Model Riparian Buffer Protection Overlay District

Proposed Regulations for Use in a Municipal Zoning Ordinance

Second Edition

Prepared by the

Brandywine Conservancy and
Pennsylvania Land Trust Association

in consultation with the
Stroud Water Research Center, Natural Lands Trust, and Fronefield Crawford, Jr., Esq.

and financially supported by the
William Penn Foundation, Colcom Foundation, and Community Conservation Partnerships Program, Environmental Stewardship Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation

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3/11/2016

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Preface

Numerous scientific studies document the fundamental role of forested riparian buffers in protecting water quality, reducing flooding, and delivering other public benefits.[1] In Pennsylvania, municipalities may ensure the protection and restoration of these buffers through local regulation.

The *Model Riparian Buffer Protection Overlay District, 2nd Edition*, which was reviewed and approved by legal counsel[2] experienced in land use planning and development, provides government officials with a tool they can adapt and adopt to achieve water quality and other health and safety goals in their locales. Several townships in the Commonwealth have already incorporated into their land use ordinances all or part of the original model (published in 2014).

The guide *Riparian Buffer Protection Via Local Regulation*, available at ConservationTools.org, provides additional information that may be of use to those seeking to protect and restore riparian buffers.

Key Design Decisions

Placement in Zoning Ordinance

This model riparian buffer protection overlay district is proposed in the context of the municipal zoning ordinance rather than the subdivision and land development ordinance (SALDO) for the following reasons:

1. Pennsylvania's Municipalities Planning Code (MPC) provides authority to municipalities to protect riparian buffers both through zoning and subdivision and land development regulations but sets forth the zoning authority more firmly. Several provisions within the MPC's Article VI are of particular relevance:

- Subsection 603(b)(5) authorizes municipal zoning ordinances to "protect and preserve the natural and historic resources….";
- Section 603(c)(7) authorizes zoning ordinances to contain "provisions to promote and preserve … environmentally sensitive areas";
- Subsection 603(d) authorizes zoning ordinances to "assure the availability of reliable, safe and adequate water supplies …";
- Section 604 requires that zoning ordinances be designed to promote and facilitate "public health, safety, morals, and the general welfare… safe, reliable and adequate water supply for domestic, commercial, agricultural or industrial use, as well as preservation of the natural, scenic and historic values in the environment and preservation of forests, wetlands, aquifers and floodplains."
- Section 605 authorizes separate zoning classifications for the "regulation, restriction or

[1] See "Streamside Forest Buffer Width Needed to Protect Stream Water Quality, Habitat, and Organisms: A Literature Review," Bernard W. Sweeney and J. Denis Newbold, June 2014, *Journal of the American Water Resources Association.*

[2] See the letter by Fronefield Crawford, Jr., Esq., dated May 5, 2016, which is included with some editions of this model and available at http://conservationtools.org/library_items/1261. In the five-page letter, Mr. Crawford concludes that: "the Model Ordinance has been carefully drafted (i) to conform in its scope and specifications to the underlying scientific basis, (ii) to provide procedures for administrative relief in the event that, as applied to a specific fact situation, the property owner would suffer unnecessary hardship, and (iii) to avoid conflict with state agency regulations. As such, it is a valid exercise of municipal zoning authority, to protect environmental resources both in the municipality itself and in areas of the Commonwealth downstream therefrom."

prohibition of uses and structures, at, along or near… natural or artificial bodies of water…."

2. The Pennsylvania appellate courts have provided stronger and more articulate decisions sustaining the validity of zoning ordinance requirements in the context of preservation of natural resources.[3]

3. The applicability or scope of regulations set forth in the zoning ordinance is broader than the in the SALDO, which apply only to *land development* activities. Many occurrences that could adversely affect a riparian buffer area that would potentially be covered under the zoning ordinance would not be covered under the MPC's definition of *land development*. Examples:

- A change in land use where no construction is involved (or the construction is exempt from SALDO requirements)
- Issuance of a land disturbance permit or grading permit, again under circumstances that would not constitute a land development.

