank erosion and tree loss,
- adding to the aesthetics and property values of adjacent communities,
- complementing the county's efforts towards providing open space and,

WHEREAS, riparian buffers are one of many conservation practices that serve as a cost-effective means of managing the quality and quantity of stormwater runoff.

NOW, THEREFORE, THE COUNTY OF NEW CASTLE HEREBY ORDAINS:

Section 1. Amend various sections of Chapter 32 of the New Castle County Code by deleting the language in brackets [] and by adding the underlined language as follows:

Section 32-3. Definitions.

- (a) Unless otherwise expressly stated.....
- (b) Other terms or words used in this chapter.....

Alley means.....

.....

Engineer means...

Environmental report means any study, report or application required by this Code such as critical natural areas, floodplains, riparian buffer areas, steep slopes, water resource protection areas and wetlands.

Existing developed areas means.....

.....

Right-of-way means.....

Riparian buffer area means lands adjacent to a perennial or intermittent stream lake or tidal wetland, forming the transition zone between the aquatic and the terrestrial environment.

Roadway means....

(c) Words not defined in this section....

Section 32-41. Established.

The following policies related to land planning are hereby established, which shall serve as the basis of the detailed regulations and procedures needed to ensure conformance with these policies:

(1) Subdivision plans should conform to the highest principals;

.....

(21) The transportation needs of major subdivisions.....

(22) Land development shall occur in such a way as to minimize impact on riparian systems.

Section 32-92. Submission of exploratory sketch major plan.

(a) An exploratory sketch major plan shall be submitted to the department of planning for informal discussion between the subdivider and the department. The intent of the sketch plan is to gain an idea of the concept the subdivider has in mind with regard to major dispositions of land and land uses, traffic access points, internal vehicular circulation, configuration of open spaces, [sewerage] sewage disposal, stormwater management, preservation of historic resources, [if any] environmental site factors, and other similar matters.

(b) Such submission shall comprise.....

(c) The exploratory sketch may

(d) The subdivider may submit a written request to the department of planning to have the plan considered a minor plan and allow the plan to be reviewed in accordance with the minor plan review process of section 32-152, in making a determination, the department shall apply the following criteria:

(1) In the case of nonresidential land developments.....

(2) In the case of residential subdivisions.....

(3) The exemption shall not apply to plans needing special studies or conditional use applications, including but not limited to, traffic impact studies, critical natural areas reports, floodplain district applications, steep slope district conditional use applications, riparian buffer area boundary delineations, subsidence area reports, or water resource protection area district conditional use applications.

(4) The nature of the project.....

Plans exempted pursuant to the above.....

Section 32-95. Submission of preliminary major plan.

(a) Submission of plan for review; intent. The preliminary major plan.....

(b) Sketch of street system.....

(c) Components of plan to be submitted. Submission of a preliminary major plan shall comprise:

(1) A completed application.....

(2) Three (3) white prints.....

(3) Documentation that at least one (1) paper print.....

(4) Documentation that all the required environmental reports and/or studies including a riparian buffer area boundary delineation and site inventory, identified during the review of the exploratory sketch plan have been submitted to the department of planning and other appropriate agencies. All required environmental reports [and/or], studies, delineations and inventories, shall be submitted to the department and appropriate agencies prior to submission of the preliminary plan. Prior to acceptance.....

(5) The appropriate filing fee in accordance.....

(d) Acknowledgment of compliance.....

(e) Notification of noncompliance.....

(f) Resubmission of plan.....

Section 32-97. Submission and recordation of record major plan.

(a) Submission for recordation

(b) Record plan to conform to preliminary plan.....

(c) Submission of paper check prints.....

(d) Components of record plan. Submission of a record plan shall comprise the following:

(1) A completed application.....

.....

(11) For sites on which the disturbance of wetlands.....

(12) One copy of all applicable environmental reports including a riparian buffer area management plan.

(e) Submission of paper check prints.....

.....

(n) Sewer commitment authorization.....

Section 32-152. Submission, review and recordation of record minor plan.

(a) Components of submission. A record minor plan shall be submitted to the department in accordance with the following. Such submission shall comprise:

(1) A completed application.....

(7) A critical natural areas report.....

