



ARTICLE 13

CRITICAL ENVIRONMENTAL AREAS (CEAs) AND WELLHEAD PROTECTION

Section 1301 – Purpose and Background

The purpose of this article is to establish minimal requirements for the design of buffers to protect Critical Environmental Areas including watercourses, wetlands, and floodplains of Shrewsbury Township; to protect the water quality of watercourses, reservoirs, lakes, and other significant water resources within Shrewsbury Township; to protect Shrewsbury Townships riparian and aquatic ecosystems; and to provide for the environmentally sound use of Shrewsbury Township's land resources.

All of the four major streams and their watersheds located in Shrewsbury Township serve as public or municipal water supply sources for York County and the metropolitan Baltimore region. In addition, due to their generally high water quality, they all support native trout populations. Also these streams, and the seeps and springs from which they originate, are all part of the Chesapeake Bay watershed and as such, contribute to the Bay's well being, or conversely, to its decline.

Steep slope areas or locations with slopes of twenty-five (25) percent or greater, are Critical Environmental Areas. They are subject to severe erosion, sedimentation, and subsidence if not protected from disturbance, including the removal of vegetation and grading. Structures or other improvements located on these steep areas are prone to instability or structural problems.

Wellhead Protection Zones are established in order to prevent the pollution of the public wells situated within Shrewsbury Township.

Section 1302 – Intent

1. To combine with present zoning requirements, certain restrictions made necessary for critical environmental areas in order to promote the general health, welfare and safety of citizens;
2. To limit, control and restrict ~~construction activities the erection of permanent buildings and structures~~ in Critical Environmental Areas;
3. To permit only those uses that can be appropriately located in critical environmental areas as listed in Section 1306;
4. To minimize the danger to public health by protecting the quality and quantity of surface and subsurface water supplies;
5. To provide sufficient drainage courses to carry abnormal flows or storm water in period of heavy runoff;
6. To provide areas for the temporary natural storage of floodwaters;

7. To protect adjacent landowners and property both upstream and downstream from damages resulting from development within riparian areas and the consequent obstruction or increase in flow of floodwaters;
8. To protect the entire township from individual uses of land that may have an effect upon subsequent expenditures for public works and disaster relief and adversely affect the economic well being of the citizens of the township.
9. To protect other municipalities within the same watershed from the impact of improper development and the consequent increased potential for flooding and/or unsuitable locations for development;
10. To allow natural migration of stream channels over time;
11. To reduce channel erosion and widening of channels;
12. To reduce erosion and sedimentation;
13. To allow for infiltration from storm water runoff;
14. To enhance the base flow of watercourses, springs and seeps;
15. To protect and maintain the aquatic environment or ecosystem of Critical Environmental Areas from nutrient loadings, pesticides, sediments and temperature increases, as well as other pollutants.
16. Providing the organic matter that is the source of food and energy for the aquatic ecosystems.
17. Provide wildlife habitat including that of rare and endangered species.
18. Maintaining, enhancing or creating open space, scenic values and recreational opportunities.

Section 1303 – Riparian Buffer Areas

1. The establishment or requirement for a riparian buffer is based on the following considerations:
 - a. Erosion Control - A forested or vegetated buffer prevents or minimizes soil erosion.
 - b. Sediment Filter - Riparian buffers help catch and filter out sediment and debris from surface runoff. Depending upon the width of the buffer, 50-100% of the sediments and the nutrients attached to them settle out and are absorbed by buffer plants.
 - c. Pollution Filter, Transformer, and Sink - Nutrients, such as phosphorus and nitrogen, can become water pollutants if more are applied to the land than plants can use. Bacteria in the soil, particularly of streamside forests, can capture and transform

nitrogen and other pollutants into less harmful forms. Buffers also act as a sink when nutrients and excess water are taken up by root systems and stored in the branches and leaves of trees.

- d. Stream flow Regulator - By slowing the velocity of runoff, the riparian buffer allows water to soak into the soil and recharge the groundwater supply. Groundwater will reach a stream or river more slowly, and over a longer period of time, than if it had entered the river as surface runoff. This helps control flooding and maintain stream flow during the driest time of the year.
- e. Bank Stabilizer - Riparian buffer vegetation helps to stabilize stream banks and reduce erosion. Roots hold bank soil together, and stems protect banks by deflecting the cutting action of waves, ice, and storm runoff.
- f. Terrestrial Wildlife Habitat - The unique habitat offered by riparian buffers is home to various plant and animal species, including those rarely found outside this narrow band of land adjacent to a stream. Continuous stretches of riparian buffer also serve as wildlife travel corridors.
- g. Aquatic Habitat - Buffers promote aquatic habitat by improving the quality of nearby waters through shading and moderating stream flow. Shade in summer maintains cooler, more even temperatures, especially on small streams. Cooler water holds more oxygen and reduces stress on fish and other aquatic organisms. Woody debris, which feeds the aquatic food web, can also create stepped pools, providing cover for fish and their food supply while reducing erosion by slowing flow.
- h. Recreation and Aesthetics - Forested buffers are especially valuable in providing a green screen along waterways, blocking views of nearby development, and allowing privacy for riverfront landowners.