4. Utilization of riparian buffer regulations within the context of a zoning ordinance creates a stronger and more specific defense in the event of a challenge based upon allegations of preemption.[4] ACRE,[5] for example, authorizes the Attorney General's Office to challenge the validity of an unauthorized local ordinance. The definition of an *unauthorized local ordinance* (i.e., one that is subject to validity challenge by the Attorney General's Office) creates a specific exception (i.e., that an ordinance is not invalid) to the general prohibition of *normal agricultural operations*, where the local ordinance "has expressed or implied authority under state law to adopt the ordinance; and is not prohibited or preempted under state law from adopting the ordinance." Given the explicit authority contained in Article VI of the MPC (as referenced above), any challenge under ACRE to reasonable riparian buffer requirements in the zoning ordinance should fail, unless specifically preempted by a PA Department of Environmental Protection requirement applicable to a property devoted to agricultural use.

Buffer Width

Sweeney and Newbold advocate, based upon their studies, minimum 30-meter (100-foot) forested riparian buffers as effective to substantially reduce pollutants from reaching a watercourse.[6] This model ordinance establishes a minimum buffer width of one hundred (100) feet consistent with these findings.

Municipalities may wish to impose a greater width than 100 feet, for example, requiring a 150-foot buffer for headwater or first-order streams, which are more sensitive to land disturbance and stormwater runoff. Conversely, municipalities may wish to impose a lesser width than 100 feet for political reasons, but all should understand that the science is clear that the effectiveness of the smaller buffers in reducing stream pollution will be substantially reduced.

Non-Dependence on Unevenly Applicable State Regulation

State regulations do not provide for riparian buffer protection except in the case of state-designated Exceptional Value and High Quality Waters and,

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[3] See Jones v. Zoning Hearing Board of the Town of McCandless, 578 A.2d 1369 (Pa. Cmwlth. 1990); Chrin Brothers v. Williams Township ZHB, 815 A.2d 1179 (Pa. Cmwlth. 2003); and Hoffman Mining Company, Inc. v. Zoning Hearing Board of Adams Township, 32 A.3d 587 (Pa. Sup. 2011).

[4] See Robinson Township v. Commonwealth of Pennsylvania Public Utility Commission, 83A. 3d 901 (Pa. Sup. 2013).

[5] 3 Pa.C.S. §311-318

[6] "Streamside Forest Buffer Width Needed to Protect Stream Water Quality, Habitat, and Organisms: A Literature Review," Bernard W. Sweeney and J. Denis Newbold, June 2014, *Journal of the American Water Resources Association.*

even then, the regulations contain a variety of exceptions and limitations.[7] The state General Assembly does not appear prepared to remedy this inadequate regulatory situation anytime in the foreseeable future. As such, local governments can only rely on themselves to ensure adequate protections.

The model does not exempt the subset of waters subject to state buffer requirements from local government buffer requirements because:

1. A two-tiered treatment does not conform to the science of riparian buffers. Different streams in the same municipality could be treated differently even though the effectiveness of buffers does not vary with the state regulatory status of the water body.
2. The state regulatory environment is complex, shifting, and uncertain. As such, local government cannot rely on the state to consistently protect the riparian buffers of even Exceptional Value and High Quality Waters.

Protection and Restoration

This model ordinance uses two strategies for establishing and maintaining riparian buffers. First, it limits intrusion of impervious coverage and land disturbance within riparian areas. Second, it requires the restoration of impacted riparian buffer areas to a *forested* condition, utilizing the specifications set forth in Section 600.C. of the model. This second strategy is essential to the model's goals in that the science is abundantly clear that forested riparian buffers deliver far superior resource protection results than non-forested buffers

Avoiding Unnecessary Hardship and Takings

Under most factual settings, the scope of regulation provided by the model should allow a landowner to make reasonable use of his property, without suffering undue hardship or a "taking" of land. It is clear that regulations to protect sensitive natural resources, including stream quality, may lawfully impair the value of the land upon which they are imposed. For example, Commonwealth Court sustained the validity of a DEP refusal to issue a wetlands fill permit to enable development of a 5.2-acre tract of land, of which 3.94 acres were wetlands.[8] In this case, regulations prevented development of 76% of the tract, leaving a quarter of it available for development.