(8) One (1) copy of all applicable environmental reports, including a riparian area buffer boundary delineation, site inventory and management plan.

(b) Acknowledgment of compliance.....

.....

(k) Additional parties notified.....

Section 32-207. Submission of exploratory sketch utility plan.

(a) Under this division, an exploratory sketch utility plan.....

(b) Such submission shall consist of the following:

(1) A completed application.....

(4) One (1) copy of the wetland report.....

(5) One (1) copy of all applicable environmental reports, including a riparian area buffer boundary delineation and site inventory.

Section 32-209. Submission and recordation of record utility plan.

(a) Submission of plan.....

(b) Record plan conformance to sketch plan.....

(c) Components of submission. Submission of a record utility plan to the department shall consist of the following:

(1) A completed application.....

.....

(8) If critical natural areas exist on a site.....

(9) One copy of all applicable environmental reports, including a riparian buffer area management plan.

Section 32-291. Submission procedures.

(a) Purpose, the purpose of a parking facilities plan is to ensure.....

(b) Applicability.....

(c) Plan requirements.

(1) The site perimeter.....

.....

(12) One (1) copy of all applicable environmental reports including a riparian buffer areas boundary delineation, site inventory and management plan and [O]other relevant information as necessary to afford the department the ability to conduct a thorough review of the feasibility and compliance of the proposal.

Section 32-327. Preliminary plans.

(a) Scale and sheet size.....

.....

(e) Plans depicting disturbances within overlay zoning districts, including but not limited to, water resource protection area districts, steep slope districts, riparian buffer area districts, floodplain districts and historic districts, must demonstrate compliance with the applicable zoning code regulations. Where a conditional use application is necessary, the subdivider shall submit the application and obtain tentative approval from the department to permit the submission of a preliminary plan.

(f) The preliminary plan shall include.....

Section 32-328. Record plans.

(a) Scale and sheet size.....

(b) Key diagrams.....

(c) Record plan data. The record plan shall contain at least the following.....

(1) A title block.....

(6) All existing and proposed zoning district boundary lines, including the boundaries of any overlay zoning districts, traversing the proposed subdivision or land development.

.....

(20) the location of all existing structures and historic resources.....

(21) A note shall be placed on the plan requiring the implementation of the riparian buffer area management plan shall occur prior to the issuance of any building permits.

(d) Record plan data.....

(e) Notes pertaining to issuance of certificates.....

(f) Supplementary data.....

Section 2. Amend Section 40-1 of the New Castle County Code by adding the underlined language as follows:

Section 40-1. Definitions.

(a) The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Accessory building means.....

.....

Dwelling unit means.....

Environmental report means any study, report or application required by this Code, such as critical natural areas, floodplain, riparian buffer areas, steep slopes, water resource protection areas and wetlands.

Family means.....

.....

Right-of-way means.....

Riparian buffer area (RBA) means lands adjacent to a perennial or intermittent stream, lake or tidal wetland, forming the transition zone between the aquatic and the terrestrial environments.

Rooming unit means.....

.....

(b) Generally, words used in the present tense include the future.....

Section 3. Establishment of a new Article III, Division 6, entitled Riparian Buffer Area (RBA) Overlay and to add sections 40-400 through 40-409, all of which shall be deemed underlined as follows:

DIVISION 6. RIPARIAN BUFFER AREA (RBA) OVERLAY.

Section 40-400. Public purpose.

(a) Findings of fact. Riparian buffer areas (RBA's) are vital natural resources that provide numerous benefits to water quality, habitat and to the community at large. RBA's are a recognized and integral aspect of watershed management and can be extremely effective in protecting the quality of public potable water supplies by trapping sediment and associated pollutants, reducing excess nitrogen levels, reducing bank erosion, and by displacing activities from the water's edge that represent potential sources of non-point source pollutant generation. Studies show that as much as eighty (80) percent of the nitrogen and sediment that may otherwise enter waterbodies from adjacent land use activities can be captured by RBA's. In addition, riparian forests provide unfragmented aquatic and terrestrial habitat, food for stream organisms and shade that maintains cool water temperatures, thereby encouraging a healthy aquatic ecosystem.

