

TOWN OF SUNSET BEACH
2016 SHORELINE MANAGEMENT AND PRE-DREDGE ANALYSIS
PHASE 2 - DESIGN

PROGRESS REPORT DATE
OCTOBER 10, 2016

Report Period: September 01 thru September 30, 2016

The items below provide a description of key elements related to the current progress, including outstanding items and anticipated resolutions, for completing the work known as Town of Sunset Beach, 2016 Shoreline Management and Pre-Dredge Analysis, Phase 2 - Design.

Acronyms: M&N – Moffatt & Nichol
NCDEQ – North Carolina Department of Environmental Quality
NOAA – National Oceanic & Atmospheric Administration
USACE – US Army Corps of Engineers (Wilmington District)
USFWS – U.S. Fish & Wildlife Service.

Phase 1 – Feasibility Analysis (100% complete)

Items Previously Completed: (100%)

The Town of Sunset Beach (Town) and M&N initiated a contract on February 19th to study the feasibility of conducting approximately 3.5 miles of navigation dredging within the Town limits. The work areas include Mary’s Creek, Turtle Creek, Jinks Creek, the North Shore Drive feeder and adjoining finger canals and the Canal Drive bay area. The results of the analysis were positive and the Town elected to move forward with the design and modeling of the proposed work on June 7th. The design work was authorized to begin July 1, 2016.

Phase 2 –Design (60.74 % complete)

Items Previously Completed (25.78 %)

1.0 Project Coordination

- The Town of Sunset Beach authorized M&N to begin the design work on July 1, 2016. The first priority was to secure a Water Resource Development Grant through the State’s Shallow Draft Navigation Fund. The grant was secured on August 1 and reimburses the Town 2/3’s of the project cost up to \$2,779,327.
- The Town is considering available alternatives for beneficial reuse of any dredge material. This includes beach placement for cost share potential with Ocean Isle or dune restoration adjacent to Bird Island for storm protection and habitat restoration. In addition, the dredge material may also be used for a possible living shorelines project to restore marsh or intertidal habitat for invertebrates and shorebirds.

2.0 Refined Design

- M&N initiated design work to refine proposed dredge alignment in July to provide adequate vessel access while avoiding impacts to the adjacent environmentally sensitive lands. A modeling analysis will be conducted to investigate the potential of the proposed Jinks Creek alignment to negatively impact the existing ecosystem. The analysis will evaluate if the proposed alignment will allow increased tidal velocities through Jinks Creek. If the modeling finds that tidal velocities are likely to increase, the analysis will evaluate the increased potential for scour along the channel banks and additional shoaling within the AIWW. The

potential for the new alignment in Jinks Creek to adversely affect the stability of Tubbs Inlet will also be reviewed.

- Geodynamics completed the hydrographic surveying efforts adjacent to Tubbs Inlet and the AIWW on August 25th. The data will be used to describe the current conditions of the inlet and AIWW for the modeling analysis. (Final deliverables from the survey were provided to the Town on October 5th.)

3.0 Sediment Testing

- Catlin Engineers completed the field work for the sediment testing on August 25th. Catlin collected approximately 26 core samples and 2 grab samples from the project area. The samples will be tested for grain size, chemical composition, and silt content to define if the proposed dredge material is beach compatible in accordance with state and federal guidelines. Compatible material may be beneficially reused for habitat restoration or storm protection projects. Non-compatible material may have to be placed in an upland containment site, such as a USACE material placement island.

Progress this Period: (34.96 % of total task)

1.0 Project Coordination

- The September 15th site visit to explore potential sites for a living shoreline or dune restoration project was rescheduled to October 5th due to Hurricane Hermine. A possible next step forward will be presented after the site visit to consider the identified options. (The Oct. 5th trip identified a feasible location between Mary's and Turtle Creek and along the causeway entering the island of Sunset Beach. The option will be discussed at the next agency coordination meeting and then with the Town to decide a path forward.)