However, regulations can go too far. If, for example, a tract of land were completely sterilized against development as a result of riparian buffer regulations, it would constitute a regulatory taking.[9] The modification provisions of Section 700 of this model ordinance seek to address this issue and, in addition, any property owner who believes that the riparian buffer regulations as applied to his property would create unnecessary hardship, will have the right to apply to the Zoning Hearing Board for a variance.

Regarding the restoration of impacted riparian buffer, the model's requirements are felt to be generally reasonable in cost and as such should not create unnecessary hardship to a property owner. However, in specific circumstances, it's possible that the cost of restoration per the model's requirements could be viewed as unreasonable, causing unnecessary hardship. As such, the model provides the landowner the right to apply for a modification through the provisions of Section 700, and/or seek the normal variance relief available by application to the zoning hearing board.

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[7] See Chapter 102 "Erosion and Sediment Control" of the Pennsylvania Code, §102.14.

[8] Mock v. Pennsylvania DER, 623 A.2d 940 (Pa. Cmwlth. 1993).

[9] See Lucas v. South Caroline Coastal Council, 112 S.Ct. 2886 (U.S. Supreme Ct. 1992).

Grandfathering of Existing Uses Including Agriculture

As the model is written, existing, legally conforming or non-conforming uses of land may continue without having to comply with the riparian buffer requirements. See Section 300.B. This includes existing agricultural uses.

Chesapeake Bay Foundation studies find that agriculture represents "the largest single source of the pollution degrading water quality in the region, responsible for more than half the pollution entering the Chesapeake Bay and its rivers and streams."[10]

To address this problem, a municipality could seek to extend riparian buffer requirements to existing agricultural uses, but this is beyond the scope of the model. It is also a significant challenge. First, farming activities within the Commonwealth are a protected industry; second, agricultural runoff to watercourses involves no triggers (such as permit requirements) against which new riparian buffer regulations could be implemented under a zoning ordinance or subdivision and land development ordinance.

Conservation by Design

In municipalities that have adopted Conservation by Design principles into their SALDOs, developers can easily accommodate forested riparian buffers in subdivisions with little or no loss of development density. For more information, see the ConservationTools.org guide *Growing Greener: Conservation by Design*.

PENNSYLVANIA LAND TRUST ASSOCIATION

BRANDYWINE CONSERVANCY

[10] The Spring 2015 issue of *Save the Bay*, Volume 41, No. 1, published by the Chesapeake Bay Foundation, contains this quote and extensive analysis of the agricultural-related pollutants that impair the water quality in the Chesapeake Bay.

Disclaimer
Nothing contained in the model ordinance or this preface is intended to be relied upon as legal advice. The model should be adapted to reflect the specific facts and circumstances under the guidance of legal counsel. The authors disclaim any attorney-client relationship with anyone to whom this document is furnished.

Acknowledgements

In preparing this second edition of the model, the Pennsylvania Land Trust Association and the Brandywine Conservancy are grateful for the time and expertise offered by Bernard W. Sweeney, Ph.D., of the Stroud Water Research Center; Ann Hutchinson, AICP, of the Natural Lands Trust; and Fronefield Crawford, Jr., attorney at law.

STROUD WATER RESEARCH CENTER

Natural Lands Trust

For financially supporting the development of the model, the Pennsylvania Land Trust Association and the Brandywine Conservancy thank the William Penn Foundation and its Delaware River Watershed Initiative; the Colcom Foundation; and the Community Conservation Partnerships Program, Environmental Stewardship Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation. The organizations also acknowledge the Department of Environmental Protection's support for the first edition.

WILLIAM PENN FOUNDATION

DCNR

Colcom Foundation

DEP

Model Riparian Buffer Protection Overlay District

Second Edition
(*with annotations*)

