

PROPOSED AMENDMENT TO
LAND DEVELOPMENT CODE ARTICLE 12
LIMITING THE USE OF RED CLAY IN SHORELINE
DEVELOPMENT

Prepared for the
August 9, 2012 meeting of the Zoning Board

RECOMMENDATION:

That the board consider amendments to the Land Development Code to limit the use of red clay along shorelines. The proposed changes are shown in ~~strikethrough~~ and double underline format below.

BACKGROUND:

The current Land Development Code prohibits the use of red clay on Navarre Beach but allows for its use along the bays, basins and bayous. Many of those shorelines are characterized by white sand beaches which can be stained by red clay. This amendment would limit the use of red clay in those areas to under foundations and driveways.

The amendment also clarifies that the ordinance is intended to apply to all land development, not just the construction of a building. In most cases, the word "construction" is replaced with the word "development." While those words have similar definitions in the Code, the word "development" is more commonly recognized to include changes to the land.

ARTICLE TWELVE

COASTAL MANAGEMENT/CONSERVATION

12.00.00 PURPOSE: The purpose of this article is to provide regulations, standards and devices necessary to protect coastal resources, mitigate negative impacts upon natural resources, protect lives and property, enhance property values, and provide for the health, safety and welfare of the citizens of Santa Rosa County.

12.01.00 COASTAL CONSTRUCTION DEVELOPMENT/SHORELINE PROTECTION: ~~Shoreline protection zone means the area that commences at the mean high water line and runs to and includes the primary dune system. The Shoreline Protection Zone in Santa Rosa County shall also be known as the "Beach Preservation Zone."~~

A. The following areas along the Gulf of Mexico and Santa Rosa Sound shall be considered within Shoreline Protection Zone-1:

The water-ward line shall run east-west along the line of mean high water.

The landward line shall run east / west at a location coterminous with the crest of the primary dune system extending along the Gulf-fronting shoreline of the Navarre Beach Planning Area. However, in no case shall any prohibitions apply landward of the Coastal Construction Control Line nor to any structure or activity permitted under F.S. 161.053 (5).

For sound-side properties the shoreline protection zone shall be the mean high tide line of Santa Rosa Sound.

B. Zone-2 is the Shoreline Protection Zone on Escambia Bay, Blackwater Bay, East Bay and the basins and bayous and shall be measured from the mean high water line to a point five (5) feet landward of the mean high water line.

C. Prohibitions - The following activities, unless specifically excepted, shall be prohibited within the shoreline protection zone:

1. Construction of buildings and structures, except for permitted minor structures;

Removal of vegetation for residential development is allowable by permit for vegetation five (5) inches and smaller in diameter.

Planting of new vegetation except for native, salt-resistant species suitable for beach and dune or area stabilization.

D. Shoreline Enhancement - All persons constructing elevated boardwalks on property located in the shoreline protection zone shall include in their plans, provisions to enhance and re-vegetate the dune system on their property.

12.01.02 Design Standards in Areas Adjacent to Shoreline Protection Zone

A. All development shall be setback greater than or equal to fifty (50) feet from the landward boundary of the Shoreline Protection Zone in Zone-1 and forty-five (45) feet from the landward boundary of the Shoreline Protection Zone in Zone-2.

B. Total impervious surface, including but not limited to buildings, houses, parking lots, garages, accessory buildings, driveways, pools and walkways is limited to 75 percent of the land area of the entire site.

C. The development shall leave a minimum of 25 percent of the site as trees, shrubs, or other natural vegetation, or replace existing trees at a minimum ratio of 2:1.

D. Point source and non-point source discharges are prohibited, except for stormwater, which may be discharged only if it meets the following minimum standards:

1. Stormwater discharges shall provide off-line retention or off-line detention with filtration of the first one inch of run-off.

