



NORTH CAROLINA  
Environmental Quality

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## MEMORANDUM

**TO:** Coastal Resources Commission  
**FROM:** Mike Lopazanski  
**SUBJECT:** Permeable Surfaces in the Buffer

A recent variance petition prompted a discussion of the Commission's exceptions to non-water dependent uses within the 30-foot buffer area of the rules for the Coastal Shorelines AEC, found at 15A NCAC 7H .0209(d)(10)(G). The variance requested expansion of non-water dependent uses within the 30-foot buffer area by allowing the use of impermeable materials (pavers) for a patio.

The Coastal Shorelines Area of Environmental Concern (AEC) includes the Estuarine Shorelines and Public Trust Shorelines subcategories. Estuarine shorelines are defined as "...those non-ocean shorelines extending from the normal high water level (HWL) or normal water level (NWL) along the estuarine waters, estuaries, sounds, bays, fresh and brackish waters, and public trust areas as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Environment and Natural Resources". The Estuarine Shoreline AEC extends from NHWL or NWL landward for a distance of 75 feet except in areas adjacent to waters classified as Outstanding Resource Waters by the Environmental Management Commission (EMC), where it extends 575 feet. Public Trust Shorelines are located inland of the dividing line between coastal fishing waters and inland fishing waters and extend 30 feet landward of NHWL or NWL. Pursuant to 15A NCAC 7H .0209(e), the Commission's buffer shall not apply in areas (Neuse and Tar-Pamlico) where the EMC has adopted buffers.

Your rules currently restrict development within the 30-foot buffer to water-dependent uses which are typically docks, piers, boat ramps, bulkheads and accessways. There are also exceptions for limited non-water dependent uses which include pile supported signs; elevated, slatted wooden boardwalks; crab shadders; decks/observation decks; grading, excavation, and landscaping with no wetland fill except when required by a permitted shoreline stabilization project.

The origin of the CRC's Buffer rules began with the Commission's consideration of upland development impacts to adjacent estuarine water quality in 1985 with a report on urban stormwater runoff and management strategies to mitigate those impacts. Other reports followed



including a 1996 NC Sea Grant analysis of current AEC standards concluding that the standards were not specific enough to protect critical estuarine habitats, specifically seagrass beds, shallow sand, oyster reefs, salt marshes, fish nursery areas and anadromous fish spawning areas.

Fish kills, algal blooms, shellfish closures and increased coastal development during the late 1990's once again brought the issue of estuarine water quality to the Commission's attention. In September of 1997, Staff reviewed the Commission's existing regulatory program and concluded that "additional protection is needed to implement the intent of the Coastal Area Management Act and the Commission's management goals for the Estuarine System Area(s) of Environmental Concern (AEC)" identifying five areas for review, including regulatory jurisdiction, different development zones, vegetated buffers, density and estuarine shoreline stabilization.

With nonpoint source pollution becoming an increasing concern, the CRC in 1998 began a rulemaking effort to expand the Estuarine Shoreline AEC beyond the limit of the inland waters boundary through the Public Trust Areas AEC and reviewed methods to mitigate, protect and restore the quality of North Carolina's estuarine system through the use of vegetated buffers, shoreline stabilization methods, and impervious surface area density. Staff recommended rule changes to require buffers along all shoreline types within the Commission's jurisdiction.

The Commission spent most of 1998 reviewing the shoreline jurisdiction rules, and recommendations on how to proceed with adding both a Public Trust Shoreline AEC upstream of the inland/coastal fishing waters line, and to update the rules for the Estuarine Shoreline AEC to include vegetated buffers.

In 1999 the CRC's draft proposals included a 75-foot vegetated buffer for all Coastal Shorelines AECs (both Estuarine Shoreline and Public Trust Shoreline AECs). Within the 75-foot buffer, water dependent structures were allowed within the first 50 feet and within the last 25 feet, up to 200 square feet of accessory structures could be built. This recommendation was later reduced to a 30-foot buffer and was subsequently adopted in November of 1999 after adding exceptions and took effect in August of 2000. The exceptions were the result of a Staff survey regarding the most common existing development within a 30-foot buffer area, with recommendations of what non-dependent uses should be allowed within the 30-foot buffer based on their having little or no impact to water quality.

