

TOWN OF SUNSET BEACH  
2016 SHORELINE MANAGEMENT AND PRE-DREDGE ANALYSIS  
DESIGN & PERMITTING

PROGRESS REPORT DATE  
SEPTEMBER 07, 2017

**Report Period: August 01 thru August 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  
WRC – North Carolina Wildlife Resources Commission.  
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 19<sup>th</sup> 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 7<sup>th</sup>. The design work was authorized to begin July 1, 2016.

**Phase 2 –Design** (100% complete)

**Items Previously Completed** (99%)

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, 2016 and reimburses the Town 2/3’s of the project cost up to \$2,779,327.
- The Town held a Public Meeting on Saturday, November 12<sup>th</sup> 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.

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 24<sup>th</sup>. 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 7<sup>th</sup>. The analysis helps 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 3<sup>rd</sup>. 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 26<sup>th</sup>. 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.

#### **Sediment Compatibility Results**

<b>Dredge Area</b>	<b>Compatible (CY)</b>	<b>Non-Compatible (CY)</b>	<b>Total (CY)</b>
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

### 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.
- M&N conducted an initial inspection of islands 308, 309, 310, & 311 on May 22<sup>nd</sup>. The inspection results helped identify the three most probable sites for placement of the projects non-compatible material (308, 310, & 311). M&N will conduct additional analysis to evaluate the most suitable site based on the potential project volumes and estimated costs to improve the sites for use.
- M&N completed the evaluation of the potential material management sites on July 31, 2017. The findings will be presented to the Town Council meeting along with an updated cost estimate for the project construction. The evaluation selected 2 material placement islands (310 & 311) for further consideration. The final selection may be based on what type or existing information is available for each island. Most likely a survey will be required to record the storage capacity of the island(s) prior to construction.



**Potential USACE Material Placement Islands 310 & 311**

#### 5.0 Oyster Survey

- The report detailing the oyster survey in Mary's & Turtle Creek was provided for Town review on January 5<sup>th</sup>. 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. Discussion from the May 5<sup>th</sup> agency coordination meeting did not yield a final resolution regarding the need for mitigation or relocation of the resources outside the dredge footprint. DCM indicated the information would be reviewed further during the permitting process.

#### 6.0 Agency Coordination Meeting

- The 2<sup>nd</sup> Agency Coordination was held on May 5, 2017 to discuss the dredge alignments, modeling results, and any potential mitigation requirements with the state and federal agencies. Based on the May 5<sup>th</sup> 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 as well as carbonate testing of the Jinks Creek samples.

#### 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 to the Town at the August 15<sup>th</sup> council meeting.

**Progress this Period:** (1% of total task)

3.0 Sediment Testing

- M&N completed the carbonate calcium (shell) testing required for classifying beach compatible material. ECS provided the test results on August 31<sup>st</sup>. M&N will provide a revised sediment analysis report inclusive of the carbonate results by mid-September.

7.0 Conceptual Cost Estimate

- M&N provided an updated cost estimate for constructing the project based on the design phase work. The table below provides the estimated cost for the project construction. The estimate was provided in a September 1 memo to the Town and also discussed at the September 5<sup>th</sup> council meeting.

**Estimate of Construction Costs**

Item	Unit Cost	Quantity	Cost
<b>Mobilization<sup>1</sup></b>	LS	1	\$800,000
<b>Bonds / Insurance</b>	LS	1	\$15,000
<b>Spoil Island Improvements</b>	LS	1	\$127,000
<b>Dredge &amp; Fill<sup>2, 3</sup> Non-Compatible Material (Inclusive of Tipping Fee)</b>	\$12.42 / CY	111,585 CY	\$1,385,698
<b>Dredge &amp; Fill<sup>2</sup> Compatible Material (Beneficial Use Placement)</b>	\$12.50 / CY	68,660 CY	\$858,250
<b>Sub-Total</b>			<b>\$3,185,948</b>
Contingency (15%)			\$477,900
<b>Total</b>			<b>\$3,663,848</b>

1. Costs assume two (2) mobilizations will be required to construct the project over multiple dredge seasons.
2. Estimate assumes only the compatible material within south Jinks Creek is approved for beach placement.
2. Estimate include overdredge tolerances.
3. Estimates include \$5/CY tipping fee.

**Phase 3 –Permitting** (30.25% complete)

**Items Previously Completed:** (29.21% complete)

**2.0 Jinks Creek Shellfish Survey**

- M&N completed approximately 1/3<sup>rd</sup> of the shellfish survey during the week of July 21<sup>st</sup>. The figure below shows the areas surveyed and initial results. Based on Town consent, the survey will be completed in September.