(b) Purpose. The purpose of this division is to protect and improve RBA's by:

(1) Regulating uses, activities and development within the RBA which would impair the function of the buffer to reduce pollution-laden runoff into adjacent waterbodies.

(2) Establishing undisturbed continuous vegetated strips along waterbodies which will serve to filter, remove, and transform pollutants from adjacent lands before they reach waterbodies.

(3) Promoting stabilized streambanks which will reduce downstream transport of eroded sediments.

(4) Providing food, cover, and thermal protection for aquatic organisms and other wildlife.

(5) Preserving species-rich vegetative communities along and adjacent to waterbodies.

Section 40-401. Applicability; exceptions; compliance; violations.

(a) Applicability. This division shall apply to any lot within the jurisdiction of the county on which an RBA overlay zone exists, as established in section 40-403 of this Code.

(b) Compliance. Except as provided in subsection (a) of this section, no land disturbance shall occur on land proposed for development or redevelopment without full compliance with the terms of this division and other applicable regulations.

(c) Penalties for violations. Any person who shall violate any section of this division shall be guilty of a misdemeanor and, upon conviction thereof, shall be subject to punishment as provided in section 1-9 of this Code.

Section 40-402. Definitions.

The application of the following definitions shall apply and are relevant only to this division, establishing an RBA overlay zone.

Environmentally-sensitive land means the following areas adjacent to waterbodies: 100-year floodplains and adjacent non-tidal wetlands, slopes greater than fifteen (15) percent, erosion-prone slope water resource protection areas, and critical natural areas.

Intermittent stream means a channel with banks and a bed within which concentrated water flows some of the time.

Mean water surface elevation means the observed limit of dry weather flow elevation in a watercourse or waterbody.

Perennial stream means a channel with banks and a bed within which concentrated water flows all of the time.

Top of bank means a point above the mean water surface of a watercourse which defines the maximum depth of channel flow in the watercourse. It is either determined visually or computed as an elevation using the peak rate of runoff from a two-year storm event.

Waterbody means any watercourse or lake defined by a bank or shore in which water can be found.

Watercourse means a stream channel (perennial, intermittent, mapped, and unmapped) with banks and a bed within which concentrated water flows.

Section 40-403. Establishment of district.

(a) Deemed an overlay district. The riparian buffer area (RBA) district, based on the criteria set forth in subsections (b) and (c) of this section, shall be deemed an overlay zone on the otherwise applicable zoning districts as delineated on the county zoning map. Because the RBA district imposes a set of requirements in addition to those of the underlying zoning district, land may be used only under the conditions and requirements of both zones.

(b) District defined. Where a parcel of land adjacent to a perennial or intermittent stream, lake, tidal wetland or area draining greater than ten (10) acres is proposed for development or redevelopment, an RBA shall be designated.

(1) The RBA shall include the waterbody and contiguous environmentally-sensitive land plus fifty (50) feet, or to a minimum of one hundred (100) feet from the waterbody.

(2) The RBA shall be divided into two zones as follows:

a. Zone 1 shall extend twenty-five (25) feet from the waterbody. This zone shall be extended to include contiguous slopes greater than fifteen (15) percent.

b. Zone 2 shall make up of the remainder of the RBA.

(c) District identification and calculation.

(1) Streams (perennial, intermittent, mapped, and unmapped) with identifiable banks and beds, lakes, and tidal wetlands or areas which drain greater than ten (10) acres are subject to the regulations of this division.

(2) Initial identification of the watercourses/waterbodies shall be made using the U. S. Geological Survey quadrangle maps or more accurate information, as available. Field verification to determine evidence and location of channelized flow is required for a specific determination.

(3) Measurements for the zone 1 boundary are to be made horizontally, perpendicular from the following reference points: top of bank of perennial streams, centerline of intermittent streams, and mean water level of lakes, ponds, and tidal wetlands. Measurements for the zone 2 boundary are to be made horizontally, perpendicular from the boundary of the environmentally-sensitive lands.

(4) Measurements shall be made at appropriate intervals perpendicular to these reference points so as to accurately reflect the character of the adjacent land.

(5) The width of existing impervious area such as roadways, parking lots, structures, sidewalks, etc. shall not count towards the RBA measurements.