The Commission has had a clear intent since the initial adoption of its 30-foot buffer rule, and since its adoption in 2000, has been consistent in not allowing non-water-dependent amenities within the buffer that could undermine the purposes and effectiveness of the buffer. The buffer area has been identified as crucial in protecting water quality by filtering contaminants from runoff, allowing infiltration, stabilizing soil, slowing floodwaters and preserving the natural character of the shoreline. When the Commission has granted variances, it has usually involved a habitable structure, and these variances have typically been conditioned on the use of an engineered stormwater system.

However, there have been advances in technology that are intended to address stormwater runoff associated with traditional impervious surfaces. The use of "pervious" pavement, pavers and associated installation requirements have been promoted by various institutions and the Division

of Energy, Minerals and Land Resources' (DEMLR) Stormwater Design Manual includes specifications for construction of "hard" surfaces that capture stormwater through voids in the materials surfaces.

The Commission's buffer rule exceptions allow for decks/observation decks that are limited to slatted, wooden, elevated and unroofed decks that do not singularly or collectively exceed 200 square feet. As the provision for decks to be slatted and elevated is related to retaining the infiltration capacity of the buffer, development standards could be incorporated that allow similarly functioning structures that also maintain the infiltration capacity of the buffer. If the Commission is interested in allowing this type of amenity within the buffer area, the limitations on non-water dependent structures could be amended to incorporate DEMLR's Best Management Practices standards (15A NCAC 02H .1055 MDC FOR PERMEABLE PAVEMENT) for pervious pavement by reference in the rule and limiting such development to 200 square feet, in a manner similar to the limitation on slated, elevated decks.

Staff looks forward to discussing the Buffer Rule and guidance for the development of amendments at our upcoming meeting in Wilmington.

## SUBCHAPTER 7H - STATE GUIDELINES FOR AREAS OF ENVIRONMENTAL CONCERN

### SECTION .0200 – THE ESTUARINE AND OCEAN SYSTEMS

#### 15A NCAC 07H .0209 COASTAL SHORELINES

- (a) Description. The Coastal Shorelines category includes estuarine shorelines and public trust shorelines.
- (1) Estuarine shorelines AEC are those non-ocean shorelines extending from the normal high water level or normal water level along the estuarine waters, estuaries, sounds, bays, fresh and brackish waters, and public trust areas as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Environmental Quality [described in Rule .0206(a) of this Section] for a distance of 75 feet landward. For those estuarine shorelines immediately contiguous to waters classified as Outstanding Resource Waters (ORW) by the Environmental Management Commission (EMC), the estuarine shoreline AEC shall extend to 575 feet landward from the normal high water level or normal water level, unless the Coastal Resources Commission establishes the boundary at a greater or lesser extent following required public hearing(s) within the affected county or counties.
  - (2) Public trust shorelines AEC are those non-ocean shorelines immediately contiguous to public trust areas, as defined in Rule 07H .0207(a) of this Section, located inland of the dividing line between coastal fishing waters and inland fishing waters as set forth in that agreement and extending 30 feet landward of the normal high water level or normal water level.
- (b) Significance. Development within coastal shorelines influences the quality of estuarine and ocean life and is subject to the damaging processes of shore front erosion and flooding. The coastal shorelines and wetlands contained within them serve as barriers against flood damage and control erosion between the estuary and the uplands. Coastal shorelines are the intersection of the upland and aquatic elements of the estuarine and ocean system, often integrating influences from both the land and the sea in wetland areas. Some of these wetlands are among the most productive natural environments of North Carolina and they support the functions of and habitat for many valuable commercial and sport fisheries of the coastal area. Many land-based activities influence the quality and productivity of estuarine waters. Some important features of the coastal shoreline include wetlands, flood plains, bluff shorelines, mud and sand flats, forested shorelines and other important habitat areas for fish and wildlife.
- (c) Management Objective. All shoreline development shall be compatible with the dynamic nature of coastal shorelines as well as the values and the management objectives of the estuarine and ocean system. Other objectives are to conserve and manage the important natural features of the estuarine and ocean system so as to safeguard and perpetuate their biological, social, aesthetic, and economic values; to coordinate and establish a management system capable of conserving and utilizing these shorelines so as to maximize their benefits to the estuarine and ocean system and the people of North Carolina.
- (d) Use Standards. Acceptable uses shall be those consistent with the management objectives in Paragraph (c) of this Rule. These uses shall be limited to those types of development activities that will not be detrimental to the public trust rights and the biological and physical functions of the estuarine and ocean system. Every effort shall be made by the permit applicant to avoid or minimize adverse impacts of development to estuarine and coastal systems through the planning and design of the development project. Development shall comply with the following standards:
- (1) All development projects, proposals, and designs shall preserve natural barriers to erosion, including peat marshland, resistant clay shorelines, and cypress-gum protective fringe areas adjacent to vulnerable shorelines.
  - (2) All development projects, proposals, and designs shall limit the construction of impervious surfaces and areas not allowing natural drainage to only so much as is necessary to service the primary purpose or use for which the lot is to be developed. Impervious surfaces shall not exceed 30 percent of the AEC area of the lot, unless the applicant can demonstrate, through innovative design, that the protection provided by the design would be equal to or exceed the protection by the 30 percent limitation. Redevelopment of areas exceeding the 30 percent impervious surface limitation shall be permitted if impervious areas are not increased and the applicant designs the project to comply with the rule to the maximum extent feasible.
  - (3) All development projects, proposals, and designs shall comply with the following mandatory standards of the North Carolina Sedimentation Pollution Control Act of 1973:

- (A) All development projects, proposals, and designs shall provide for a buffer zone along the margin of the estuarine water that is sufficient to confine visible siltation within 25 percent of the buffer zone nearest the land disturbing development.
  - (B) No development project proposal or design shall propose an angle for graded slopes or fill that is greater than an angle that can be retained by vegetative cover or other erosion-control devices or structures.
  - (C) All development projects, proposals, and designs that involve uncovering more than one acre of land shall plant a ground cover sufficient to restrain erosion within 30 working days of completion of the grading; unless the project involves clearing land for the purpose of forming a reservoir later to be inundated.
- (4) Development shall not have a significant adverse impact on estuarine and ocean resources. Significant adverse impacts include development that would directly or indirectly impair water quality increase shoreline erosion, alter coastal wetlands or Submerged Aquatic Vegetation (SAV), deposit spoils waterward of normal water level or normal high water, or cause degradation of shellfish beds.
  - (5) Development shall not interfere with existing public rights of access to, or use of, navigable waters or public resources.
  - (6) No public facility shall be permitted if such a facility is likely to require public expenditures for maintenance and continued use, unless it can be shown that the public purpose served by the facility outweighs the required public expenditures for construction, maintenance, and continued use.
  - (7) Development shall not cause irreversible damage to valuable, historic architectural or archaeological resources as documented by the local historic commission or the North Carolina Department of Natural and Cultural Resources.
  - (8) Established common-law and statutory public rights of access to the public trust lands and waters in estuarine areas shall not be eliminated or restricted. Development shall not encroach upon public accessways nor shall it limit the use of the accessways.
  - (9) Within the AECs for shorelines contiguous to waters classified as ORW by the EMC, no CAMA permit shall be approved for any project that would be inconsistent with rules adopted by the CRC, EMC or MFC for estuarine waters, public trust areas, or coastal wetlands. For development activities not covered by specific use standards, no permit shall be issued if the activity would, based on site-specific information, degrade the water quality or outstanding resource values.
  - (10) Within the Coastal Shorelines category (estuarine and public trust shoreline AECs), new development shall be located a distance of 30 feet landward of the normal water level or normal high water level, with the exception of the following:
    - (A) Water-dependent uses as described in Rule 07H .0208(a)(1) of this Section;
    - (B) Pile-supported signs (in accordance with local regulations);
    - (C) Post- or pile-supported fences;
    - (D) Elevated, slatted, wooden boardwalks exclusively for pedestrian use and six feet in width or less. The boardwalk may be greater than six feet in width if it is to serve a public use or need;
    - (E) Crab Shedders, if uncovered with elevated trays and no associated impervious surfaces except those necessary to protect the pump;
    - (F) Decks/Observation Decks limited to slatted, wooden, elevated and unroofed decks that shall not singularly or collectively exceed 200 square feet;
    - (G) Grading, excavation and landscaping with no wetland fill except when required by a permitted shoreline stabilization project. Projects shall not increase stormwater runoff to adjacent estuarine and public trust waters;
    - (H) Development over existing impervious surfaces, provided that the existing impervious surface is not increased;
    - (I) Where application of the buffer requirement would preclude placement of a residential structure with a footprint of 1,200 square feet or less on lots, parcels and tracts platted prior to June 1, 1999, development shall be permitted within the buffer as required in Subparagraph (d)(10) of this Rule, providing the following criteria are met:
      - (i) Development shall minimize the impacts to the buffer and reduce runoff by limiting land disturbance to only so much as is necessary to construct and provide access to the residence and to allow installation or connection of utilities, such as water and sewer; and

