

## Consultant Services

Consultant shall provide Basic Services as set forth below

1. This Project's overall purpose is to develop strategies that will prioritize living shoreline management projects appropriate for each segment of the Town of Nags Head's estuarine shoreline.
2. This work plan makes the following assumptions:
  - a. Permissions and access to sites required for site visit observations will be facilitated or procured by the Town of Nags Head
  - b. Relevant Datasets will be provided to the Consultant Team within forty-five (45) days of Notice to Proceed
  - c. Revisions to interim reports and memos will be returned in one set of compiled comments by Town staff within 10 working days of each submittal or as noted below.
3. The following items are excluded from this Scope of Work:
  - a. Meetings other than those identified in the scope of work.
  - b. Surveys and consultation related to the presence or absence of rare, threatened or endangered species and their critical habitat.
  - c. State Historic Preservation Office cultural assessments (historic and cultural characterization will be included Tasks 4 & 5)
  - d. Environmental sampling
  - e. Engaging the services of an outside lawyer for legal research and opinions (the Town's attorney may be engaged to review documents and provide guidance)
  - f. Signed and sealed design and engineering plans (design guidance will be provided)
  - g. Permit applications

## WORK PLAN

### Town of Nags Head Estuarine Shoreline Management Plan

#### KEY

Town = Town of Nags Head

Consultant Team = Biohabitats and Moffatt & Nichol

#### **TASK 1.0 PROJECT MANAGEMENT & MEETINGS**

The Consultant Team will provide the following project administration work efforts:

- Maintaining a SharePoint site to serve as the project repository for project data, deliverables, communication, and tracking.
- Tracking and quarterly updates for meeting NFWF funding metrics.
- Participating in monthly Project Management check-in conference calls with Town
- Managing day-to-day project activities, subcontractors, schedule, and budget.
- Reviewing and submitting electronic monthly invoices and progress reports summarizing work completed to date, schedule and budget status, potential challenges and opportunities.

#### **Deliverables:**

- Memorandum summarizing outcomes and action items from Project Management check-ins (pdf documents posted to project SharePoint)

#### **TASK 2.0: PROJECT KICK OFF & GOAL SETTING**

The project kick-off process will consist of up to five (5) virtual meetings and conversations among the Town and the Consultant Team. Meetings include

- A. Formal Kick-off (after council approval) to review the scope of work, project schedule, deliverables, lines of communication and NFWF reporting requirements. Meeting objectives include identification of existing studies, maps, reports etc., that will be useful for the work.
- B. Goal-setting session to establish the project vision, goals, metrics for success and audience for the Plan.

#### **Deliverables:**

- Memorandum summarizing outcomes and action items from Kick-off Call and Goal-setting Session calls (pdf documents posted to project SharePoint)

### **TASK 3.0 OUTREACH PLAN AND MATERIALS**

The Consultant Team will create a community outreach plan that seeks to establish a mutual understanding of the messages, audiences, schedule, materials, and roles for the project. The outreach plan will be informed by a remote outreach planning session facilitated by the Consultant Team with Town staff and key partners to review proposed plan elements.

The Consultant Team has allocated up to \$3500 for the purpose of preparing outreach materials, which will be defined in the Outreach Plan and may include a Storymap, flyers, website support, online surveys or other outreach tools.

The Consultant Team expects to include outreach activities that extend beyond the capacity of the Consultant Team and would require assistance from the Town and/or other partners such as the NC Coastal Federation and NC SeaGrant.

#### **Deliverables:**

- Public Outreach plan (pdf document posted to project SharePoint)
- Outreach Materials TBD

### **TASK 4.0: DESKTOP DATA COLLECTION & REVIEW**

The Consultant Team will compile readily available pertinent local and regional data sets including the following:

- Existing GIS data from the Town, NC Department of Environmental Quality, National Park Service, Carolinas Integrated Sciences and Assessments, and others;
- Monitoring data from The Nature Conservancy and Cape Hatteras National Seashore; and
- Reports addressing local shoreline erosion, groundwater and stormwater.

The Consultant Team will review and assess stormwater issues on properties adjacent to the shoreline, including how groundwater levels, sea level rise and storm surges may influence future stormwater management.

The Consultant Team will generate preliminary maps of habitat types, flood areas, tidal ranges, anticipated sea level rise project scenarios, storm surge, etc. to begin to identify areas of concern.