E. Siltation and erosion control measures shall be applied to stabilize ~~bands~~ sands and other un-vegetated areas during and after ~~construction~~ development. Sediment settling ponds shall be installed for stormwater runoff prior to the creation of any impervious surfaces. For lots or parcels that are cleared, silt screens shall be placed between the ~~construction~~ development site and the water body to prevent erosion and siltation. If red clay is used as allowed in section "K" below, silt screens must be supplemented with hay bales.

F. Any channels constructed shall be of a minimum depth and width capable of achieving the intended purposes. Sides of channels shall reflect an equilibrium shape to prevent slumping and erosion and to allow re-vegetation.

G. Any dredging shall be conducted at times of minimum biological activity to avoid fish migration and spawning, and other cycles and activities of wildlife.

H. Any spoil that results from dredging shall be disposed of at upland sites and stabilized within thirty (30) days, unless the spoil is causing turbidity or other problems, in which case the developer must stabilize the spoil immediately.

I. If dredging changes the littoral drift processes and causes adjacent shores to erode, the developer shall periodically replenish these shores with the appropriate quantity and quality of aggregate (sand).

J. If no natural vegetation exists, strips of buffer vegetation shall be planted between development activities and the Shoreline Protection Zone. Buffers shall be a minimum of ten (10) feet wide and shall be composed of native species.

K. ~~Material used for fill shall not discolor the natural white sands of the Coastal Shoreline Protection Zone.~~ Red clay and other discoloring materials are prohibited on Navarre Beach, consistent with section 12.05.00. The use of red clay is limited to foundations and driveways for parcels within and adjacent to Zone 2. Red clay used for driveway construction must be capped within seven (7) days. Red clay used for foundation construction must be capped within 45 days. White sand, oyster shell, limestone and white dolomite are among materials approved for fill or masonry mixes for new development or redevelopment projects ~~in the Coastal Shoreline Protection Zone on Navarre Beach.~~

Modified: Ord. No. 96-30, 10-24-96

12.02.00 SCOPE: The scope of this section shall apply to the following types of ~~construction~~ development within the Shoreline Protection Zone, areas adjacent to the Shoreline Protection Zone, Navarre Beach, flood plain or flood prone areas as defined in Article 10, and any other shoreline or coastal areas of Santa Rosa County when topographic and/or elevation data require enhanced protection through regulation of ~~construction~~ development.

A. New ~~construction~~ development of, and improvements to, major and minor structures.

1. Major structure includes, but is not limited to, residential buildings including mobile homes, commercial, institutional, industrial and other construction having the potential for substantial impact on coastal and shoreline zones.
2. Minor structure includes, but is not limited to, pile-supported, elevated dune and beach walkover structures; seawalls/bulkheads; beach access ramps and walk

ways; stairways; lifeguard support stands and sand fences. It shall be a characteristic of minor structures that they are considered to be expendable under design wind, and wave and storm forces.

3. Non-habitable major structure includes, but is not limited to, swimming pools; seawalls/bulkheads; parking garages; pipelines; piers; canals, lakes, ditches, drainage structures and other water retention structures; water and sewage treatment plans; electrical power plants, transmission and distribution lines, transformer pads, vaults and substations; roads, bridges, streets and highways; underground storage tanks; communications buildings and towers; flagpoles and signs over fifteen (15) feet in height.

B. Construction development which will change or alter the character of the shoreline (e.g., excavation, grading, paving). These regulations do not apply to minor work in the nature of normal beach cleaning or debris removal.

C. For structures that are partially located in the Coastal Building Zone, Shoreline Protection Zone, or areas immediately adjacent to the Shoreline Protection Zone, the requirements of this article shall apply to the entire structure.

12.02.01 Structures or construction development extending seaward of the mean high water line which are regulated by Florida Statutes Section 166.041 (i.e., groins, jetties, moles, breakwaters, seawalls, revetments, beach nourishment, inlet dredging, etc.), are exempt from the provisions of this article. In addition, this article does not apply to piers, pipelines or outfalls which are regulated pursuant to the provisions of Florida Statutes Section 161.053.