- (ii) The residential structure development shall be located a distance landward of the normal high water or normal water level equal to 20 percent of the greatest depth of the lot. Existing structures that encroach into the applicable buffer area may be replaced or repaired consistent with the criteria set out in 15A NCAC 07J .0201 and .0211; and
- (J) Where application of the buffer requirement set out in Subparagraph (d)(10) of this Rule would preclude placement of a residential structure on an undeveloped lot platted prior to June 1, 1999 that are 5,000 square feet or less that does not require an on-site septic system, or on an undeveloped lot that is 7,500 square feet or less that requires an on-site septic system, development shall be permitted within the buffer if all the following criteria are met:
  - (i) The lot on which the proposed residential structure is to be located, is located between:
    - (I) Two existing waterfront residential structures, both of which are within 100 feet of the center of the lot and at least one of which encroaches into the buffer; or
    - (II) An existing waterfront residential structure that encroaches into the buffer and a road, canal, or other open body of water, both of which are within 100 feet of the center of the lot;
  - (ii) Development of the lot shall minimize the impacts to the buffer and reduce runoff by limiting land disturbance to only so much as is necessary to construct and provide access to the residence and to allow installation or connection of utilities;
  - (iii) Placement of the residential structure and pervious decking shall be aligned no further into the buffer than the existing residential structures and existing pervious decking on adjoining lots;
  - (iv) The first one and one-half inches of rainfall from all impervious surfaces on the lot shall be collected and contained on-site in accordance with the design standards for stormwater management for coastal counties as specified in 15A NCAC 02H .1005. The stormwater management system shall be designed by an individual who meets applicable State occupational licensing requirements for the type of system proposed and approved during the permit application process. If the residential structure encroaches into the buffer, then no other impervious surfaces shall be allowed within the buffer; and
  - (v) The lots shall not be adjacent to waters designated as approved or conditionally approved shellfish waters by the Shellfish Sanitation Section of the Division of Marine Fisheries of the Department of Environmental Quality.
- (e) The buffer requirements in Paragraph (d) of this Rule shall not apply to Coastal Shorelines where the EMC has adopted rules that contain buffer standards.
- (f) Specific Use Standards for ORW Coastal Shorelines.
  - (1) Within the AEC for estuarine and public trust shorelines contiguous to waters classified as ORW by the EMC, all development projects, proposals, and designs shall limit the built upon area in the AEC to no more than 25 percent or any lower site specific percentage as adopted by the EMC as necessary to protect the exceptional water quality and outstanding resource values of the ORW, and shall:
    - (A) provide a buffer zone of at least 30 feet from the normal high water line or normal water line; and
    - (B) otherwise be consistent with the use standards set out in Paragraph (d) of this Rule.
  - (2) Single-family residential lots that would not be buildable under the low-density standards defined in Subparagraph (f)(1) of this Rule may be developed for single-family residential purposes so long as the development complies with those standards to the maximum extent possible.
- (g) Urban Waterfronts.
  - (1) Description. Urban Waterfronts are waterfront areas, not adjacent to ORW, in the Coastal Shorelines category that lie within the corporate limits of any municipality duly chartered within the 20 coastal counties of the state. In determining whether an area is an urban waterfront, the following criteria shall be met:
    - (A) the area lies wholly within the corporate limits of a municipality; and
    - (B) the area has a central business district or similar commercial zoning classification where there are mixed land uses, and urban level services, such as water, sewer, streets, solid

waste management, roads, police and fire protection, or in an area with an industrial or similar zoning classification adjacent to a central business district.