1304 – Calculation of Riparian Buffers

1. All riparian buffer areas shall include the one hundred (100) feet immediately adjacent to the top of a stream bank or outer edge of all watercourses, including springs and seeps.
2. The one hundred (100) foot minimum or base buffer shall be expanded as follows:
 - a. The outer edge of the buffer area of all watercourses, springs and seeps shall be extended an additional four (4) feet horizontally for each one (1) percent of slope based on the average slope as calculated over the two hundred (200) feet extending from the outer bank of a watercourse or the edge of a spring or seep. Such calculation shall be made at intervals of no more than fifty (50) feet or at such intervals as to accurately determine slope deviations within a two hundred (200) foot distance.
 - b. If a floodplain or wetland located within the one hundred (100) foot minimum buffer extends beyond the one hundred (100) foot buffer, or if a floodplain or wetland

directly borders a one hundred (100) foot buffer, these floodplains and wetlands shall be included as part of the buffer. In addition a thirty five (35) foot vegetated strip of land shall be included along the outer edge of these floodplains and wetlands.

- c. Except that forestry best management practices and logging operations shall only be required to satisfy the minimum buffer of one hundred (100) feet and shall be exempt from buffer extensions based on slope.

Section 1305 – Applicability

1. This article shall apply to all ~~construction activities within the CEA proposed subdivisions and land development~~ except for those where a variance has been granted ~~or other exception applies~~.
2. Accessory structures shall be permitted on existing developed lots or parcels, as of (insert date of adoption), provided the following standards are met:
 - a. Be set back a minimum of 35 feet from the outer bank of a watercourse or the edge of a spring, seep, floodplain, or wetland.
 - b. Does not exceed 100 square feet of impervious area.
 - c. Best management practices, as defined by Natural Resources Conservation Service, are permitted.
 - d. Piers, docks, and bulkheads are permitted without meeting the requirements of Section 1305.2.a. and 1305.2.b. State and/or federal permits may be required.
32. All forestry management practices and harvesting operations are permitted within the buffer subject to the requirements of Section 1307.5.
43. This article shall not apply to agricultural operations except in situations where erosion and sedimentation is occurring within the Critical Environmental Areas or buffer and/or livestock are damaging the stream banks or polluting the watercourse.
54. All mining activities shall be in compliance with the “Surface Mining Conservation and Reclamation Act.”

Section 1306 – Permitted Uses

The following uses, if permitted within the underlying zoning district, and no others, are permitted within Critical Environmental Areas, provided no dwellings are included and that best management practices as defined by the Natural Resources Conservation Service are followed.

- agriculture (See Section 1404)
- forestry (See Section 1404)
- hunting and fishing preserve
- passive recreation or parks

- special events
- wildlife preserve/refuge

Section 1307 – Extent of Uses

1. Critical Environmental Areas (CEA) may be included as part of an existing or subdivided building lot in minor subdivisions provided area and dimensional requirements of the lot are calculated and fully complied with without using the CEA in the calculation. **Within a new subdivision, no principal or accessory structure shall be constructed, erected or placed within the CEA area of the lot.** Any CEA located within a major subdivision shall not be included as part of any lot or lots and shall be managed by one of the following methods:
 - a. In all cases the CEA will first be offered as a dedication to Shrewsbury Township. However, the Township shall not be obligated to accept such dedication.
 - b. With permission of the Township and with appropriate deed restrictions in favor of the Township and in language acceptable to the Township Solicitor, the developer may transfer ownership of the common open space, or a portion thereof, to a private, non-profit organization among whose purposes is the preservation of open space land and/or natural resources. The organization shall be a bona fide conservation organization with a perpetual existence, the conveyance must contain appropriate provision for reverter or retransfer if the organization is unable to carry out its functions, and the organization must enter into a maintenance agreement with the Township.
 - c. Alternatively, the developer may provide for and establish an automatic membership property owner's association, as a non-profit corporation to have primary responsibility for the ownership, administration, and maintenance of the CEA.
 - d. All CEAs shall be maintained or be subject to Protective Covenants which shall be submitted, approved, and recorded as part of the approval of a subdivision or land development plan.
 - e. All boundaries of CEAs shall be delineated with concrete monuments.
 - f. Permanent signs shall be placed every 100 feet along the outer boundaries of CEAs to provide notification of a "No Disturbance Area."
2. In the event the organization established to own and maintain the CEA, or any successor organization, shall at any time fail to maintain the CEA consistent with the purpose, function and condition in accordance with this section , the Township shall perform the necessary maintenance or correct such deficiencies at the owner's or organization' expense.
3. The Critical Environmental Areas shall not be re-graded, filled or otherwise altered except in accordance with Section 1308 herein, and without prior approval by Shrewsbury Township, and shall be protected from pollution or contamination. Critical Environmental Areas may be used for the infiltration of controlled release of storm water and as a natural filter or trap for