12.02.02 The requirements of this article shall not apply to existing structures, structures under construction, or structures for which a valid building permit was issued prior to adoption of this ordinance.

(Modified: Ord. No. 93-04, 2-11-93; Ord. No. 2006-28, 9/28/06)

12.05.00 SAND AND WATER PROTECTION

12.05.01 Purpose: The purpose of this section is to prohibit and/or regulate the use of clays, sand clay mixtures, discoloring soils or any other materials subject to wind and water transport that can be potentially discoloring to the natural white sands of Navarre Beach and to the waters within or adjacent to Navarre Beach. Although specific types of construction are referenced in this section, the provisions of this section apply to all types of construction or development.

12.05.02 Approved Material: White sand, oyster shell, lime stone which is as light as or lighter than the existing soil, and white dolomite which does not contain any clay or discoloring material must be used in the Navarre Beach Planning Area and may be used any place within the County.

12.05.03 Protected Areas: It shall be unlawful to use any material for fill that is not approved as described in Section 12.05.02 for any activities in the Navarre Beach planning (administrative) area on Santa Rosa Island.

12.05.04 Approval Required: All applicants shall obtain approval from the Navarre Beach Executive Director for any fill activity when the activity requires the use of any material not included in Section 12.05.02. NOTE: It is expressly understood that use of any discoloring material will be strictly regulated, and any applicant for use of special purpose materials must demonstrate to the satisfaction of the Administrative Board and the Executive Director that the containment safeguards for such material will assure 100% containment of the material. The burden of proof shall be on the applicant.

12.05.05 Special Purpose Materials: If approved pursuant to Section 12.05.04, masonry sand and other similar colored construction material shall be contained on all sides and covered in such a way as to prevent scattering by wind or other weather conditions that may discolor public or other private property. It shall be the responsibility of the permitted party to remove, clean and restore any discolored public or private property to its original condition after the use of such construction material. All such unused material shall be removed from premises.

12.05.06 Reconstruction; Redevelopment; Use of Site Previously Developed: At such time as reconstruction, redevelopment or use of site where materials and/or soils previously were used but are prohibited pursuant to this Ordinance, the nonconforming (discoloring) materials/soils shall be immediately removed from the site using safeguards to prevent discoloring the natural sand at the site and adjacent properties.

Modified: Ord. No. 94-12, 6-7-94

6-05)

Text Amendments

Citizen Comments

Sedimentation – a continued source of degraded water quality conditions in the Pensacola Bay System

By Barbara Albrecht

Sedimentation continues to be a chronic stressor for the health of our nation's surface waters. Closer to home is no different. Data from recent surface water monitoring efforts have indicated that water quality has improved to some extent in parts of the Pensacola Bay System [this includes Escambia Bay, East Bay, Blackwater Bay, and Pensacola Bay] likely due to the reduction of industrial and municipal point source discharges (Clean Water Act, 1972) during the last 35 years. Nevertheless, water and sediment quality problems will likely persist in areas of non-point source pollution. What's more, sediment impacts are not rapidly reversible due to the large storage of chemically- and physically-bound contaminants in surface and buried sediments. Thus sediment-bound contaminants may remain in place for a substantial period of time (DeBusk 2002).

Sediments are known to be effective traps or sinks for various pollutants, with a high affinity for metals which bind with the smaller silt and clay components, and concentrate in these flocculent areas. In addition to their chemical affinity, sediments are known to smother both flora and fauna physically as well as create turbidity conditions in the water column, which in turn reduce the ability of sunlight from penetrating our submerged aquatic vegetation meadows (seagrasses).

These non-point sources of sedimentation are a chronic stressor on our aquatic habitats and have impaired the health and quality of the services that these ecosystems, when healthy, are known to provide.