(6) Final determination of the boundaries of the RBA district shall be made by the department of planning.

(d) District exceptions.

An RBA shall not be designated along industrial ponds, sewage lagoons, man-made irrigation ditches, stormwater management basins and other artificial features with a similar water quality or storage function.

Section 40-404. Permitted and conditional uses.

Whenever the underlying zoning district permits the following uses, such uses may be permitted in the RBA overlay zone. All uses shall be designed so as to have the least environmental impact on the RBA, and to prevent woodland and habitat fragmentation. Any use not specifically permitted by this section is prohibited:

(a) Zone 1 - permitted principal uses.

(1) Public or private open space, exclusive of structures and impervious cover.

(2) Maintenance of existing public and private utilities, including but not limited to: transmission lines, roads, drainage facilities, and sewer and water facilities.

(3) Public and private water-dependent uses including, but not limited to the following: water-supply storage facilities, water-supply intakes, pumping stations, monitoring stations, culverts, piers, marinas, docks, and structures related thereto.

(b) Zone 1 - conditional uses.

(1) Road crossing which is within fifteen (15) degrees of perpendicular to the waterbody.

(2) Utility crossing which is perpendicular to the waterbody.

(3) Recreational trail which is no wider than eight (8) feet and which is surfaced with porous or pervious materials.

(4) Stormwater outfall, provided that the discharge velocity from the terminal end of the pipe or the associated energy dissipation practice does not exceed two (2) feet per second (fps) for the two-year frequency storm event. In addition, all other feasible methods shall be used to convert concentrated flow to uniform, shallow sheet flow, filter sediments, and control erosion.

(c) Zone 2 - permitted principal uses.

(1) Any principal use permitted in zone 1.

(d) Zone 2 - conditional uses

(1) Any conditional use permitted in subsection (b) of this section, when in accordance with the terms specified therein.

(2) Centralized sewer and/or water lines, and utility transmission lines running along the RBA, provided that any disturbance is, at a minimum, mitigated with the provisions of the RBA management plan. These lines shall be located as far from zone 1 as practical.

(3) Passive recreational areas which contain no impervious cover and do not disturb vegetation.

(4) Stormwater management facilities which are not located within the extent of the environmentally-sensitive areas described in this article. In addition, discharge velocities from the terminal end of the pipe or the associated energy dissipation practice shall not exceed two (2) fps for the two-year frequency storm event. All other feasible methods shall be used to convert concentrated flow to uniform, shallow sheet flow, filter sediment, and control erosion.

Section 40-465. Standards for approval of conditional uses.

(a) Any proposed construction or land disturbance activity within the riparian buffer area district shall be in compliance with the uses permitted in section 40-404. Any such proposal shall be reviewed by the department of planning for compliance with all the requirements of this division and all other applicable codes and ordinances. Approval of the application shall be a prerequisite to approval of any subdivision or land development application.

(b) The following standards will be applied to the review of all conditional use applications:

(1) The RBA is being proposed for land disturbance because no other alternative location within the site is feasible or practical, and the use is considered essential.

(2) All uses and activities must be accomplished in accordance with an approved RBA management plan.

(3) Earth-moving activities and vegetation removal will be conducted only to the extent necessary to accommodate proposed uses and in a manner that will not cause excessive surface water runoff, erosion, sedimentation or unstable soil conditions.

(4) The proposed development and the resultant disturbance to the land and existing vegetative cover will not cause runoff and/or related environmental problems off the site.

Section 40-406. Site inventory requirements and evaluation.

The purpose of the site inventory is to describe and evaluate the features found within the RBA and determine the need for enhancements pursuant to section 40-408 of this Code. The site inventory is to be prepared and evaluated by a qualified professional trained in the principles of riparian/wetland ecology. The site inventory shall consist of a narrative and plan consisting of the following information:

(a) Narrative requirements.

A description of the existing features of the RBA within the property, including but not limited to: site owner and contact information, computed acreage of RBA, contributing drainage area, description of environmentally-sensitive lands, description of existing vegetation (approximate number, size, and type), description of unique habitat features and wildlife.

If applicable, a description of proposed disturbances within the RBA, including but not limited to, the following information: nature of the disturbance, need for the disturbance, impact to the RBA (acreage, vegetation, habitat, wildlife).

