COASTAL PROTECTION ENGINEERING OF NORTH CAROLINA, INC.
SERVICES AGREEMENT

All in accordance with the following terms and conditions.

1. **SCOPE OF SERVICES: COASTAL PROTECTION ENGINEERING OF NORTH CAROLINA, INC. ("CPE")** agrees to perform for the undersigned CLIENT, engineering and consulting ("Services") described in the attached Proposal and/or as follows:

   PROPOSAL: Design and Environmental Permitting Services 2027 Beach Nourishment, Town of Southern Shores, North Carolina

2. **FEES, INVOICES AND PAYMENTS**: The Services associated with Task 1, Sub-Task 2A, Sub-Task 2D, and Task 3 will be performed for the lump sum fee of **$311,842.48 (Three hundred eleven thousand, eight hundred forty-two dollars and forty-eight cents).**

   The Services associated with Sub-Task 2B will be performed on a time and materials basis, not to exceed **$5,127.50 (Five thousand, one hundred twenty-seven dollars and fifty cents).**

   The Services associated with Sub-Task 2C will be performed on a time and materials basis, however a not-to-exceed cost has not yet been established.

   CPE will seek additional written authorization prior to conducting services under Sub-Task 2B or 2C.

   Invoices will be submitted by CPE no more frequently than every month, with payment due upon CLIENT'S receipt of invoice. Payment shall be in U.S. Dollars. CLIENT shall be responsible for payments (without deduction or offset from the total invoice amount) of any and all sales, use, value added, gross receipts, franchise and like taxes, tariffs and duties levied against CPE or its employees by any government or taxing authority. A service charge equal to one-half percent (1/2 %) per month, or the maximum rate permitted by law, whichever is less, will be added to all accounts which remain unpaid for more than thirty (30) calendar days beyond the date of the invoice. Should there be any dispute as payments to be made on a percent complete basis to any portion of an invoice, the undisputed portion shall be promptly paid.

3. **CLIENTS COOPERATION:** To assist CPE in performing the Services, CLIENT shall (i) provide CPE with relevant material, data, and information in its possession pertaining to the specific project or activity, (ii) consult with CPE when requested, (iii) permit CPE reasonable access to relevant project sites, (iv) ensure reasonable cooperation of CLIENT's employees in CPE's activities, and (v) notify and report to all regulatory agencies as required by such agencies.

4. **CONFIDENTIALITY:** In the course of performing Services, to the extent that CLIENT discloses to CPE, business or technical information that CLIENT clearly marks in writing as confidential or proprietary, CPE will exercise reasonable efforts to avoid the disclosure of such information to others. Likewise, to the extent that CPE discloses to CLIENT, business or technical information that CPE clearly marks in writing as confidential or proprietary, CLIENT will exercise reasonable efforts to avoid the disclosure of such information to others.

   Nothing herein is meant to prevent nor shall be interpreted as preventing either party from disclosing and/or using any information or data (i) when the information or data are actually known to the receiving party before being obtained or derived from the transmitting party, (ii) when information or data are generally available to the public without the receiving party's fault at any time before or after it is acquired from the transmitting party; (iii) where the information or data are obtained or acquired in good faith at any

CPE _____/CLIENT _____

time by the receiving party from a third party who has the same in good faith and who is not under any obligation to the transmitting party in respect thereto; (iv) where a written release is obtained by the receiving party from the transmitting party; (v) three (3) years from the date of receipt of such information; or (vi) when required by process of law; or by North Carolina Public Records Law; provided, however, upon service of such process, the recipient thereof shall use reasonable efforts to notify the other party and afford it an opportunity to resist such process.

5. **DELAYS AND CHANGES IN CONDITIONS:** If CPE is delayed or otherwise in any way hindered or impacted at any time in performing the Services by (i) an act, failure to act or neglect of CLIENT or CLIENT''s employees or any third parties; (ii) changes in the scope of the work; (iii) unforeseen, differing or changed circumstances or conditions including differing site conditions, acts of force majeure (such as fires, floods, riots, and strikes); (iv) changes in government acts or regulations; (v) delay authorized by CLIENT and agreed to by CPE; or (vi) any other cause beyond the reasonable control of CPE, then 1) the time for completion of the Services shall be extended based upon the impact of the delay, and 2) CPE shall receive an equitable compensation adjustment. Any such equitable adjustment shall be based on CPE's then current Time and Material Rates, as may be provided in a Rate sheet attached hereto.