sediment and nutrients; except that all storm water and sediment basins or structures must be located outside the CEA except for constructed wetlands.

4. Land located within the Critical Environmental Area shall be maintained in forest cover at all times except that habitats of rare or endangered, or other unique habitats including wetlands, may be exempted from this provision in order to protect or maintain these areas. (See the Subdivision and Land Development Ordinance.)
5. Forestry activities, including logging, located within a Critical Environmental Area shall be subject to the following:
 - a. No forestry activities shall take place within fifteen (15) feet of the outer bank of a watercourse, spring or seep.
 - b. Forestry activities located between fifteen (15) and one hundred (100) feet of a watercourse, spring or seep shall be regulated as follows:
 - (1) The basal area of trees shall not be reduced below fifty percent (50%) of the basal area present before cutting or below sixty-five (65) square feet per acre, whichever is higher except that no logging shall occur within fifteen (15) feet of a watercourse, spring or seep.
 - (2) Trees to be cut shall be marked above and below stump height with tree marking paint prior to start of logging.
6. CEAs shall be planted and/or maintained at all times in native trees or shrubs. (See Article 700 in the Subdivision and Land Development Ordinance.)

Section 1308 – Exceptions

Necessary public work related projects initiated by local, state or federal governments or municipal or PUC regulated utilities, such as improvements including floodplain restoration, stream bank stabilization, aquatic habitat improvements, road crossings, bridges, culverts, utilities, impoundments and non-motorized trails, and Best Management Practices (BMPs) are permitted. ~~will be permitted subject to plan review by the Shrewsbury Township Planning Commission, and subsequent approval by the Shrewsbury Township Zoning Officer Board of Supervisors.~~ Road crossings shall be perpendicular to the stream or buffer.

Section 1309 – Existing Structures in Critical Environmental Areas

Structures and uses existing in any Critical Environmental Areas prior to the date of adoption of this ordinance, but which are not in compliance with the provisions of this ordinance may remain. Existing structures, as of August 2010, may be expanded up to 50% of the total footprint at that time. ~~No new principal or accessory structures shall be constructed, erected or placed within a CEA.~~

Section 1310 – Natural Areas Inventory

1. Rare and endangered plant and animal species must be preserved and protected from indiscriminate development by using development review procedures intended to conserve habitats in which these species occur. Therefore, Shrewsbury Township requires an Environmental Impact Assessment prior to any subdivision or land development approval that will identify potential adverse impacts as well as opportunities and mitigating measures intended to protect these areas.
2. The Pennsylvania Natural Diversity Inventory (PNDI), as of 1996, identifies one site within Shrewsbury Township—Deer Creek Woods—as a significant natural habitat. In addition, two other areas in the township—Seitzland Marsh and Shaffers Hollow—are identified as locally significant sites, defined as sites that do not have exemplary natural communities or known occurrences of rare species, but that could be excellent sites for county or township parks or as natural areas within existing parks. The township’s Critical Environmental Areas include the areas of the township that are protected by special regulations.

Section 1311 – Protection of Wellhead Zones

The protection of the public or municipal wells or springs serving New Freedom Borough, Shrewsbury Borough and Shrewsbury Township and the groundwater which supply these public water supply sources is necessary in order to ensure a potable water supply.

To achieve this goal a Wellhead Protection Ordinance (WPO) has been enacted and is included in the Codification of the Ordinances of Shrewsbury Township and applies to all Shrewsbury Borough wells located within Shrewsbury Township. Also applies to development in the Township that impacts the WPO within Shrewsbury Borough.

In addition, in regards to New Freedom municipal wells located within Shrewsbury Township, the following uses shall not be permitted within a wells wellhead protection zones I, II, or III, as defined within the Wellhead Protection Ordinance (WPO):

- a. Groundwater discharge; including BMPs
- b. Application of animal waste (manure) or sewage sludge or other materials possessing pollutants.
- c. Septic systems
- d. Commercial, institutional or manufacturing uses other than agricultural.
- e. Utilities, excluding private wells.
- f. Stormwater management related uses or facilities.