Background

Excess suspended sediment is one of the most important contributors to degraded water quality and has adverse effects on critical habitats and living resources in the Pensacola Bay watershed. Sediment suspended in the water column can reduce water clarity and increase light attenuation such that light penetration is below that needed to support healthy submerged aquatic vegetation (SAV). SAV beds are an important biological resource in estuaries, providing critical habitat and influencing the physical, chemical, and biological conditions of the estuary.

From the standpoint of water clarity, one of the most important characteristics of Pensacola Bay sediment involves the distinction between fine-grained sediment, which refers to the clay and silt-sized fractions, and coarse-grained sediment, which refers to the sand - sized fractions. This fine/coarse distinction is important because most coarse material is transported along the bottom of rivers and the bay and has little effect on light penetration. In contrast, fine-grained sediment is commonly in suspension and, depending on its abundance, grain-size distribution, and degree of aggregation, can play an important role in the degradation of water clarity in the Bay and on the bay bottom.

In addition to its effect on water clarity, excess sediment can have other adverse effects on ecosystems. For example, sediment can carry toxic contaminants, pathogens and nutrients that negatively affect fisheries and other living resources. Excessive sedimentation also can degrade the vitality of oyster beds and other benthic (bottom-dwelling) organisms in the bay system and affect recreational activities. In the Pensacola Bay System, sediment is listed as one of the primary causes of impairment in many streams where it can severely degrade stream habitat and decrease benthic populations.

Erosion from upland land surfaces and erosion of stream corridors (banks and channels) are the two most important sources of sediment coming from the watershed into the Pensacola Bay System. Sediment erosion is a natural process influenced by geology, soil characteristics, land cover and use, topography, and climate. Some generalizations can be made about erosion, sediment yield (mass per unit area per unit time), and land use in the Pensacola Bay watershed:

- For the entire Pensacola Bay Watershed, river basins with the highest percentage of agricultural land use have the highest annual sediment yields, and basins with the highest percentage of forest cover have the lowest annual sediment yields.
- Lands under construction can contribute the most sediment of all land uses. After development is completed, erosion rates are lower; however, sediment yield from urbanized areas can remain high because of increased stream corridor erosion due to altered hydrology.
- Most watershed sediment is transported when streams reach bankfull conditions, which take place during tropical events.

Issue

Sediments continue to enter our surface waters through a number of avenues. Photos 1 & 2 were taken by concerned citizens who noted a sediment plume entering the Pensacola Bay system. Events such as those depicted in these photos occur on a daily basis in every watershed in Florida during every rain event.



Photo 1. Red clay sediment plume entering Pensacola Bay in early 2012.

Best Management Practices (BMPs) have been designed for every aspect of land clearing and development including building individual homes or subdivisions, bridge replacement, creek/river crossings, etc. since the 1970s in response to the degradation of water quality, but 40+ years later sedimentation continues.

City, state, and county engineers are all well aware of these issues and concerns, but the lack of consistent county ordinances that limit the use of fill material (red clay, shell, rock, etc) adjacent to our shorelines (this includes the riparian zones) remain inconsistent. Shoreline Protection Codes have been adopted in Escambia County for activities on Pensacola Beach, but these ordinances are rarely implemented and applied in the upper watershed areas.



Photo 2. Source of the sediment plume seen in Photo 1. Note the land owner and developer have not installed any BMPS to keep sediment from entering the bay.

The Pensacola Bay System was known to have emergent grasses lining the mouths of all four rivers (Escambia, Blackwater, Yellow, and East Bay) and to have an outstanding water clarity that supported a mosaic of grassbeds throughout the entire bay until the early 1950's (personal communication with JD Brown and E. Rivers). The steady decline of water clarity and quality continued as various industries began developing along the bay system. By 1965, the grassbeds were gone, bay productivity had ceased, and many species disappeared including the brown pelican (Olinger, 1975). Figure 1. Shows the Pensacola Bay System and identifies the location of the property identified in Photos 1 & 2.