6. **INSURANCE:** CPE is presently protected by Worker's Compensation Insurance as required by applicable law and by General Liability and Automobile Liability Insurance (in the amount of $1,000,000 combined single limit) for bodily injury and property damage. Insurance certificates will be furnished to CLIENT on request. If the CLIENT requires further insurance coverage, CPE will endeavor to obtain said coverage, and CLIENT shall pay any extra costs therefor.

7. **INDEMNITIES:** CPE shall defend, indemnify and hold harmless CLIENT and its officers and employees from and against loss or damage to tangible property, or injury to persons, to the extent arising from the negligent acts or omissions or willful misconduct of CPE, its borrowed servants and their employer and its subcontractors, and their respective employees and agents acting in the course and scope of their employment. CLIENT shall defend, indemnify and save harmless CPE (including its borrowed servants and their employers and its officers, and employees) from and against, any loss or damage to tangible property, or injury to persons, to the extent arising from the negligent acts or omissions or willful misconduct of CLIENT, its officers and employees.

8. **LIMITATIONS OF LIABILITY**:

a. GENERAL LIMITATION - CLIENT'S SOLE AND EXCLUSIVE REMEDY FOR ANY ALLEGED BREACH OF WARRANTY BY CPE SHALL BE TO REQUIRE CPE TO RE-PERFORM ANY DEFECTIVE SERVICES. CPE'S LIABILITY AND CLIENT'S REMEDIES FOR ALL CAUSES OF ACTION ARISING HEREUNDER WHETHER BASED IN CONTRACT, WARRANTY, NEGLIGENCE, , OR ANY OTHER CAUSE OF ACTION, SHALL NOT EXCEED EXCEPT FOR THE MUTUAL INDEMNIFICATIONS SET FORTH IN SECTION 7 ABOVE. IN THE CUMULATIVE AGGREGATE (INCLUDING ANY INSURANCE PROCEEDS) WITH RESPECT TO ALL CLAIMS ARISING OUT OF OR RELATED TO THIS AGREEMENT, WHATEVER MINIMUM AMOUNT MAY BE REQUIRED BY LAW OR, IF NONE, THE AMOUNT OF COMPENSATION FOR SUCH SERVICES,

b. CONSEQUENTIAL DAMAGES: FURTHER AND REGARDLESS OF ANY OTHER PROVISION HEREIN, CPE SHALL NOT BE LIABLE FOR ANY INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFITS, DECLINE

CPE _____/CLIENT _____

IN PROPERTY VALUE, REGULATORY AGENCY FINES, LOST PRODUCTION OR LOSS OF USE) INCURRED BY CLIENT OR FOR WHICH CLIENT MAY BE LIABLE TO ANY THIRD PARTY OCCASIONED BY THE SERVICES OR BY APPLICATION OR USE OF REPORTS OR OTHER WORK PERFORMED HEREUNDER.

9. **GOVERNING LAWS**: This Agreement shall be governed and construed in accordance with the laws of the State of North Carolina.

10. **TERMINATION**: Either party may terminate this Agreement with or without cause upon forty five (45) days' written notice to the other party. Upon such termination, CLIENT shall pay CPE for all Services performed hereunder up to the date of such termination. In addition, if CLIENT terminates, CLIENT shall pay CPE all reasonable costs and expenses incurred by CPE in effecting the termination, including, but not limited to non-cancelable commitments and demobilization costs.

11. **ASSIGNMENT**: Neither CPE nor CLIENT shall assign any right or delegate any duty under this Agreement without the prior written consent of the other, which consent shall not be unreasonably withheld. Notwithstanding the foregoing, CPE may, upon notice to CLIENT, assign, pledge or otherwise hypothecate the cash proceeds and accounts receivable resulting from the performance of any Services or sale of any goods pursuant to this Agreement.