(b) Plan requirements.

A riparian site inventory plan shall consist of the following information:

- (1) Location map, parcel boundaries of adjoining property owners.
- (2) Delineation of the RBA based on the criteria stated in section 40-403 of this Code.
- (3) Delineation of the environmentally-sensitive lands within the RBA, if any.
- (4) The following detail within the limits of the RBA:
 - a. Existing topography on one or two foot contours topography shall extend fifty (50) feet beyond the delineated RBA, include datum and benchmark reference.
 - b. Location of the following physical features: top of bank of the perennial stream, centerline of intermittent streams, and/or the mean water level for the lake, or tidal wetland for which the RBA is defined, rock outcroppings, paths, existing structures.
 - c. Delineation of soils types according to the USDA Soil Survey for New Castle County Delaware.
 - d. Location of existing vegetation as follows: tree masses, hedgerows, free-standing trees twelve (12) inches dbh or greater, old field growth (woody vegetation greater than eight feet in height), invasive exotic plant species including, but not limited to, species maintained in a list available from the department of planning.
 - e. Existing utilities.
 - f. Existing easements.

The site inventory shall be evaluated in conjunction with the design standards to determine whether enhancement (i.e. planting) is necessary.

Section 40-407. RBA management plan requirements.

(a) The RBA management plan, to be submitted and approved prior to plan recordation, shall consist of the following narrative and plan information, where applicable:

- (1) The site inventory, with finalized information on RBA disturbance.
- (2) Location of the limit of grading and limit of disturbance according to the New Castle County Drainage Code.

(3) To the extent the county determines is needed, physical limits of removal of invasive exotic species within the RBA and specifications for method of removal which is least intrusive (see partial list of invasive exotics available from the department of planning).

(4) Description and depiction of proposed enhancements according to section 40-408 of this Code, including surface mulch, guy-wires staking, grazing protection details based on accepted standards.

(5) The number and placement of signs identifying the RBA and the need for minimal disturbance within RBA's.

(6) Sequence and timing for accomplishment of the activities proposed in the plan.

(7) A narrative describing the significance of the RBA and maintenance activity within the RBA which shall incorporate the following language:

“RBA's shall be inspected annually and immediately following severe storms for evidence of sediment deposit, erosion or concentrated flow channels, as well as the re-emergence of invasive exotics. Prompt corrective action shall be taken to stop erosion and restore sheet flow.

The following activities shall be avoided in the RBA: use of fertilizers, pesticides or other chemicals; vehicular traffic or excessive pedestrian traffic; and removal or disturbance of vegetation and leaf litter that aides erosion control and buffering objectives.

Zone 1 vegetation should remain undisturbed except for the possible removal of invasive exotics and individual trees presenting unusual hazards such as potentially blocking culverts, etc.

Zone 2 vegetation adjacent to zone 1 should remain undisturbed except for the possible removal of invasive exotics. Zone 2 vegetation on the outer edge of the RBA should be mowed semi-annually. Vegetation should be inspected at least twice annually and remedial measures taken as necessary to maintain dense vegetation.”

(8) An RBA management agreement that addresses the following:

a. Signed statement from the responsible party developing the property that enhancement of the RBA shall be accomplished according to the provisions of the approved RBA management plan.

b. All RBA enhancements shall be installed and maintained using practices accepted by the American Association of Nurserymen.

c. The upkeep and maintenance of signs posted to identify RBA areas.

d. The developer shall be responsible for ensuring that all plant materials provided for enhancement are vigorous and thriving at the time of installation and are maintained in a healthy condition for the duration of the agreement.

e. The developer shall provide a qualified professional having a practical knowledge of riparian/wetland ecosystems to inspect the riparian buffer and certify that the riparian buffer is in conformance with the conditions of the approved RBA management plan two years after installation of the final plantings. The qualified professional shall ascertain whether the invasive species have been removed to the extent required by the RBA management plan and also the percentage of planting determined to be vigorous and thriving at that time. If less than eighty (80) percent of the plantings are found to be vigorous and thriving the developer shall be responsible for replacement of all of the failed plantings. In this situation the developer shall escrow the cost of the replacement plant materials and installation labor for an additional two years. Reinspection shall occur at the end of the additional two year period with escrow monies used to replace any failed plantings within the RBA.

f. Any damage to existing vegetation which occurs as a result of land disturbing activities shall require an amended RBA management plan showing compensation for the damaged vegetation.

