

ENGINEERING AND GEOTECHNICAL STUDIES IN SUPPORT OF THE BOGUE INLET CHANEL EROSION CONTROL PROJECT TOWN OF EMERALD ISLE, NORTH CAROLINA

1.0 INTRODUCTION

1.1 Project Description. The Town of Emerald Isle, located along the western 11.2 miles of Bogue Banks, North Carolina, (Figure 1.1) is proposing to reposition the main ebb tide channel (or bar channel) through Bogue Inlet as a means to address a severe erosion problem that is threatening development and town infrastructure located on the west end of the town in an area known as The Pointe. The channel through Bogue Inlet has been maintained by the U.S. Army Corps of Engineers for commercial and recreational boating interest since 1981. The Corps of Engineers (COE) is authorized to maintain the channel to a depth of 8 feet mean low water (MLW) over a width of 150 feet. In addition to the inlet channel, the Bogue Inlet navigation project includes a 6-foot MLW x 90-foot wide connecting channel between the Atlantic Intracoastal Waterway (AIWW) and the gorge in Bogue Inlet. The Corps of Engineers has attempted to maintain the inlet channel using shallow draft U.S. Government sidecast dredges, however, this maintenance activity is limited to the deepwater channel that exist at the time maintenance is performed. As a result, COE maintenance activities have been unable to control the location of the channel.

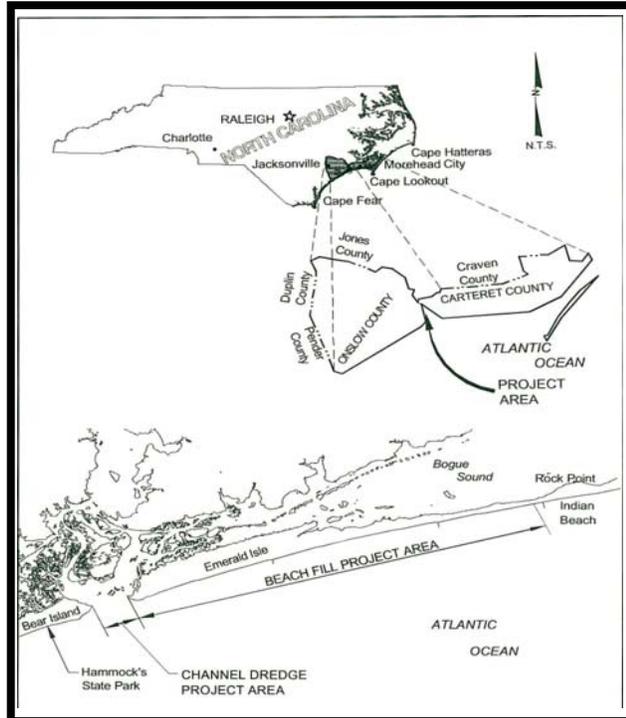


Figure 1.1 Location Map

1.2. The proposed location of the new channel is shown on Figure 1.2. An analysis of historic photographs of the inlet indicates that the west end of Emerald Isle that borders the inlet (the Pointe shoreline) has been eroding at rates varying between 60 and 90 feet per year since 1984 in response to the easterly migration of the inlet channel. If the inlet shoreline continues to migrate unimpeded to the east over the next 10 years, depending on the rate of



1.2 Centerline of Proposed Channel

migration, between 36 and 51 structures could be lost or severely damaged. In addition, large portions of several streets, including Inlet Drive, Bogue Court, Inlet Court, and Channel Drive (Figure 1.3), would be lost along with utilities serving the Pointe subdivision. If the town and individual property owners elect to construct temporary sand bag revetments to protect threatened properties, the rate of erosion could be reduced. However, as a result of the temporary nature of the sand bag structures (due both to structural stability limitations and State of North Carolina coastal regulations for such structures) the inlet shoreline would still migrate to the east destroying 29 structures, portions or all of some of the subdivision streets, and utilities serving the subdivision.