12. **MISCELLANEOUS**:

a. **ENTIRE AGREEMENT, PRECEDENCE, ACCEPTANCE MODIFICATIONS**: The terms and conditions set forth herein constitute the entire understanding of the Parties relating to the provisions of the Services by CPE to the CLIENT. All previous proposals, offers, and other communications relative to the provisions of these Services by CPE, oral or written, are hereby superseded, except to the extent that they have been expressly incorporated by reference herein. In the event of conflict, the three pages of this Agreement shall govern. CLIENT may accept these terms and conditions by execution of this Agreement or by authorizing CPE to begin work. Any modifications or revision of any provisions hereof or any additional provisions contained in any purchase order, acknowledgement or other document issued by the CLIENT is hereby expressly objected to by CPE and shall not operate to modify the Agreement.

b. **DISPUTES, ATTORNEY FEES** – Any dispute regarding this Agreement or the Services shall be resolved first by exchange of documents by senior management of the parties, who may be assisted by counsel. Any thereafter unresolved disputes shall be litigated in the state whose law governs under Section 9 hereunder. In any litigation, the Prevailing Party shall be entitled to receive, as part of any award or judgment, eighty percent (80%) of its reasonable attorneys' fees and costs incurred in handling the dispute. For these purposes, the "Prevailing Party" shall be the party who obtains a litigation result more favorable to it than its last formal written offer (made at least twenty calendar days prior to the formal trial) to settle such litigation.

c. **WAIVER OF TERMS AND CONDITIONS** - The failure of CPE or CLIENT in any one or more instances to enforce one or more of the terms or conditions of this Agreement or to exercise any right or privilege in the Agreement or the waiver by CPE or CLIENT of any breach of the terms or conditions of this Agreement shall not be construed as thereafter waiving any such terms, conditions, rights, or privileges, and the same shall continue and remain in force and effect as if no such failure to enforce had occurred.

d. **NOTICES** – Any notices required hereunder may be sent by orally confirmed US Mail, courier service (e.g. FedEx), orally confirmed telecopy (fax) or orally confirmed email (further confirmed by US Mail) to the addresses set forth below.

e. **SEVERABILITY AND SURVIVAL** - Each provision of this Agreement is severable from the others. Should any provision of this Agreement be found invalid or unenforceable, such provision shall be ineffective only to the extent required by

CPE _____/CLIENT _____

law, without invalidating the remainder of such provision or the remainder of this Agreement.

Further, to the extent permitted by law, any provision found invalid or unenforceable shall be deemed automatically redrawn to the extent necessary to render it valid and enforceable consistent with the parties' intent. The terms and conditions set forth herein shall survive the termination of this Agreement.

CLIENT and CPE agree to the foregoing **(INCLUDING THE LIMITATIONS ON LIABILITY IN SECTIONS herein)** and have caused this Agreement to be executed by their duly authorized representatives as of the date set forth below.

Executed on _____, 2025

COASTAL PROTECTION ENGINEERING OF NORTH CAROLINA, INC.

By (Sign): _____

Print Name: ___Kenneth Willson_____

Title:_____President_____

Address: __4038 Masonboro Loop Road, _____

Wilmington, North Carolina, 28409_____

Phone: __(910) 399-1905_____

Fax: _____N/A_____

E-mail: _kwillson@coastalprotectioneng.com_____

TOWN OF SOUTHERN SHORES, NORTH CAROLINA

By (Sign):_____

Print Name:_____

Title: _____

Address:_____

_____

Phone: _____

Fax: _____

E-mail:_____

Attachments: Exhibit A – Scope of Professional Services
Exhibit B – Breakdown of Cost
Exhibit C – Schedule of Deliverables

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF SOUTHERN SHORES, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2027 BEACH NOURISHMENT

Coastal Protection Engineering of North Carolina, Inc. (CPE) will provide engineering, environmental, and geotechnical services to the Town of Southern Shores (TOWN) in support of a beach nourishment project scheduled for 2027. The specific services include project management, environmental documentation and permitting, and beach fill engineering design.

