

Summary: Erickson Consulting Engineers, Inc. (ECE) is responsible for managing all design, permitting, engineering and construction for the Port Royal Canal Dredging Project. This project includes the excavation of 39,000 CY from seven distinct dredge areas with upland dewatering and disposal. Phase 1 dredging of approximately 20,000 CY is commenced in late 2013 using mechanical excavation techniques by a barge mounted excavator with a series of two hopper barges used in rotation for the transfer of sediment to an upland site for dewatering.

Key Project Elements:

- Project Design Basis
- Topographic and Bathymetric Surveys
- Geotechnical Studies (Jet Probes and Vibracores)
- Environmental Surveys & Sampling (Seagrass, Oyster Beds, Macro Invertebrate)
- Water Quality Sampling and Analysis
- Canal Dredge Design
- Development of a Private Dock Dredge Program
- Dewatering Site Design
- Assessment of Polymer for Dewatering of Fine Sediments
- Sediment Analysis and Development of a Sediment Management Plan
- Construction Methods & Sequencing Plan
- Dredge Pipeline Plan
- Estimation of Quantities, Costs, & Construction Schedules



- Assessment of Project Impacts (Environmental, Social and Economic)
- Acquire all County, State and Federal Permits
- Construction Plans and Specifications
- Bidding Assistance
- Construction Monitoring and Administration (under contract for Winter 2013/14 construction)

Challenges: The Port Royal Canal system has varying sediment compositions. Based on the geotechnical investigations and sediment testing conducted by ECE, the excavation areas were divided into three major sediment classifications. Approximately 15% of the sediment dredged was composed of sand with less than 20% fines. Roughly 55% of the sediment dredged was composed of sediment with a fines content between 20-60%. The remaining 30% of the dredge volume was comprised of sediment with a fines fraction exceeding 60%. The use of a polymer was considered to aid in the settlement and dewatering of the very fine sediments. In addition, the nearest available upland disposal site was located approximately 1.9 miles which required an extensive pipeline plan to avoid impacts to scattered benthic resources as well as navigation should the contractor elect to dredge by hydraulic means. The project was bid with the option to conduct the excavation hydraulically or mechanically.

