

## **Alternative 5: Terminal Groin with Beach Fill (Including Federal Project)/Applicant's Preferred Alternative**

Introduction. Under Alternative 5, the applicant's preferred alternative, a 750 foot terminal groin with beach fill would be constructed 148 feet east of baseline station 0+00 (Figure 1). This structure is intended to provide shoreline stabilization and would serve to reduce the erosion rate further west thereby reducing the nourishment interval of the Federal project from every 3 years to every 5 years. Dredged material would be obtained from Shallotte Inlet within the limits of the borrow area used for the Federal project. The initial fillet construction would be completed and maintained by the Town of Ocean Isle Beach. The purpose of a terminal groin on the east end of Ocean Isle Beach would be to create a permanent accretion fillet west of the structure. This would be accomplished by controlling tide induced or influenced sediment transport off the extreme east end of the island. The resulting position and alignment of the shoreline within the accretion fillet would mimic that of the shoreline immediately to the west. The elimination or reduction in tide induced sediment transport off the extreme east end of the island should improve the performance and longevity of beach fill placed east of Shallotte Boulevard as well as the performance of a portion of the federal storm damage reduction project that extends west of Shallotte Boulevard. Since wave induced sediment transport (i.e., littoral sand transport) would still be in play, erosion will continue to be a management issue for the shorelines lying outside the direct influence of the terminal groin.

Cost Sharing. All initial costs to pre-fill the accretion fillet and construct the terminal groin as well as any future maintenance of the terminal groin would be a non-Federal responsibility. Following construction of the terminal groin, all future beach nourishment would occur within the limits of the Federal storm damage reduction project and would be eligible for cost-sharing with the Federal government in the same 65%/35% Federal/non-Federal ratio as under the existing Project Cost Sharing Agreement.

Terminal Groin Construction Methodology. The exact method used to construct the terminal groin would be left to the discretion of the construction contractor; however, the contractor would have to abide by defined construction corridors, approved access locations and staging areas, permitted construction timeframes as well as other restrictions that would limit adverse environmental impacts directly associated with the construction activity as defined below.

The stone required to construct the terminal groin would be transported to Ocean Isle Beach down the AIWW via barges from a rail terminal similar to one located in Wilmington, NC. The stone would be off-loaded on to trucks at a facility located on the north end of Shallotte Boulevard (Figure 1). The existing pier located at this site would probably have to be upgraded in order to accept the loading associated with the stone transfer operation. The stone would be transported by trucks from the offloading facility down Shallotte Boulevard and E. 4<sup>th</sup> Street to a temporary stone storage area located on the beach at the end of E. 4<sup>th</sup> Street. The rubblemound portion of the terminal groin would be constructed from a temporary trestle or pier installed parallel to the alignment of the terminal groin. The trestle would be removed upon completion of the rubblemound portion of the terminal groin.

A minimal amount of excavation would be required for the landward 100 to 150 feet of the rubblemound portion of the structure in order to place the foundation stone or mattress at an elevation of -5.0 feet NAVD. From that point seaward, the foundation stone/mattress would be placed on grade.

The sheet pile for the landward portion of the terminal groin would be transported directly to the site by truck from where it would be offloaded and driven into place with typical pile driving equipment. A 50-foot wide construction corridor would be established on either side of the shore anchorage section. The construction corridor would be restored to pre-construction conditions as much as possible by grading any disturbed land and replanting with native vegetation.



**Figure 1. Terminal groin construction.**