BOARD OF SUPERVISORS
_____ TOWNSHIP
_____ COUNTY, PENNSYLVANIA
ORDINANCE NO. ____-__

AN ORDINANCE TO AMEND THE _____ TOWNSHIP ZONING ORDINANCE IN ORDER TO PROVIDE FOR PROTECTIONS TO STREAMS AND OTHER WATERCOURSES BY ESTABLISHING RIPARIAN BUFFER AREAS ADJACENT THERETO; STATING THE PURPOSES AND INTENTS OF SUCH PROTECTIVE PROVISIONS; DEFINING CERTAIN TERMS IN CONNECTION WITH SUCH REGULATIONS; PROVIDING FOR THE SCOPE OF APPLICABILITY OF THE REGULATIONS; DELINEATING THE SCOPE OF RIPARIAN BUFFERS; ESTABLISHING PERMITTED USES WITHIN RIPARIAN BUFFER AREAS; PROVIDING FOR THE RESTORATION OF BUFFER AREAS AND PLANTING REQUIREMENTS, IN ORDER TO CREATE EFFECTIVE FORESTED RIPARIAN BUFFER AREAS; PROVIDING FOR MODIFICATIONS TO RIPARIAN BUFFER STANDARDS AND PROCEDURES FOR SAME.

UNDER AND BY VIRTUE OF THE AUTHORITY SET FORTH IN ARTICLE I, SECTION 27 OF THE CONSTITUTION OF THE COMMONWEALTH OF PENNSYLVANIA, THE PENNSYLVANIA CLEAN STREAMS LAW (35 P.S. §691.1, ET. SEQ.) AND ARTICLE VI OF THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE (53 P.S. §10601 ET. SEQ.), THE BOARD OF SUPERVISORS OF _____ TOWNSHIP DOES HEREBY ENACT AND ORDAIN THE FOLLOWING AMENDMENTS TO THE _____ TOWNSHIP ZONING ORDINANCE.

Section 100. Purpose and Intent. The specific purposes and intent of this article are to:

A. Conserve, protect, and restore natural riparian resources through scientifically supported processes.

Note: See "Streamside Forest Buffer Width Needed to Protect Stream Water Quality, Habitat, and Organisms: A Literature Review," Bernard W. Sweeney and J. Denis Newbold, June 2014, Journal of the American Water Resources Association.

B. Maintain and improve surface water quality by reducing the entry of detrimental substances, including nutrients, sediment, organic matter, pesticides, and other harmful substances that reach watercourses, wetlands, and surface and subsurface water bodies.

C. Reduce the entry of detrimental substances by restricting development and uses in riparian areas that intercept surface water runoff, wastewater, subsurface flow and deep groundwater flows from upland sources and where the processes of filtration, deposition, absorption, adsorption, plant uptake, sediment and phosphorus attenuation, denitrification and infiltration may occur; encouraging sheet flow and minimizing, mitigating and preventing concentrated flows of storm water runoff across riparian areas, and securing increased channel and bank stabilization that avoids stream bank erosion and associated water quality, quantity and flow harms.

D. Attenuate flooding and reduce soil loss.

E. Reduce adverse aquatic health impacts due to changes in the temperature of receiving waters (both temperature increases and temperature decreases) as a result of storm water runoff, loss of vegetative shading and direct discharges to water bodies.

F. Enhance in-stream processing of nutrients and pollutants such as pesticides and reduce the downstream movement of pollutants.

G. Improve and maintain the safety, reliability and adequacy of the water supply for domestic, agricultural, commercial, industrial and recreational uses along with sustaining diverse populations of aquatic flora and fauna.

H. Provide wildlife habitat, protect native plant species, and provide opportunities for passive recreation.

I. Conserve headwater areas, groundwater recharge zones, floodway, floodplain, springs, seeps, streams, wetlands, woodlands, prime wildlife habitats and other features that provide recreational value or contain natural amenities, whether on developed or undeveloped land.

J. Integrate with floodplain, steep slope, woodland protection and other ordinance requirements contained herein that regulate environmentally sensitive areas to minimize hazards to life, property and riparian features.

K. Conserve scenic and recreation areas within and adjacent to riparian areas.

L. Regulate the use, siting, engineering and maintenance of all development to be consistent with the purposes and intent of this article and accepted conservation practices and to work with the carrying capacity of existing natural resources.

M. *[When applicable]* Further the Chesapeake Bay Tributary Strategy goals and objectives by implementing best management practices (BMPs) to address point and non-point pollution sources.

N. *[When applicable]* Implement the recommendations for water quality protection in the Township's adopted comprehensive plan (*or rivers conservation plan, open space plan, etc.)*, as amended.