**Initial Results of Jinks Creek Shellfish Survey**

**3.0 Jinks Creek Site Meeting**

- The Jinks Creek site meeting was held on Friday, July 21<sup>st</sup> with representatives from DCM, DMF, NMFS, USACE, WRC, the Town, and M&N. As a follow up from the site meeting M&N provided an extrapolated expected shellfish quantity in northern Jinks Creek. The list below provides the extrapolated results. (Note the area designations refer to those shown in the figure above.)
  - Area 1 – 17 Clams per acre / 534 Oyster per acre.
  - Area 2 – 12 Clams per acre / 712 Oyster per acre.
  - Area 3 – 1 Clam per acre / 870 Oyster per acre.
- Comments received from the site visit indicate NMFS supports the project, but will require some type of mitigation / relocation efforts for the impacted oyster in northern Jinks Creek. The agencies have also indicated the full shellfish survey of Jinks Creek will be required to evaluate the potential impacts.
- Alternate comments received from DCM suggested the agencies would prefer to see 3 permit applications for this overall project covering the following areas:
  - Mary's & Turtle Creek.
  - Feeder Canal, Finger Canals, & Bay Area.
  - Jinks Creek as a whole.

- 5.0 Essential Fish Habitat (EFH) Assessment
  - M&N initiated the EFH assessment in July. The assessment is required in accordance with the Magnuson-Stevens Fishery & Conservation Act (50 CFR 600.05 – 600.930) to evaluate potential project impacts to federally managed fishery resources.
- 6.0 Biological Assessment (BA)
  - M&N initiated the BA in July with completion expected in September. The BA evaluates potential project impacts to federally protected species. Approximately 15 federally protected species exist in Brunswick County.
- 9.0 Coordination with the Town of Ocean Isle Beach (OIB)
  - The Town and M&N met with OIB officials and staff on July 24<sup>th</sup> to update OIB on the project status. The meeting also began official discussions concerning the cost share potential for beach compatible material placement on OIB. As part of the next step, the Town of Sunset Beach will provide a formal request for cost share consideration by OIB.

**Progress this Period:** (1.04% of total task)

- 1.0 Project Coordination
  - The Town & M&N initiated negotiations with the property owner of the USACE material placement sites during the week of August 31<sup>st</sup>. A meeting will be scheduled in early September in efforts to obtain a use agreement for island 310 or 311 (shown in Figure 1). -
- 5.0 - 8.0 EFH, BA, Cultural Resource Review, & CAMA Major Permit Review
  - M&N continued efforts to complete the referenced environmental documentation for the CAMA Major permit submittal; however, efforts were slowed to allow time to negotiate a use agreement for a USACE spoil island. The permit will not be approved prior to providing an end use placement area for the dredge material. (Completion is anticipated in September.)
  - M&N also recommended for the Town to submit 3 permit applications for the overall project in accordance with requests provided by the permitting agencies. The permit submittals will include the following project areas:
    - Submittal 1 – Mary’s & Turtle Creek
    - Submittal 2 – The Feeder Canal, Finger Canals, & the Bay Area;
    - Submittal 3 – Jinks Creek

Any additional cost associate with the extra applications would only be the filing fee of \$475 / permit required by the state. No additional costs would be required to complete the application or environmental documentation.

**Outstanding Items and Anticipated Completion Dates:**

- 2.0 Jinks Creek Shellfish Survey
  - The field work for the survey is scheduled for completion in early September with back-up dates ranging to early October pending the tides. The survey must be completed at low tide in accordance with the DMF’s approved protocol.
- 4.0 3<sup>rd</sup> Agency Coordination Meeting
  - The 3<sup>rd</sup> coordination meeting will be scheduled after the shellfish survey completion and is anticipated in October. The agencies have indicated the 3<sup>rd</sup> meeting may not be necessary. Email correspondence and phone calls may suffice to disseminate the project information and responses. A decision will be made following completion of the Jinks Creek shellfish survey.

5.0 - 8.0 EFH, BA, Cultural Resource Review, & CAMA Major Permit Review

- Completion of the environmental documentation necessary for the CAMA Major permit submittal is anticipated in October, along with the final negotiations for a material placement site for the dredge spoil.

9.0 Coordination with OIB

- Discussion concerning the potential cost share for beach compatible material placement will continue through the permitting process. As part of the next step the Town will provide a formal request for cost share consideration by OIB.

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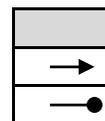
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**Progress Schedule**

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		
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.

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**Progress Schedule (cont'd)**

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													→	→														
Jinks Creek Shellfish Survey													→	→														
Jinks Creek Site Meeting													●															
3rd Agency Coordination Meeting																												
EFH Assessment													→	→	■													
Biological Assessment (BA)													→	→														
Cultural Resources Review													→	→														
CAMA Major Permit													→	→														
Coordination with OIB													→	→														
Environmental Management													→	→														

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