(9) The developer shall provide the responsible individuals of the maintenance corporation, upon relinquishing control to the maintenance corporation, with a copy of the approved RBA management plan.

(10) Surety monies shall be provided for the cost plant materials and labor to perform enhancements to the RBA. The surety shall be returned upon the department of planning receiving a satisfactory inspection at the end of the agreement period.

Section 40-408. Design standards.

The intent of this section is to provide standards for: 1) evaluating and preserving inventoried vegetation in the RBA, and 2) undertaking enhancement activities, as needed. Planting of additional trees and shrubs within the RBA shall only be required to the extent that applicants need conform to the overall planting requirements of table 1 or, where the applicant acknowledges the importance of enhancing riparian areas with native riparian plant species. Other than select planting of native riparian plants and management of riparian areas in accordance with table 1 and subsections (b) and (c) of this section, disturbance of riparian areas shall be minimized.

(a) The following measures shall be taken, where necessary, to enhance valued woodlands and other vegetation in the RBA consistent with the findings of the site inventory and evaluation and made part of the RBA management plan.

Effective RBA's have several zones of vegetation extending out from the streambank. The zone closest to the stream, zone 1, shall consist of a series of native riparian trees

and shrubs species as necessary for streambank stabilization. Zone 2 shall consist of additional shrubs and native trees, as well as a transition zone of shrubs, native dense grasses and forbs (including wildflower species), or turf grasses for sediment control and nutrient uptake at the outer edges of RBA's.

Combinations of trees, shrubs and grasses protect the stream more than any one species. Overall design can be modified to fit the landscape, provided the applicant supplements existing vegetation with additional native riparian trees and shrubs, where needed, in accordance with table 1 and subsections (b) and (c) of this section. The department of planning maintains a list of the suggested native riparian plants. Emphasis shall be given to preserving existing site vegetation which conforms to the requirements of this section, rather than installing new trees and shrubs.

Table 1.
Planting Standards for RBA Enhancement

See explanatory notes for explanation.

Improvement Conditions	Trees	Shrubs	Native and/or Turf Grasses
Zone 1			
1. Per fifty (50) linear feet of RBA			
Grouping 1	5	0	moderate planting between rows
Grouping 2	5	0	"
Grouping 3	5	5	"
Zone 2			
2. Per fifty (50) linear feet of RBA (adjacent to Zone 1)			
Grouping 1	5	5	"
Grouping 2	5	5	"
Grouping 3	5	5	"
Grouping 4	0	10	"
Grouping 5	0	10	"
Grouping 6	0	10	"
Grouping 7	0	10	"
Grouping 8	0	10	"
3. Twenty-five (25) foot outer edge of RBA	0	0	dense planting (may include shrubs)

Explanatory Notes for Table 1

1. Pursuant to section 40-406 of this Code, riparian site inventory of existing conditions, plantings lined under numbers 1, 2, and 3, above, may be fully or partially waived (or credit granted) if the applicant documents any retaining existing plant material substantially achieves the objectives of this article.
2. Applicants may transplant trees and shrubs from portions of the parcel intended for development to meet the requirements of this section, provided such plant species are conducive to the ecological conditions associated with riparian areas.
3. Minimum sizes of planting should be:
 - a. Trees-2 to 2 1/2 inch caliper, 12-14 feet height
 - b. shrubs - 2 -3 feet height
4. Tree groupings shall be eight (8) feet apart (including tree and shrub rows); shrub groupings shall be five (5) feet apart. In cases where Zone 1 is expanded additional grouping of trees and shrubs shall be added. In cases where zone 2 is greater than the limits shown on the table, additional groupings of shrubs shall be added.
5. All plant material used on the site shall have been grown within the same USDA hardiness zone as the site and shall be nursery grown.
6. The intent of the planting standards is to replicate natural systems; given such, a diverse selection of plantings of different maturity is required. The planting standards in table 1 are intended to convey the number and type of species required, not the placement thereof. Planting in rows is strongly discouraged. Applicants are encouraged to be creative in their design, replicating natural riparian ecosystems.
7. Grasses required under numbers 1 & 2 shall be cool-season grasses or other grasses that are less competitive with trees and shrubs. The primary intent of these grasses is to reduce sedimentation and erosion during the period of tree and shrub establishment, as well as contribute to understory growth.
8. Fractions of plants calculated from the table above shall be rounded up to nearest whole number.
9. The number of plants required is the total of the three columns.
 - (b) Planting plans shall be prepared jointly by a Delaware-registered landscape architect in consultation with other professionals having a practical knowledge of riparian ecosystems (including wetlands specialists, wildlife biologists, ecologists, etc.) All planting plans shall include a planting schedule that summarizes the quantity, type, size and root condition of all plantings.