Section 200. Definitions. *[In addition to other definitions typically found within the zoning ordinance]*

APPLICANT – a landowner or developer who has filed an application for subdivision or land development or for any zoning or building permit that will result in land disturbance, including his heirs, successors and assigns or the equitable owner of property with the owner's permission. Applicants must either be the legal or beneficial owner or owners of land subject to the application, including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if he is authorized under the lease to exercise the rights of the landowner, or other person having a proprietary interest in land.

BANKFULL FLOW OR LEVEL – The discharge that just fills the water channel to the top of its banks and at a point where the water beings to overflow onto a floodplain.

BEST MANAGEMENT PRACTICE (BMP) – A structural or non-structural device designed to temporarily store or treat stormwater runoff in order to mitigate flooding and pollution, and reduce soil loss and water quality degradation caused by runoff containing nutrients, animal wastes, toxins, and sediments.

EDGE OF WATER– The top of bank of a watercourse, or the limit of water within a wetland, pond, lake, or other surface water feature that does not have a discernible bank.

FORESTED RIPARIAN BUFFER – A riparian buffer that consists predominantly of native trees, shrubs and/or herbaceous plants that provide a minimum of sixty (60) percent uniform canopy coverage.

IMPACTED RIPARIAN BUFFER – A riparian buffer that does not consist predominantly of native trees, shrubs and/or herbaceous plants, and where its existing use, or activity conducted thereon, is not otherwise exempted or expressly permitted by the provisions of this Ordinance.

IMPERVIOUS COVER – Those surfaces that do not readily absorb precipitation and surface water. The term includes but is not limited to buildings, parking areas, driveways, roads, sidewalks, swimming pools, and any areas in concrete, asphalt, packed stone, or other equivalent surfaces, including those with a coefficient of runoff of 0.7 or higher. Impervious surfaces also include disturbed soils with a bulk density of ninety-five (95) percent of the value at which plant growth limitation is expected for average plant material.

LAND DISTURBANCE – Any activity that exposes soils, alters topography, and/or alters vegetation.

NORMAL POOL ELEVATION –

A. For water bodies which have no structural measures to regulate the height of water, the height of water at ordinary stages of low water unaffected by drought.

B. For structurally regulated water bodies, the elevation of the spillway, outlet control, or dam crest which maintains the water body at a specified height.

C. The term does not apply to wetlands.

RIPARIAN – Belonging or related to the bank of a water body, river, stream, wetland, lake, pond, or impoundment.

RIPARIAN BUFFER – A vegetated area, including trees, shrubs, and herbaceous vegetation, adjacent to a water body.

TOP OF BANK – The elevation at which rising waters begin to inundate the floodplain. In case of ambiguous, indefinite, or non-existent floodplain or question regarding the location, the Top of Bank shall be the bankfull water elevation as delineated by a person trained in fluvial geomorphology. "Top of Bank" shall be synonymous with "edge of water", where applicable.

WATER BODY – Any natural or manmade pond, lake, wetland, impoundment, or watercourse. This shall not include any pond or facility designed and constructed solely to contain stormwater, or a swimming pool.

WATERCOURSE – Any channel of conveyance of surface water having a defined bed and banks, such as a stream, river, brook, or creek, whether natural or artificial, with perennial, intermittent or seasonal flow. This shall not include any channel or ditch designed and constructed solely to carry stormwater.

WETLAND OR WETLANDS – Those areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, ponds, lakes, and similar areas. Wetlands shall include any area so delineated by the National Wetlands Inventory of the U.S. Fish and Wildlife Service and all lands regulated as wetlands by the Pennsylvania Department of Environmental Protection (PADEP) or the U.S. Army Corps of Engineers (ACE). In the event there is a conflict between the definitions of these agencies, the more restrictive definition that defines the wetlands most expansively shall apply.

Section 300. Applicability.

A. The provisions of this article shall apply to any water body as defined herein, where any of the following Township submissions, reviews and approvals are required; or, when a violation of this article requires an enforcement action:

1. Zoning or building permits;
2. Subdivision or land development plans;
3. Conditional use approvals;
4. Zoning variances or special exceptions; and
5. Any land disturbance for which a grading permit is required.

Note: Municipalities may wish to establish a minimum threshold for land disturbance below which no riparian buffer protection or restoration requirements would apply. For example, Chester County's model Act 167 Ordinance proposed a threshold of 1,000 sq. ft. of impervious cover or 5,000 sq. ft. of land disturbance for stormwater management purposes.