The CPE project manager will be responsible for project administration of the Scope of Work with assistance from other senior staff as appropriate. Administration includes coordination with the client, progress meetings and status updates, budget control, scheduling, planning, internal meetings, managing sub-contractors, and other associated management tasks required to complete the project according to the scope in a timely manner. Five (5) in-person project meetings between CPE and the TOWN are anticipated over the anticipated 12 months to complete this Scope of Work. Four (4) of the meetings are assumed to be multi-Town meetings, for which costs will be shared among the Towns. The fifth meeting is intended to be an update to the Town Council to provide project updates and to answer any questions from staff or elected officials. In addition to these meetings, CPE will provide the TOWN with a monthly 1-page summary of activities via e-mail. Costs associated with Project Management have been incorporated into each of the project tasks, which are described in detail below.

TASK 1: Environmental Documentation and Permitting Services

Sub-Task 1A: Permitting

The construction of the beach nourishment project along portions of the TOWN's shoreline will require permits from the Department of the Army (U.S. Corps of Engineers, or USACE) in order to satisfy the National Environmental Policy Act (NEPA). In addition, a Coastal Area Management Act (CAMA) Major Permit will be required by the North Carolina Division of Coastal Management (NC DCM). Major permits are necessary for activities that require other state or Federal permits, for projects that cover more than 20 acres, or for construction covering more than 60,000 square feet. Applications for CAMA Major Permits are reviewed by ten (10) state and four (4) Federal agencies before a decision is made.

The USACE will issue the Department of the Army (DA) permit, but project planning and formulation during the preparation of the environmental documents will also include consultation with other Federal agencies including, but not necessarily limited to, the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Bureau of Ocean and Energy Management (BOEM), and the Environmental Protection Agency (EPA). The lead State agency will be the NC DCM who will issue the CAMA Major Permit, but coordination will involve other State agencies including, but not limited to, the North Carolina Division of Marine Fisheries (NC DMF), North Carolina Wildlife Resources Commission (NC WRC), North Carolina Division of Water Resources, (NC DWR), and North Carolina Division of Water Quality (NC DWQ).

Task 1 includes the development and submittal of the complete Department of Army (DA) Individual Permit (IP) application and the CAMA Major Permit application directly to the respective agencies.

The CAMA Major Permit application package will include the required MP-1 and MP-2 forms along with plan drawings and adequate additional information that will serve to satisfy the various divisions and agencies who will review the application. This will include information pertaining to borrow area sediment characteristics, threatened and endangered species (marine and terrestrial), essential fish habitat (EFH), and other natural resources. Similar information will be provided in a DA IP application to the USACE Regulatory Division. Both applications will be submitted digitally to the respective agencies. The cost listed for Task 1 in Exhibit B includes the $475 permit fee required, which will be paid directly by CPE at the time the CAMA Major Permit application is submitted.

The permitting process for both the USACE and NC DCM will facilitate the issuance of additional approvals required by federal and state agencies prior to the implementation beach nourishment project. These include:

- NC DCM Coastal Area Management Act (CAMA) Major Permit
- NC DWR General Water Quality Certification
- NC State Historic Preservation Office's concurrence
- DA Individual Permit in compliance with Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act
- USFWS and NMFS concurrence with Section 7 of the Endangered Species Act (ESA).
- NMFS concurrence with the Magnuson-Stevens Fishery Conservation and Management Act.
- US EPA concurrence with the Clean Water Act (CWA)

This proposal includes CPE's participation in up to two (2) additional meetings with the various agencies/stakeholders during the permit application development and review. Additional coordination with resource agencies/stakeholders will be conducted via telephone and email correspondence as needed. The submittal of the CAMA Major Permit application and DA IP application will serve as project deliverables.

CPE will, in good faith, submit complete DA IP and CAMA Major Permit applications; however, the USACE and/or NC DCM may issue a Request for Additional Information (RAI) in response to these permit applications. Should this occur, an additional task order will be submitted to the TOWN under a separate Scope of Work to address the specific RAI requirements.