(c) The locations, dimensions, and spacing of enhancement plantings shall be adequate for their proper growth and maintenance, considering the sizes of such plantings at maturity and their present and future environmental requirements, such as soil, moisture and sunlight. Site preparation should focus on the removal of exotic species such as honeysuckle and multiflora rose, if present. (See department of planning for a partial list of exotics that should be removed when enhancement activities are undertaken). Weed control is essential during establishment of the RBA and for the survival and growth of trees and shrubs.

(1) Zone 1

The purpose of zone 1 is to create a stable ecosystem adjacent to the water's edge, provide a soil/water contact area to facilitate nutrient buffering processes, provide shade to moderate and stabilize water temperature (and encourage the production of beneficial algal forms) and to contribute necessary detritus and large woody debris to the stream ecosystem.

Dominant vegetation shall be composed of a variety of native riparian tree and shrub species and such plantings as important for streambank stabilization (see list maintained by the department of planning). A mix of species will provide prolonged stable leaf fall necessary to meet the energy and pupation needs of aquatic insects.

Management of zone 1 shall be limited to bank stabilization and removal of invasive vegetation, when appropriate. Logging and other overland equipment shall be prohibited except for stream crossings and stabilization work.

(2) Zone 2

The purpose of zone 2 is twofold: One, to provide sediment filtering and nutrient uptake by forest trees and shrubs, and two, to provide the space necessary for absorption of sheetflow stormwater runoff.

Predominant vegetation in the area adjacent to zone 1 shall consist of riparian trees and shrubs capable of stabilizing soil.

Predominant vegetation on the outer edge of this zone shall consist of additional shrubs, dense grasses and forbs (including wildflower species), or turf grass for sediment control and nutrient uptake. The transition zone shall be designed to maintain sheet flow. Zone 2 vegetation on the outer edge of the RBA should be mowed semi-annually. Vegetation should be inspected at least twice annually and remedial measures taken as necessary to maintain dense vegetation.

Section 40-409. Variances.

The board of adjustment shall, prior to scheduling a public hearing, refer every application seeking a variance from this division to the department of planning which

shall in turn provide the board with a written recommendation within thirty (30) days of the receipt of the request. The department of planning will evaluate the variance application within the context of the public purpose section found in this article and may also seek the advice and opinion of other agencies, including but not limited to the department of public works, the county soil conservation service and the water resources agency. The board of adjustment, upon receipt of the recommendation from the department of planning, shall schedule a public hearing on the variance application and shall enter the department of planning's recommendation into the record. The department of planning's recommendation shall also be considered in the board of adjustment's evaluation.

Section 4. This ordinance shall become effective immediately upon its adoption and approval.

Adopted by County Council of New Castle County

President of County Council of New Castle County

Adopted on:

County Executive of New Castle County

Synopsis: This ordinance would establish a riparian buffer area (RBA) overlay zoning district, with permitted and conditional uses, land development plan requirements and management plan standards on lands adjacent to waterbodies in New Castle County. The purpose of the ordinance is to protect water quality in streams by removing sediments, pollutants and excessive nutrients to enhance wildlife habitat, and to protect against streambank erosion and tree loss.

Fiscal Note: The adoption of this ordinance will not have a discernible fiscal impact upon the tax base of New Castle County. The provisions of the ordinance will be administered through the subdivision and land development process.