#### **Deliverables:**

- Memorandum listing the data acquired and reviewed (pdf documents posted to project SharePoint)
- Spatial data files posted and accessible through the project SharePoint site

### **TASK 5.0: FIELD RECONNAISSANCE & STAKEHOLDER MEETINGS**

The Consultant Team will participate in a field reconnaissance to characterize the shoreline and nearshore environment, including the following:

- Inventory ecological communities within the project area (wetland distribution, map invasive species, presence of rare, threatened and endangered species, high and low marsh communities, upland communities, etc.),
- Walk transects and use visual observation to determine the elevations of the various ecological communities.
- Opportunities for dredge borrow and placement.

The Consultant Team will coordinate a site tour to include meeting with key players and stakeholders in small groups to explore potential opportunities and constraints associated with estuarine management of the shoreline.

The Consultant Team will update the preliminary maps generated in Task 4.0 based on information gathered from the field reconnaissance and stakeholder meetings.

#### **Deliverables:**

- Memorandum summarizing outcomes and action items from Stakeholder Meetings (pdf documents posted to project SharePoint)
- Updated spatial data files posted and accessible through the project SharePoint site

### **TASK 6.0: ENGINEERING ASSESSMENT OF ENERGY AND EROSION**

The Consultant Team will assess the three primary physical factors that determine suitability of estuarine shoreline management measures: vulnerability, coastal energy, and bathymetry. The vulnerability screening will identify Areas of Concern based on 1) the current erosion rate; 2) future vulnerability assessed through sea-level-rise (SLR), storm surge scenarios, wave energy and boat wake energy; and 3) local land use considerations. NOAA has digitized shorelines from 1909, 1944, 1974, and 2007, and the Coastal Studies Institute (CSI is currently finalizing a digitization of the 2020 aerial. The Consultant Team will use the USGS Digital Shoreline Analysis System (DSAS) to produce rate-of-change mapping.

Once Areas of Concern have been identified according to their vulnerability and energy levels, CSI and the Consultant Team will prioritize additional data gathering efforts such as RTK transects, to take place in late fall 2021.

The Consultant Team will compile research on the efficacy of shoreline protection products for the shoreline conditions with tradeoffs among options in a simple tabular format.

**Deliverables:**

- Memorandum summarizing the Engineering Assessment of Energy and Erosion (pdf document and up to three maps, posted to project SharePoint)
- Updated spatial data files posted and accessible through the project SharePoint site

**TASK 7.0: LEGAL AND LAND USE ANALYSIS**

The Consultant Team will 1) create a matrix of permitting and legal issues for selected scenarios for properties along the shoreline and 2) summarize zoning and land-use factors that could affect the outcomes of the plan. The Consultant Team will engage with NC Sea Grant to explore the possibility of additional legal research to be performed in partnership with UNC Law School.

**Deliverables:**

- Legal and Permitting Matrix (pdf documents posted to project SharePoint)
- Memorandum summarizing zoning and land-use factors that could affect the outcomes of the plan (pdf documents posted to project SharePoint)

**TASK 8.0: ESTUARINE MANAGEMENT TYPOLOGIES AND PROJECT SELECTION**

The Consultant Team will use the results of Tasks 2-7 to define a suite of shoreline typologies with living shoreline guidelines (physical and ecological considerations, selection criteria, policy considerations, types of practices, materials and planting, maintenance and management considerations) for each typology and identify up to ten (10) Potential Project Sites within Areas of Concern. The Engineering Assessment (Task 6.0) results will be used as the foundation of the typology criteria. Additional considerations such as habitat value, land ownership, public access and recreational opportunities, and flood reduction potential will refine the typologies and inform living shoreline guidelines for each typology.

The Consultant Team will present the shoreline typologies, living shoreline guidelines, and Potential Project Sites to the Town and Advisory Committee for feedback. The Consultant Team will gather public input and feedback via one hybrid public meeting supplemented with any additional virtual or survey techniques outlined in Task 3.0 Outreach Plan. Comments associated with public input will be addressed in Task 9.0.

