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NORTH CAROLINA
Environmental Quality

CRC-22-04

January 28, 2022

MEMORANDUM

TO: Coastal Resources Commission
FROM: Curt Weychert
SUBJECT: Amendments to 15A NCAC 7K .0212 – Installation and Maintenance of Sand Fencing

At the last CRAC Meeting, members of the Advisory Council requested Staff to investigate the use of hay bales as an addition to the existing exemption rule language of 15A NCAC 7K .0212 Installation and Maintenance of Sand Fencing. Due to concerns regarding the marine debris associated with structural accessways, gazebos, and particularly sand fencing resulting from storm events, the use of hay bales has been suggested as a natural, biodegradable material to be used for trapping and storing sand.

Sand fencing is a mechanism used within the Ocean and Inlet Hazard AECs to capture and store sand from aeolian transport within the coastal dune system. Over time, naturally and through plantings, vegetation is allowed to naturalize and stabilize the dunes further. Currently, sand fencing can be authorized through a CAMA Minor Development Permit, or if it meets the rule language of 15A NCAC 7K .0212, the activity is considered minor maintenance and improvements under section .0200 and therefore exempt from the permit requirements of the CAMA. However, the use of hay bales is not mentioned in the current exemption rule language as an approved material/method of sand fencing and would require a CAMA Minor Development Permit.

The criteria associated with the use of sand fencing was originally established in 2002, and has been implemented across the state (through CAMA minor permitting and exemptions) to stabilize dunes and dune vegetation. In 2015, a CAMA Minor Permit was issued to two properties in Figure 8 Island to serve as a "pilot study" regarding the efficacy and longevity of the use of hay bales as an alternative material to traditional sand fencing. While the haybales did not last for more than a few months, early site visits and photographs indicated that hay bales did capture and hold sand within the first month of placement on the site. This permit was considered a study and had reporting requirements conditioned on the permit to provide DCM, NC Wildlife Resources Commission (WRC), and US Fish and Wildlife Service with updates regarding displacement, turtle interactions, and storm-related performance. However, the hay bales were not in place long enough for long-term study or analysis.

The following are the existing criteria for sand fencing exempt from CAMA Permit requirements:

- Sand fencing must not impede public access to the beach for recreation, emergency vehicles, or public access.
- Sand fencing must not impede or entrap sea turtle hatchlings.
- Any damaged, or nonfunctional sand fencing is to be removed by the homeowner.
- Sand fencing is identified as evenly spaced, vertical wooden slats less than 5 feet tall connected by wire and supported by no wooden posts or stakes larger than a 2" x 4" or 3" diameter.

- Placement of sand fencing is to be as landward as possible as to not interfere with nesting sea turtles and is not authorized on the wet sand beach area.
- Any sand fencing not placed landward of the crest of primary or frontal dune, must be angled no less than 45° to the shoreline, not exceed 10 feet in length, and placed no less than 7 feet apart.

The experimental Minor Permit issued on Figure 8 Island followed the same criteria listed above, however the permit conditions limited the vertical extent to the height of one bale as per the request of the NC WRC. Recommendations from resource agencies also included removal of all bindings or ties on the bales to prevent entanglement with threatened or endangered species.

In further conversations with WRC, there are continuing concerns regarding the use of hay bales for sand fencing. These concerns include the effects of temperature of the bales in relation to nesting sea turtles, retention of moisture that could cause biological contamination of the area, and the potential introduction of invasive diseases, species, or non-native plants. The WRC also voiced concerns of the scope and scale of these projects moving forward without the proper amount of review and replication of these pilot studies.

The Division has identified several pros and cons in review of this recommendation from the CRAC for the use of hay bales as sand fencing:

+ Hay Bales are a natural, readily available, inexpensive, and bio-degradable material for sand capture
+ Can be installed under the same requirements required by 15NCAC 07K.0212
+ May reduce the amount of marine debris generated after storm-events
- Lack of testing done on various shorelines along the NC coastline
- Potential negative interactions with wildlife:
- Moisture-associated bacteria, mold, introduced pathogens
- Temperature/sediment differences
- Reduced longevity/efficacy
- Potential for increased footprint (bales v. fencing) and interaction with threatened or endangered species (bales may therefore be subject to initial placement during times when interactions would be less likely)

Recommendation:

To date, no CAMA permit applications for the use of hay bales as sand fencing have been denied. At this time, DCM Staff recommend maintaining the current minor permitting process for hay bales until more information can be gathered from multiple sites across the state and further analyzed by resource agencies.

I look forward to discussing this information at your February 2022 meeting.

ATTACHMENT A: 15A NCAC 07H .0212 INSTALLATION AND MAINTENANCE OF SAND FENCING

ATTACHMENT B: IMAGES FROM THE EXPERIMENTAL SITE IN FIGURE 8 ISLAND

ATTACHMENT A:

15A NCAC 07K .0212 INSTALLATION AND MAINTENANCE OF SAND FENCING

Sand fences that are installed and maintained subject to the following criteria are exempt from the permit requirements of the Coastal Area Management Act:

(1) Sand fencing may only be installed for the purpose of: building sand dunes by trapping wind blown sand; the protection of the dune(s) and vegetation (planted or existing).

(2) Sand fencing shall not impede existing public access to the beach, recreational use of the beach or emergency vehicle access. Sand fencing shall not be installed in a manner that impedes or restricts established common law and statutory rights of public access and use of public trust lands and waters.

(3) Sand fencing shall not be installed in a manner that impedes, traps or otherwise endangers sea turtles, sea turtle nests or sea turtle hatchlings.

(4) Non-functioning, damaged, or unsecured, sand fencing shall be immediately removed by the property owner.

(5) Sand fencing shall be constructed from evenly spaced thin wooden vertical slats connected with twisted wire, no more than 5 feet in height. Wooden posts or stakes no larger than 2" X 4" or 3" diameter shall support sand fencing.

(6) Location. Sand fencing shall be placed as far landward as possible to avoid interference with sea turtle nesting, existing public access, recreational use of the beach, and emergency vehicle access.

(a) Sand fencing shall not be placed on the wet sand beach area.

(b) Sand fencing installed parallel to the shoreline shall be located no farther waterward than the crest of the frontal or primary dune; or

(c) Sand fencing installed waterward of the crest of the frontal or primary dune shall be installed at an angle no less than 45 degrees to the shoreline. Individual sections of sand fence shall not exceed more than 10 feet in length (except for public accessways) and shall be spaced no less than seven feet apart, and shall not extend more than 10 feet waterward of the following locations, whichever is most waterward, as defined in 15A NCAC 7H .0305: the first line of stable natural vegetation, the toe of the frontal or primary dune, or erosion escarpment of frontal or primary dune; and

(d) Sand fencing along public accessways may equal the length of the accessway, and may include a 45 degree funnel on the waterward end. The waterward location of the funnel shall not exceed 10 feet waterward of the locations identified in Item (6)(c) of this Rule.

History Note: *Authority G.S. 113A-103(5)c.;*
Eff. August 1, 2002.

ATTACHM ENT B:

5-11-15