Non-point sources of sedimentation are all too frequent in the topographic region we live in, namely the Coastal Plain. The Coastal Plain is a gentle topographic feature with little impressive elevation or relief,

which is made of highly erodible sandy soils. Our region receives roughly 65" of rainfall per year, most of which occur in 2-3" tropical bursts, and can cause severe erosion.

During a 2011 meeting to discuss and identify the issues surrounding our northwest FL watersheds, there was a consensus in the need to control sediment, fertilizers, pesticides, and nutrient discharges into freshwater and estuarine systems. In addition, although BMPs exist, the implementation is not always the norm; particularly the use of fertilizers in agriculture or golf courses. Another topic of concern discussed during the meeting was the presence of fecal contamination in fresh and estuarine waters, and the fact that state and federal programs testing for fecal indicators wax and wane due to politics rather than need (Albrecht 2012).



Figure 1. Aerial image of Pensacola Bay System. Note the location of property where Photo's 1 & 2 were taken.

Various Strategies Used Elsewhere for Addressing Sedimentation

Baldwin County, AL, woke up one day and had discovered that Mobile Bay had become the poster child for sedimentation plumes due to increased development. The regulatory agencies charged with enforcing BMPs and protecting the environment had greatly underestimated the detrimental and deleterious long term effects that turbidity could impose on the bay (Figure 2).

Citizen outrage and outcry was heard by the elected officials, and eventually addressed by the Alabama version of the North Carolina Muddy Water Watch Citizens Patrol, and the Georgia 'Get the Dirt Out' Program. These programs are implemented through a program funded by the state and USEPA and supported by oversight provided by Auburn University. Through these efforts, these programs have developed outreach curriculum and criteria to teach and empower the public when they encounter sedimentation issues. Citizens have been educated in data collection, photographic evidence, and

whom to notify when sediment runoff is observed. These programs highlight the citizen understanding of the long-term effects and impairments that occur when continued sedimentation enter coastal waters. The Alabama Citizenry has a tiny coastline when compared to their neighbors to the east and west, but these citizen volunteer programs have made a difference in the overall health and productivity of their bays and estuaries.

The Chesapeake Bay Program's Nutrient Subcommittee realized the issues surrounding turbidity and the decline in submerged aquatic vegetation in the late 1990's. By early 2000 steps were made to host a workshop to address the issues and identify solutions. What's more, by including stakeholders early on and in the entire process, they were semi-assured that the regulatory component (which was also a stakeholder) would be more responsive in protecting water clarity and enforcing the use of BMPs identified.



Figure 2. Aerial image of Mobile Bay in the 1970s.

Recommendations

Sediment controls, clarity enhancement practices and the understanding of local sediment types and processes will have to be advanced and embraced by those with assigned oversight. This information will help to design county/regional/statewide/watershed-wide ordinances which are designed to protect

water clarity by reducing turbidity in area surface waters. Activities near shorelines, rivers, creeks, branches, and swamps should maintain vegetated buffers (ideally native species) of at least 50' and preferentially 100' from the mean high tide line or bank full area.

Areas undergoing construction are recommended to use (properly installed) silt fencing and hay bales along the perimeter of the construction site. Construction activities should also coincide with times of the year when less rainfall is expected, versus times of wet seasonal weather (hurricane season).

Included in shoreline protection discussions, emphases on emerging nonstructural/living shoreline approaches have become the dominant approach to shore erosion control. The recent concept of "shoreline ecosystem restoration" (i.e., the management of reaches to improve clarity while providing natural shoreline functions, such as beaches) is challenging traditional, parcel-based shoreline erosion control that usually did not account for adjacent impacts. Sediment transport is another component in this complex system which has been interrupted by shoreline hardening throughout our bays.

An approach which focuses on developing and delineating sediment-sheds, which are the areas or sources of sediment that may influence clarity in a submerged aquatic vegetation (SAV) shallow water designated use area, can be designed by active citizens and local academic institutions. These shallow-water SAV habitats have state water clarity standards; citizens can collect data and urge the enforcement arm of these oversight agencies into better protection when these situations arise.

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