B. The provisions of this article shall not apply to the footprints of existing primary and accessory uses, including but not limited to all agricultural uses and research related thereto, buildings, fences, lawns, gardens, utility lines, roads, driveways, sidewalks, bikeways, decks, piers, water, septic and sewage supply facilities and their related appurtenances (well houses, utility pump and lift stations, manholes, etc.).

Section 400. Riparian Buffer Delineation.

A. The riparian buffer area is designated as:

1. An area that begins at each edge of a water body and shall extend landward a minimum width of one hundred (100) feet, measured horizontally on a line perpendicular to the nearest edge of the water body, as reviewed and approved by the municipal engineer.
2. Where the floodplain extends greater than one hundred (100) feet from the water body, the riparian buffer area shall extend to the outer edge of the defined 100-year floodplain.

B. Reduced buffer width for isolated wetlands and other water bodies. Wetlands and other water bodies not located along a watercourse, where the wetland or other water body is greater than 5,000 square feet in area, shall have a minimum buffer width of fifty (50) feet, measured from the edge of the wetland or other water body around the entire perimeter.

C. Applicant to initially delineate. The applicant shall delineate, for the property as a whole, any riparian buffer areas as specified in subsections 400.A and 400.B above on any plan that is submitted for any review or approval listed in Section 300.A.

Section 500. Uses Permitted.

A. The following uses or activities are permitted by right in riparian buffer areas:
   1. Wildlife sanctuaries, nature preserves, forest preserves, fishing areas, passive areas of public and private parklands.
   2. Temporary stream restoration projects, stream bank restoration projects and vegetation restoration projects to restore the stream or riparian zone to an ecologically healthy stage utilizing natural channel design practices to the

greatest degree possible. The project duration and timing shall be subject to Zoning Officer approval.

3. Stream crossings for farm vehicles or livestock if part of a federal, state, or county conservation district or local nonprofit riparian buffer improvement project.
4. Provision for stone-dust or natural trail and related trail access when determined by the Zoning Officer to result in minimum disturbance to existing trees and shrubs.
5. Research and monitoring devices, such as staff gages, water recording, water quality testing, cross vanes, weirs and related demonstration facilities.
6. Within the outer fifty (50) feet of a riparian buffer area, provided that the area does not contain slopes over 25% or floodplain, timber harvesting operations, when conducted in compliance with a timber harvesting plan prepared, submitted, and approved in accordance with Section ____ of the Zoning Ordinance.

Note: Some municipal ordinances may permit forestry or timber harvesting uses without appropriate standards or without requiring a timber harvesting plan to be submitted for municipal approval. In such cases, the following text could be added to the riparian buffer protection provisions: "Clear-cutting of timber, or high-grading of forests, as defined therein, shall not be permitted within the regulated riparian buffer." And, while water quality goals generally can be best achieved by avoiding any disturbance of the forested riparian buffer, some municipalities may prefer not to prohibit clear cutting of forested buffer areas. In such cases, the restoration requirements of Section 600 become doubly important.

B. The following uses or activities are permitted by Special Exception *[or Conditional Use, if so desired]* approval in riparian buffer areas:
   1. Structures that, by their nature, cannot be located anywhere except within the riparian buffer. These structures shall include docks, boat launches, public water supply intake structures, facilities for natural water quality treatment and purification and public wastewater treatment plant sewer lines and outfalls. The structures shall provide for the minimum practicable disturbance of the riparian buffer by minimizing size and location and by taking advantage of collocation, if possible.
   2. Road crossings (when perpendicular to the stream or buffer), bridges, culverts, utilities, and impoundments.
   3. Provision for paved trail and related trail access when determined by the Zoning Hearing Board to result in minimum disturbance to existing trees and shrubs.
   4. Stormwater conveyance structures and outfalls.