**Deliverables:**

- Presentation summarizing Shoreline Typologies, Living Shoreline Guidelines, and Potential Project Sites (pdf slideshow)
- Memorandum summarizing Advisory Committee and Public Feedback (pdf documents posted to project SharePoint)
- Updated spatial data files posted and accessible through the project SharePoint site

### **TASK 9.0: ESTUARINE MANAGEMENT PLAN**

Upon receiving feedback on the typologies and potential projects, the Consultant Team will draft an Estuarine Management Plan with the following sections:

- Introduction and Purpose
- Data: Ecological › Physical › Data Needs—needs will be presented as an annotated list and timeline for data required to advance towards implementation.
- Shoreline Typologies—summary of work described in Task 8.0
- Living Shoreline Guidelines—with appropriate graphics to help visualize the menu of recommended solutions for each shoreline typology.
- Project Recommendations—the prioritized list of Potential Project Sites, with up to three (3) pilot projects described in greater detail, including the responsible party for implementation, project considerations, potential project cost, potential partners, and potential funding sources.
- Legal and Regulatory Considerations—summary of work described in Task 7.0
- Adaptive Management Framework-- general guidance for a monitoring and adaptive management framework (MAMF) that will provide suggested performance metrics, monitoring methods, and typical corrective actions required to meet project objectives. The monitoring framework will be consistent with NOAA Restoration Center standards for constructed restoration sites to ensure consistency in monitoring long-term success.
- Appendices: to include Technical Memoranda from Tasks 3.0-7.0 and hi-resolution maps

The Town will offer a compiled set of revisions to the plan within fifteen (15) days of receiving the complete draft document, which will be incorporated in the final submittal fifteen (15) days after the Consultant Team received revisions.

#### **Deliverables:**

- Draft and Final Estuarine Management Plan & Technical Document (pdf uploaded to SharePoint site; Final to include 3 hard copies without Appendices)
- Updated Presentation summarizing Shoreline Typologies, Living Shoreline Guidelines, and Potential Project Sites (pdf slideshow on SharePoint site)
- Updated spatial data files posted and accessible through the project SharePoint site

## SCHEDULE

The Project Schedule outlines an achievable timeframe for carrying out the proposed work as outlined in the Work Plan.

SCHEDULE	2021			2022											
TASKS	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Task 1: Project Management & Meetings	[Green bar spanning all months]														
Monthly Check-ins	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Task 2: Project Kick Off & Goal Setting	○	○													
Task 3: Outreach Plan & Materials	[Green bar from Oct 2021 to Nov 2022]														
Task 4: Desktop Data Collection	[Green bar from Oct 2021 to Dec 2021]														
Task 5: Field Reconnaissance	○														
Task 6: Engineering Assessment	[Green bar from Oct 2021 to Feb 2022]														
Task 7: Legal and Land Use Analysis				[Green bar from Feb 2022 to Apr 2022]											
Task 8: Typologies and Project Selection					[Green bar from Mar 2022 to Jun 2022]										
Advisory Committee								○							
Public Meeting									○						
Task 9: Draft and Final Plan										[Green bar from Jul 2022 to Nov 2022]					
Final Public Presentation (Virtual)														○	

Delays in the schedule due to unforeseen circumstances such as canceled public meetings due to Covid-19, extreme weather, encumbered site access, or extended Town review and approvals may result in extending work efforts past due dates and additional fees.

## FEE

The LUMP SUM FEE to perform the services is in accordance with the Work Plan and Schedule presented above, including labor, reimbursables, materials, equipment, etc., for Tasks 1 through 9 is \$139,500. Invoices will be prepared and submitted monthly, based on the percent of work completed by Task.

TASK		FEE
Task 1	Project Management & Meetings	\$ 16,895.00
Task 2	Project Kick-off and Goal Setting	\$ 6,135.00
Task 3	Outreach Plan & Materials	\$ 6,610.00
Task 4	Desktop Data Collection & Review	\$ 10,010.00
Task 5	Field Reconnaissance & Stakeholder Meetings	\$ 20,480.00
Task 6	Engineering Assessment	\$ 15,360.00
Task 7	Legal & Land Use Analysis	\$ 6,320.00
Task 8	Estuarine Management Typologies & Project Selection	\$ 30,630.00
Task 9	Estuarine Management Plan	\$ 27,060.00
	<b>TOTAL</b>	<b>\$139,500.00</b>

### Expenses

Expenses for normal miscellaneous phone, shipping, and reproductions are included in this fee. Travel expenses including business airfare, business hotel, food, local transport, etc., from trips from the U.S. are included in this fee.