Sub-Task 1B: Environmental Documentation

An interagency meeting was held on June 13, 2025 to determine the necessary environmental documentation that would meet NEPA requirements and support the permitting approach associated with the proposed 2027 maintenance project. The scope and associated costs provided in this proposal have been developed based on the feedback received during the June 2025 interagency meeting. Furthermore, these costs have been developed under the assumption that each of the four Towns associated with the multi-town cooperative beach nourishment project will

cost share the expenses equally. It is possible that a resource or regulatory agency will issue an RAI in response to these environmental documents. Should this occur, a change order may be submitted to the TOWN to cover out of scope efforts to address the specific RAI requirements.

A description of the environmental documentation efforts are as follows:

Environmental Assessment (EA):
An EA under NEPA is a concise public document that provides sufficient evidence and analysis for determining whether USACE should issue a Finding of No Significant Environmental Impact (FONSI) or prepare an EIS. It is designed to help public officials make decisions that are based on an understanding of the human and physical environmental consequences of the proposed project and take actions, in the location and design of the project, that protect, restore and enhance the environment. The core elements of an EA in 40 CFR § 1508.9:

1. The need for the proposal,
2. Alternatives as required by NEPA § 102(2)(E),
3. The environmental impacts of your proposed action and the alternatives, and
4. The agencies and persons consulted.

CPE will draft a "Batched" EA developed for the 2027 re-nourishment which will assess the impacts of the actions proposed by all four Towns collectively. This single document will include a description of the specific actions proposed for each of the four Towns and will be utilized by the USACE and BOEM to ensure NEPA requirements are met. CPE will utilize the "Batched" EA that was drafted in support of the 2022 re-nourishment project as a template which will serve as a means to reduce costs.

A Preliminary Draft EA will be submitted to the USACE Regulatory Division and the BOEM for internal editing. Once all comments from USACE Regulatory and BOEM have been addressed, a notification to the Federal Register will declare the release of the Draft EA to the public. Following a 30-day commenting period, CPE will address all comments received by the USACE. A Final EA will then be developed and released again via an announcement to the Federal Register. Ten (10) printed copies and ten (10) digital copies of the Final EA will be produced and submitted to the USACE and BOEM.

The submittal of the Final EA will serve as a project deliverable.

Supplemental Programmatic Essential Fish Habitat (EFH) Assessment: The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) was enacted by the U.S. Congress to protect marine fish stocks and their habitat, prevent and stop overfishing and minimize bycatch. Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The MSFCMA requires that EFH be identified for all fish species federally managed by the Fishery Management Councils (FMCs) and NMFS.

CPE will supplement the "Batched" EFH submitted to NMFS for the 2022 re-nourishment project with additional information, newly designated EFH constituents (should they exist), and updated biological data relevant to the project area. Furthermore, should new borrow area(s) be included within the proposed project, information on those sites will also be included. The "Batched" EFH assessment will be submitted by CPE on behalf of the four Towns to the USACE and BOEM. The USACE and BOEM will then enter consultation with NMFS Habitat Conservation Division (HCD) who will review the document to ensure it is comprehensive and complete. Once determined that the document is comprehensive and complete, NMFS HCD is anticipated to issue their concurrence to the USACE fulfilling this aspect of the NEPA requirement.

The submittal of the Final Supplemental Programmatic EFH assessment will serve as a project deliverable.

Biological Assessment (BA): Under Section 7 of the ESA, federal agencies must consult with USFWS and NMFS Protected Resource Division (PRD) on activities that may affect ESA-listed species. These federal agency consultations are designed to help federal agencies in fulfilling their duty to ensure that their actions do not jeopardize the continued existence of a species or destroy or adversely modify designated critical habitat. As such, to ensure compliance with Section 7 requirements, CPE will facilitate the consultation process between the USACE and BOEM and the federal resource agencies to ensure that they are provided adequate information regarding the anticipated project-related impacts as they pertain to protected species. Based on communications with USACE and BOEM, it is presumed that due to the issuance of the 2020 SARBO, this project will not require the submittal of a BA. Furthermore, USFWS has indicated that given the previous consultations on the Duck beach nourishment program, USFWS can use information provided in the EA to consult with the USACE. CPE will respond to additional data requests by USFWS and NMFS PRD as needed.