C. The following uses or activities are permitted by Special Exception *[or Conditional Use, if so desired]* approval only within the outer fifty (50) feet of a riparian buffer area:

1. The grazing of livestock or growing of agricultural crops provided existing forested riparian buffers are not removed or otherwise impacted, and subject to an approved conservation and/or nutrient management plan, as applicable.
2. Any other use or activity permitted in the underlying (base) district, provided there is no re-grading, filling, or alteration within the inner fifty (50) feet of the riparian buffer area, and no more than twenty (20) percent of the outer fifty (50) feet may be re-graded, filled, or otherwise altered or subject to land disturbance. Uses and activities permitted by this provision shall not include the establishment of any impervious surfaces.

Note: Regarding C.1., this language is intended to conditionally permit new agricultural activities within the outer half of an impacted riparian buffer and not require restoration of this portion (see Section 600). To accommodate this new activity, fencing at the outer edge of the inner half of a riparian buffer may be necessary to avoid impacts to existing or restored forest vegetation or adjoining water bodies from livestock. Regarding C.2., some municipalities may prefer greater or lesser disturbance provisions; the 20% maximum in the outer half of the buffer is here used as an illustration.

D. The following activities or practices are expressly prohibited in riparian buffer areas:

1. Removal or disturbance of vegetation in a manner that is inconsistent with erosion and sedimentation control and riparian buffer protection.
2. Storage or discharge of any hazardous or noxious materials, except those used during emergencies for the treatment and/or maintenance of any public sewer and public water treatment facilities (i.e., generator sets or alternative drive units).
3. Use of fertilizers, pesticides, herbicides, and/or other chemicals, except:
   a. where permitted by a valid conservation plan, forest management plan, or approved planting and maintenance plan (see Section 600.E. below);
   b. for selective herbicide application by a qualified professional to control noxious weeds and invasive species of plants in riparian buffers.
4. Motor or wheeled vehicle traffic in any area not designed to accommodate adequately the type and volume of vehicular movement.

Section 600. Buffer Restoration and Planting Requirements.

A. All riparian buffer areas shall be continually maintained with a diverse mix of locally adapted native species of canopy trees, understory trees, shrubs, and herbaceous plants so as to constitute a forested riparian buffer where not otherwise occupied by any

existing use excepted in accordance with Section 300.B, or any authorized use permitted in Section 500.

B. The applicant shall restore the full one hundred (100) feet of impacted riparian buffer area, or the first one hundred (100) feet of a 100-year floodplain, to a forested riparian buffer, as a condition of any approval listed in Section 300 A., except as provided in subsection F. below, through invasive plant removal and planting of a diverse mix of native tree species.

C. Restoration of the impacted riparian buffer shall occur as follows:

1. Restoration plantings shall be planted at a density sufficient to provide a minimum of two-hundred (200) trees per acre at canopy closure. The following tree planting and spacing standards shall apply at installation:

   a. Seedlings – 10-foot spacing (approx. 435 seedlings/acre) protected by 5-foot tree shelters.
   b. Bare root trees or container trees (at least 6 feet in height for either) – 12-foot spacing (approx. 300 trees/acre). Tree shelters, wraps, or other proven methods shall be required to prevent damage from antler rubbing.

   To reduce competition from grasses and invasives, vegetation around tree shelters shall be sprayed or otherwise effectively controlled annually for a minimum of four (4) years. Tree shelters shall be maintained at all times and removed when the tree reaches 1½ - 2" caliper.

2. Landowners who are enrolled in, and fully in compliance with, the Conservation Reserve Enhancement Program (CREP) administered through their local Farm Service Agency are permitted to utilize their stream-side buffer restoration to satisfy the forested riparian buffer restoration requirements of this section for as long as they are enrolled in, and fully in compliance with, that voluntary program.

Additional planting guidance may be obtained from PADEP's Bureau of Watershed Management Document Number 394-5600-001, entitled "Riparian Forest Buffer Guidance, November 27, 2010, and the "Chesapeake Bay Riparian Handbook, A Guide for Establishing and Maintaining Riparian Forest Buffers," USDA Forest Service, NA-TP-02-97, Radnor, PA.

D. Applicants shall submit, and as a condition of approval for any application listed in Section 300 A., a planting and maintenance plan for the impacted riparian buffer. The plan shall be prepared by a registered landscape architect or professional plant ecologist. The plan shall identify the number, density and species of locally adapted native trees appropriate to the site conditions that will achieve a minimum of sixty (60) percent uniform canopy coverage within ten (10) years. The plan shall describe the maintenance program to be conducted by the buffer owner for a minimum of five (5) years, including measures to remove, and subsequently control, invasive plant species, limit deer and

rodent damage, and replace deceased trees for the first four (4) years. Applicants with riparian buffer areas associated with a pending Township application, and which are also enrolled in CREP, shall submit a plan showing the existing or proposed stream-side buffer planting that has been approved by the Farm Service Agency.