- (2) **Significance.** Urban waterfronts are recognized as having cultural, historical and economic significance for many coastal municipalities. Maritime traditions and longstanding development patterns make these areas suitable for maintaining or promoting dense development along the shore. With proper planning and stormwater management, these areas may continue to preserve local historical and aesthetic values while enhancing the economy.
- (3) **Management Objectives.** To provide for the continued cultural, historical, aesthetic and economic benefits of urban waterfronts. Activities such as in-fill development, reuse and redevelopment facilitate efficient use of already urbanized areas and reduce development pressure on surrounding areas, in an effort to minimize the adverse cumulative environmental effects on estuarine and ocean systems. While recognizing that opportunities to preserve buffers are limited in highly developed urban areas, they are encouraged where practical.
- (4) **Use Standards:**
  - (A) The buffer requirement pursuant to Subparagraph (d)(10) of this Rule shall not apply to development within Urban Waterfronts that meets the following standards:
    - (i) The development shall be consistent with the locally adopted land use plan;
    - (ii) Impervious surfaces shall not exceed 30 percent of the AEC area of the lot. Impervious surfaces may exceed 30 percent if the applicant can demonstrate, through a stormwater management system design, that the protection provided by the design would be equal to or exceed the protection by the 30 percent limitation. The stormwater management system shall be designed by an individual who meets any North Carolina occupational licensing requirements for the type of system proposed and approved during the permit application process. Redevelopment of areas exceeding the 30 percent impervious surface limitation shall be permitted if impervious areas are not increased and the applicant designs the project to comply with the intent of the rule to the maximum extent feasible; and
    - (iii) The development shall meet all state stormwater management requirements as required by the EMC;
  - (B) Non-water dependent uses over estuarine waters, public trust waters and coastal wetlands shall be allowed only within Urban Waterfronts as set out below.
    - (i) Existing structures over coastal wetlands, estuarine waters or public trust areas may be used for commercial non-water dependent purposes. Commercial, non-water dependent uses shall be limited to restaurants and retail services. Residential uses, lodging and new parking areas shall be prohibited.
    - (ii) For the purposes of this Rule, existing enclosed structures may be replaced or expanded vertically provided that vertical expansion does not exceed the original footprint of the structure, is limited to one additional story over the life of the structure, and is consistent with local requirements or limitations.
    - (iii) New structures built for non-water dependent purposes are limited to pile-supported, single-story, unenclosed decks and boardwalks, and shall meet the following criteria:
      - (I) shall provide for enhanced public access to the shoreline;
      - (II) may be roofed, but shall not be enclosed by partitions, plastic sheeting, screening, netting, lattice or solid walls of any kind;
      - (III) shall require no filling of coastal wetlands, estuarine waters or public trust areas;
      - (IV) shall not extend more than 20 feet waterward of the normal high water level or normal water level;
      - (V) shall be elevated at least three feet over the wetland substrate as measured from the bottom of the decking;
      - (VI) shall have no more than six feet of any dimension extending over coastal wetlands;
      - (VII) shall not interfere with access to any riparian property and shall have a minimum setback of 15 feet between any part of the structure and the adjacent property owners' areas of riparian access. The line of division

of areas of riparian access shall be established by drawing a line along the channel or deep water in front of the properties, then drawing a line perpendicular to the line of the channel so that it intersects with the shore at the point the upland property line meets the water's edge. The minimum setback provided in the rule may be waived by the written agreement of the adjacent riparian owner(s) or when two adjoining riparian owners are co-applicants. Should the adjacent property be sold before construction of the structure commences, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the permitting agency prior to initiating any development;

- (VIII) shall be consistent with the US Army Corps of Engineers setbacks along federally authorized waterways;
- (IX) shall have no significant adverse impacts on fishery resources, water quality or adjacent wetlands and there shall be no alternative that would avoid wetlands. Significant adverse impacts include the development that would impair water quality standards, increase shoreline erosion, alter coastal wetlands or Submerged Aquatic Vegetation (SAV), deposit spoils waterward of normal water level or normal high water level, or cause degradation of shellfish beds;
- (X) shall not degrade waters classified as SA or High Quality Waters or ORW as defined by the EMC;
- (XI) shall not degrade Critical Habitat Areas or Primary Nursery Areas as defined by the NC Marine Fisheries Commission; and
- (XII) shall not pose a threat to navigation.

*History Note: Authority G.S. 113A-107(b); 113A-108; 113A-113(b); 113A-124; Eff. September 1, 1977; Amended Eff. April 1, 2001; August 1, 2000; August 3, 1992; December 1, 1991; May 1, 1990; October 1, 1989; Temporary Amendment Eff. October 15, 2001 (exempt from 270 day requirement-S.L. 2000-142); Temporary Amendment Eff. February 15, 2002 (exempt from 270 day requirement-S.L. 2001-494); Amended Eff. April 1, 2019; March 1, 2010; April 1, 2008; August 1, 2002.*