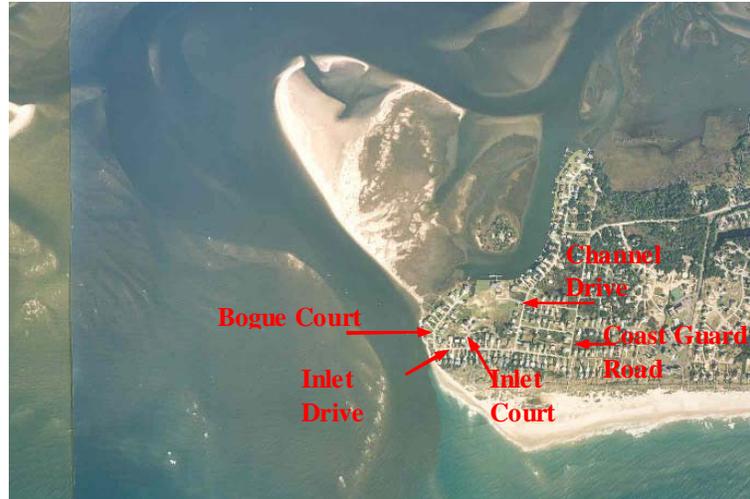


Figure 1.3 Street Names in the Pointe Subdivision

1.3. Secondary features of the proposed project include using a portion of the dredged material to close the existing ebb channel with the balance of the material used to nourish the beach along the west end of the town. With regard to beach nourishment, the Town of Emerald Isle presently has permits to nourish 51,100 feet (9.7 miles) of ocean shoreline using offshore borrow areas A and B2 shown on Figure 1.4. The Emerald Isle beach nourishment project is part of an island-wide project sponsored by Carteret County. The County project covers approximately 16.8 miles of ocean shoreline and begins at the east town limits of the Town of Pine Knoll Shores and ends at a point 8,000 feet (1.5 miles) east of Bogue Inlet. Phase 1 of the Bogue Banks project, which ended in April 2002, included the shorelines fronting the towns of Pine Knoll Shores and Indian Beach as well as the County owned shoreline fronting the village of Salter Path. The Town of Emerald Isle has divided its portion of the project into two phases. As shown on Figure 1.5, Phase 2 covers the eastern 30,600 feet of the town's shoreline and Phase 3 the western 20,500 feet. Construction of Phase 2 of the beach nourishment project was

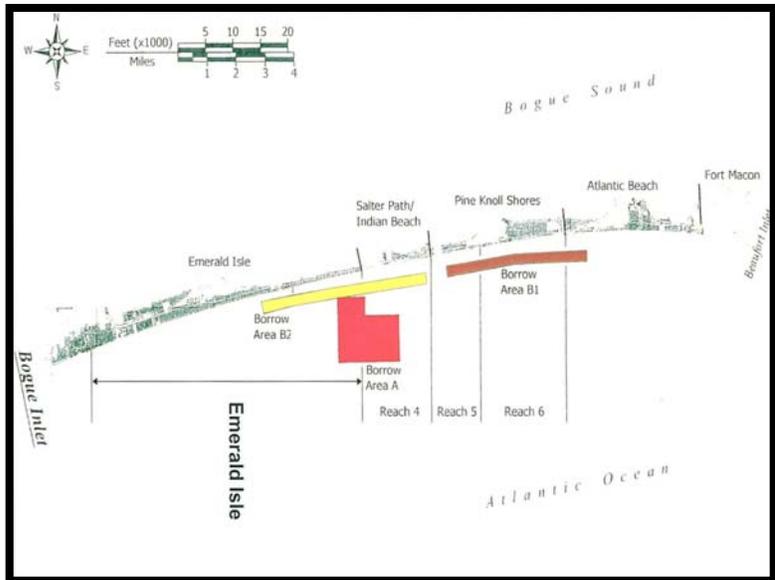


Figure 1.4 Offshore Borrow Areas