

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

PROGRESS REPORT DATE
May 10, 2017

Report Period: April 01 thru April 31, 2017

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
DCM – North Carolina Division of Coastal Management
DMF – North Carolina Division of Marine Fisheries
NMFS – National Marine Fisheries Service
USACE – US Army Corps of Engineers (Wilmington District)

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 Feeder Canal and adjoining finger canals, and the 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 (99.98 % complete)

Items Previously Completed (98.17 %)

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.
- The Town held a Public Meeting on Saturday, November 12th for M&N to present the channel design details to the property owners and interested parties of Sunset Beach. Information was provided regarding the dredge depth's and dimensions for each project area. The next step is to provide the same details to the permitting agencies to determine an equitable design for the project.

2.0 Refined Design

- M&N provided a proposed channel alignment for each work area within the project along with a dredge volume estimate on October 24th. The alignments concentrate on providing adequate navigation access for the residents of Sunset Beach while also minimizing potential impacts to environmentally sensitive lands. The alignments 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 modeling analysis for Jinks Creek was completed on June 7th. The analysis help provide a reduced alignment for Jinks Creek to help minimize potential environmental impacts. The modeling indicated no significant change should occur in the tidal velocities, or sediment transport as a result of the reduced or preferred alignment. The modeling included a storm analysis evaluating the alignments performance in extreme weather conditions (Hurricane Hugo). The results suggested the preferred alignment would not produce significant changes compared to the 2016 existing conditions in extreme storms.

3.0 Sediment Testing

- Catlin Engineers provided an initial report on the sediment analysis required to help define ‘compatible’ and ‘non-compatible’ material on October 3rd. Review of the report suggested that additional sediment samples would be necessary to complete the analysis. As a result, Catlin reinitiated efforts to collect the samples and completed the additional field work on October 26th. Based on initial review of the sediment data approximately half of the dredge material classifies as non-compatible material.
- M&N provided an estimate of the sediment compatibility for each dredge area based on data collected by Catlin Engineers. The project design will need to consider the volume of compatible and non-compatible material for proper placement of the dredge spoil. Compatible material may be placed on the beach. However, non-compatible material will need to be placed in an alternate (upland) site. The table below provides a summary of the analysis results.

Dredge Area	Compatible (CY)	Non-Compatible (CY)	Total (CY)
Jinks Creek	100,982	13,246	114,228
Bay Area	645	17,555	18,200
Feeder Channel & Finger Canals	3,585	29,275	32,860
Mary’s Creek	-	8,066	8,066
Turtle Creek	-	7,830	7,830

- DCM notified M&N on February 9th, that most likely sediment samples will be required from the material placement destination (beach) to determine compatibility. However, DCM agreed to discuss the subject at the next agency coordination meeting.

4.0 USACE Disposal Location

- M&N verified all of the potential disposal islands are available and the USACE will not need to make a site visit to inspect the islands. The USACE will only review the project plans during the permitting process to ensure their concerns are addressed. Therefore, the site visit to look at the potential USACE placement islands has been delayed until after the next agency coordination meeting. This will allow a better understanding of how the agencies respond to the project design and reduce the potential for duplicate efforts in selecting a placement site. Figure 2 shows the potential disposal islands being considered for the project as site 308,

310, & 312. The designations were provided by the USACE as a labeling system for each disposal island.



Figure 2. Potential USACE Material Placement Islands

5.0 Oyster Survey

- The report detailing the oyster survey in Mary's & Turtle Creek was provided for Town review on January 5th. The report findings will be discussed at the next agency coordination meeting to determine if any mitigation efforts will be required. Due to the presence of significant resources outside the dredge alignment, within the intertidal areas of each creek, some type of oyster relocation or mitigation may be required.

7.0 Conceptual Cost Estimate

- M&N has contacted multiple dredge contractors to discuss the project and to confirm construction techniques / assumptions in an attempt to develop a more accurate cost estimate for the project. A more definitive estimate will be provided once all of the design details have been resolved. This is not expected until after the next agency coordination meeting.

Progress this Period: (1.81 % of total task)

1.0 Project Coordination

- The Town has submitted for grant funding to complete a living shoreline project with assistance from Coastal Federation. The Town should be able to complete the demonstration project separate from the dredging analysis.

6.0 Agency Coordination Meeting

- M&N requested the second Agency Coordination Meeting to present and discuss the dredge alignments, modeling results, and any potential mitigation requirements with the state and federal agencies. Based on the May 5th meeting outcome the Town will consider moving

forward with a path to prepare the environmental documentation for the project. A critical piece of the next phase will be an oyster survey of Jinks Creek requested by DMF. The Town may also consider moving forward with the ‘maintenance’ segments of the project separate from the Jinks Creek segment. A resolution is anticipated in mid-June. Key points from the meeting are as follows:

- The USACE will most likely require an individual permit (IP) for the dredging of Jinks Creek.
- A shellfish survey of Jinks Creek will be required to evaluate potential impacts of the dredging project.
- Sediment testing of the recipient beach will be required to verify compatible material volumes.

Outstanding Items and Anticipated Completion Dates:

4.0 USACE Disposal Locations

- The inspection of the USACE material confinement islands has been delayed until after the next agency coordination meeting. Since the USACE will not be reviewing the condition of the placement island, delaying the inspection until all comments are received concerning the dredge alignments may help to reduce the need to duplicate efforts.

7.0 Conceptual Cost Estimate

- M&N will provide an updated cost estimate for the path forward based on the results of the agency coordination meeting. The cost estimate will include options for moving forward with the permitting and construction phase, including constructing Mary’s & Turtle Creek separate from Jinks Creek, as well as completing the Jinks Creek oyster survey. The estimate will also include a range of costs that may be applicable for the remaining environmental documents required for the state and federal permits.

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

**PROGRESS REPORT
MAY 10, 2017**

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