Sub-Task 1C: BOEM Lease Request

The use of borrow material obtained from within federal waters on the Outer Continental Shelf (OCS) requires the issuance of a lease agreement from BOEM under the auspices of the Outer Continental Shelf Lands Act (OCSLA). It is expected that material for this proposed project will be obtained from Borrow Area A (one of the two areas included in the lease agreement between Dare County and BOEM issued to support the 2017 and 2022 nourishment events) and/or a new yet-to-be-defined borrow area in the OCS. A request for a new non-competitive negotiated lease agreement that will allow for the use of borrow material from within federal waters will be developed and submitted to BOEM for their consideration. Elements included in the lease request may include:

1. A detailed description of the proposed project and how it qualifies under Section 8(k) of the OCSLA
2. A description of the proposed borrow area(s) and placement area(s) including digital maps and ESRI shapefiles and metadata depicting the same, navigation features, geologic sampling locations, and any hard or live-bottom benthic habitat

3. Any geological data (such as sediment sample locations and grain size data, core logs, photographs, *etc.*) and geophysical data (such as sub-bottom profiler, marine magnetometer, sidescan sonar, and bathymetric data, *etc.*) used in borrow area selection and design
4. Any other known uses of the OCS or other infrastructure in the borrow area
5. A description of the environmental evaluations and corresponding documents that have been completed or are being prepared for offshore and onshore components of the project, including any NEPA documentation
6. A target date or range of dates when the resources will be needed
7. A description of the person or government entities undertaking the project
8. A list of any permits, licenses, or authorizations required for the project and their current status
9. Any known potential inconsistencies with state or local statutes, regulations, or ordinances
10. The name, title, telephone number, mailing address and email address of any points of contact for any federal agencies, state, or local governments, and contractor(s) with whom the applicant has contracted or intends to contract
11. A statement explaining who authorized the project, and whether it is federally authorized
12. A statement explaining how the project is to be funded, indicating whether it is federally funded in whole or in part

The submittal of the non-competitive negotiated lease agreement including the aforementioned information to BOEM will serve as a project deliverable.

TASK 2: Borrow Area Permitting Support Services

Borrow Area A is located on the Outer Continental Shelf between 5.0 and 6.5 miles offshore of the Towns of Kill Devil Hills and Nags head in water depths between 50 to 60 ft (NAVD88). The borrow area was permitted and used in the 2017 and 2022/2023 beach nourishment projects for the Towns of Duck, Southern Shores, Kitty Hawk, and Kill Devil Hills. Based on the May/June 2023 Post-construction borrow area survey, approximately 10.2 million cubic yards remain within the limits of Borrow Area A following completion of the 2022/2023 beach re-nourishment project.

In addition, over the past 2 years, a regional sand resource investigation has been conducted to identify long-term sources of sand for future beach nourishment projects in northern Dare County. Through the course of this investigation, several proposed borrow areas have been designed including the potential to expand Borrow Area A. This proposal assumes that sand for the proposed 2027 re-nourishment project may come from a combination of an expanded Borrow Area A and/or the additional proposed borrow areas identified through the more recent regional sand resource investigation.

Based on discussions from the Interagency Meeting held on June 13, 2025, CPE anticipates that the State may require a bathymetric survey to assess whether previously dredged portions of Borrow Area A can be used for the 2027 project. Therefore, a bathymetric survey of Borrow Area A is included in this scope to confirm that sediment infilling has not occurred. If infilling is

identified, CPE expects the State to mandate sediment sampling in Borrow Area A to evaluate compatibility with the State's beach fill standards.

To evaluate potential sediment infilling in Borrow Area A, a multi-beam bathymetric survey of the borrow area and collection of additional sediment samples will be conducted. Bathymetric survey and sediment sampling are described below in Sub-task A and B, respectively.