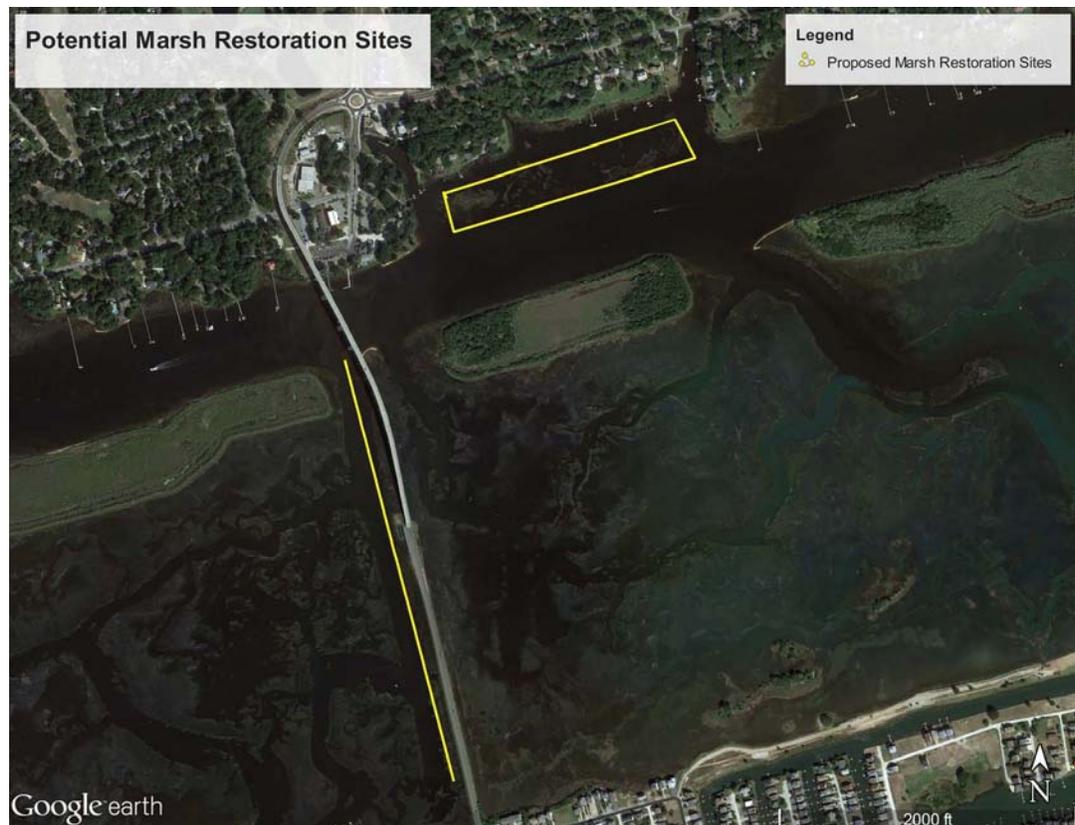


Figure 1. Proposed Marsh Restoration Sites

2.0 Refined Design

- M&N continues work on the refined alignment for Jinks Creek in addition to the Canal Drive Bay Area. The alignments will be provided to the Town for review in October. The alignments will concentrate on providing adequate navigation access for the residents of Sunset Beach while also minimizing any potential impacts to environmentally sensitive lands. The alignments will also focus on maintaining a 5 ~ 10 ft clearance from any existing piling or seawall. The clearance will help the Town establish a pier head alignment for future development (where applicable) and also help avoid any potential damage to the structures as a result of the construction process.
- The initial analysis of the hydraulic changes expected for Jinks Creek based on the ‘proposed’ channel alignment was completed on September 27th. A modeling report will be prepared to summarize the results for the Town and resource agencies. (The results indicated no significant change in the tidal velocities, and therefore the sediment transport, should be expected.)

3.0 Sediment Testing

- Catlin Engineers provided the initial report on the sediment analysis on October 3rd. The report will be used to further refine the dredge alignments based on the sediment characteristics of the dredge material. The alignments will be minimized in areas of incompatible material in efforts to manage the construction costs.

Outstanding Items and Anticipated Completion Dates:

1.0 Project Coordination

- A public meeting scheduled for Saturday, October 8th was postponed due to Hurricane Matthew. The meeting will be rescheduled as appropriate by the Town. The meeting will provide an opportunity for residents and interested parties to review / discuss the proposed dredge alignments and anticipated project schedule through construction. The project goals and potential impacts will also be discussed.
- The feasibility and permitting constraints of constructing a marsh restoration project along the island between Mary’s & Turtle Creek will be discussed with the Town and the resource agencies. Based on the resulting comments, the marsh restoration project may be incorporated into the sediment management plan.

2.0 Refined Design

- M&N will provide a preliminary alignment for the proposed work areas for the Town’s review in October. The proposed dredge volume for each work area will also be provided with the submittal. After review by the Town M&N will provide the design for review by the resource agencies along with the modeling analysis for Jinks Creek. The resource agencies will have an opportunity to review the information prior to the next agency coordination meeting anticipated in December 2016.

3.0 Sediment Testing

- The design may be further refined based on review of the sediment analysis provided by Catlin Engineers. The additional refinement would focus on minimizing the dredge template adjacent to any identified incompatible material to help control construction costs.

4.0 USACE Disposal Locations

- The inspection of the USACE material confinement islands has been delayed to review the volume of material that may be needed to be placed on the island. The inspection is expected

to occur in October after review of the sediment analysis report. The inspection results will be provided to the Town in November 2016.

5.0 Oyster Survey

- The Oyster survey for Mary's and Turtle Creek has been delayed until the week of October 18th. The survey will help identify any oyster beds that must be relocated prior to the dredging of these systems. M&N will also coordinate with the appropriate resource agencies to identify acceptable mitigation options that may be required for disturbing or impacting the oyster resources. The survey results and potential mitigation options will be provided for the Town's consideration prior to December 2016.

6.0 Agency Coordination Meeting

- M&N will request a second Agency Coordination Meeting to present and discuss the dredge alignments, modeling results, and any potential mitigation requirements with the state and federal agencies responsible for permitting the project. M&N will work with the Town and the agencies to provide an acceptable dredge alignment for the project. The Agency coordination meeting is anticipated in December 2016.

7.0 Conceptual Cost Estimate

- M&N will provide an updated construction cost estimate for the proposed dredging based on the accepted design of the project. The cost estimate will be provided as the final task for the design phase and is anticipated in December 2016.

**TOWN OF SUNSET BEACH
2016 SHORELINE MANAGEMENT & PRE-DREDGE ANALYSIS - DESIGN PHASE**

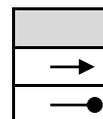
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Progress Schedule

Tasks	2016						2017												2018								
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Pre-Dredge Analysis Design Phase																											
Project Coordination			→																								
Public Meeting																											
Refined Design			→																								
Modeling Analysis		→	→	■																							
Sediment Testing		→	→	■																							
Hydrographic Survey		●																									
USACE Disposal Locations				■	■																						
Oyster Survey																											
Agency Coordination Meeting																											
Conceptual Cost Estimate																											



Primary Task
Anticipated timeframe to complete task.
Anticipated overrun in task.



Sub-Task
Work in progress (WIP) for task.
Actual timeframe to complete task.