E. Any riparian buffer that is included within a lot created after the effective date of this ordinance shall include as a condition of approval of the subdivision creating the lot, a restrictive covenant approved by the municipal solicitor, and recorded with the final subdivision or land development plan and the deed for the lot. The restrictive covenant shall define the riparian buffer area, shall include binding provisions for the adequate long-term functioning and integrity of the riparian buffer, and shall include a requirement for notification of all subsequent lot owners of its restrictive nature.

Note: Municipalities wishing to include the restrictive covenant requirements—and we advocate that they be required—must be willing to accept the responsibility to enforce the provisions of a restrictive covenant agreement. This concept is not new. For example, municipalities customarily accept the responsibility to enforce the operations and maintenance provisions of post-construction stormwater management plans in regard to stormwater management facilities. As would here be the case, the municipality would seek compliance from the property owner, in the event of a breach of the restrictive covenant agreement. (It is unlikely that a land trust or conservancy would be willing to accept the responsibility.)

F. Restoration to a forested riparian buffer shall not be required for issuance of a building permit for a single-family residence, addition thereto, or for the construction of an accessory structure disturbing less than ____ of land on an existing lot**.**

Note: Municipalities may or may not, at their discretion, wish to exempt from these regulations construction of single family residences, additions thereto, or even the construction of accessory structures to a residence, on existing lots. A municipality may also wish to reduce or limit impacted riparian buffer restoration requirements for the construction of certain agricultural buildings. For example, a municipality may reduce the buffer restoration requirement by half where a landowner submits a valid conservation plan, or the municipality may limit the buffer restoration area to that drainage area (sub-basin) containing the agricultural building for which a building or zoning permit is being sought.

Section 700. Modifications to Riparian Buffer Standards.

A. For any use or activity subject to Subdivision or Land Development review, as part of applicable Plan submission, modification(s) may be requested to the provisions of Sections 400 or 600 of this Article. Requested modification(s) may be granted at the

discretion of the Board of Supervisors pursuant to the provisions of the Subdivision and Land Development Ordinance.

B. For any use or activity not subject to Subdivision or Land Development review, but subject to application for approval of a Conditional Use, Special Exception, or Zoning Variance under the provisions of this Ordinance, the applicant may request modification(s) to the provisions of Sections 400 or 600 of this Article.

C. For any use or activity not falling within the scope of subsections A or B, the applicant may request modification(s) to the provisions of Sections 400 or 600 of this Article in the form of an application for grant of a Special Exception by the Zoning Hearing Board. *[Optional: Such applications shall be submitted to the Planning Commission for review and comment prior to formal Special Exception application to the Zoning Hearing Board.]*

D. Applicants shall provide appropriate documentation in support of their modification request, and the Board of Supervisors or Zoning Hearing Board (as applicable) may request additional documentation of an applicant, or of its municipal consultants, to help reach its decision.

E. In consideration of approval of any applicant request for modification(s) under this Article, the following standards shall serve as the basis for a decision:

    1. That there are unique physical circumstances or conditions, including but not limited to irregularity, narrowness, or shallowness of lot size or shape, excessive frontage along a water body, presence of existing buildings or structures, or exceptional topographical or other physical conditions peculiar to the particular property. That because of such physical circumstances or conditions, it is impracticable for the property to be developed in strict conformity with the buffer requirements of this Article and that the approval of the modification is therefore necessary to enable the reasonable use of the property under base zoning provisions.

    2. That the modification, if approved, will result in the minimum reduction in performance of the riparian buffer, pursuant to the purposes set forth in Section 100, as needed to provide for the lawful intended use

F. No alteration of the Use Regulations set forth in Section 500 shall be authorized as modification pursuant to this Section 700. Any such requested alteration shall constitute an application for a variance, meeting all applicable requirements for same, to be submitted to the Zoning Hearing Board.