Sub-Task 2A: Bathymetric Survey and Sediment Sampling of Borrow Area A

A survey will be conducted to collect swath bathymetry data in a manner that achieves full seafloor coverage within the footprint of Borrow Area A. This will include any areas proposed for expansion of Borrow Area A as described in the Dare County regional sand resource investigation. Work will be conducted by a subcontractor under the direct supervision of a licensed North Carolina Professional Surveyor and/or a National Society of Professional Surveyors (NSPS) Certified Hydrographer. Surveys will be performed to meet or exceed the minimum performance standards for the Corps of Engineers Hydrographic Surveys, USACE specifications manual EM 1110-2-1003 and reviewed by an ASCM Certified Hydrographer.

The primary data product resulting from the multi-beam bathymetric survey will be ASCII XYZ survey data, which will be provided in North Carolina State Plane US Survey feet relative to the North American Datum of 1983 (2011) and the North American Vertical Datum of 1988 (Geoid18).

As part of Sub-Task 2A, 51 surface samples will be collected via a grab sampler within Borrow Area A at the same locations at which vibracores were collected in 2014 and grab samples were collected in 2020. A grab sampler is a tethered device that collects sediment from the surface of the seafloor.

Once collected, the multi-beam survey data will be compared with the May/June 2023 post-construction borrow area survey to determine if areas in Borrow Area A have infilled with sediments. A brief letter report will be prepared and submitted to both the TOWN and NC DCM, detailing the results of the survey comparisons. The report will provide graphics sufficient to illustrate changes within the borrow area. As an appendix to this letter report, a signed and sealed survey report will also be provided. The survey report will include a description of the methodology and equipment used, a survey chart of the borrow area with contours, and survey notes.

Analysis of surface sediment samples collected within Borrow Area A may be required if significant infilling is determined to have occurred based on the comparison of the May/June 2023 post-construction bathymetric data and data collected as part of this proposal. The sediment analysis is included and described under Sub-Task 2B.

Sub-Task 2B: Borrow Area A Surface Sample Sediment Analysis (Optional)

Sediment analysis will be performed on those grab samples located in areas where infilling has occurred based on the comparison of post-construction multi-beam data and data collected as part of Sub-Task A. Sediment samples will be analyzed for the following sedimentary properties: color, mean grain size, percent fines, percent granular, percent gravel, and sorting.

During sieve analysis, the wet, dry and washed Munsell colors will be noted. Sieve analysis of the sediment samples will be performed in accordance with the American Society for Testing and Materials (ASTM) Standard Methods Designation D 422-63 for particle size analysis of soils. This method covers the quantitative determination of the distribution of sand size particles. For sediment finer than the No. 230 sieve (4.0 phi) the ASTM Standard Test Method, Designation D 1140-00 will be followed. Weights retained on each sieve will be recorded cumulatively. Grain size results will be entered into the gINT® software program, which computes the mean and median grain size, sorting, silt/clay percentages for each sample using the moment method.

The number of samples that may require analysis under this Task is dependent upon the results of the survey comparisons and, therefore, CPE proposes to complete this Task on a time and materials basis not to exceed the amount listed in Exhibit B under Sub-Task 2B. Should the analysis included under Sub-Task 2B be required, the results of the analysis will be included in the letter report described under Sub-Task 2A.

Sub-Task 2C: Borrow Area A Supplemental Vibracores (Optional)

CPE will coordinate directly with NC DCM staff regarding the results of Sub-Tasks 2A and 2B. If through this consultation, NC DCM determines it is necessary to further evaluate material in areas where bathymetric data indicates an increase in elevation, up to five (5) supplemental vibracores will be collected in specific locations within Borrow Area A. Vibracores will be collected at locations where recent bathymetric data indicates an increase in elevation by more than 2 feet since the 2023 post-construction survey was conducted.

The cost for Sub-Task 2C listed in Exhibit B includes all costs associated with collection of vibracore samples, logging/ photographing/sampling of vibracores, sediment analysis of samples taken from vibracores, and the development of deliverables. Vibracores will be collected by a sub-contractor under contract with CPE. Vibracores will aim to retrieve a minimum 5 ft. of undisturbed sediment sample from below the seafloor. Vibracores will have a minimum diameter of 3 inches. If cores are longer than 5 feet, the cores will be cut into even length sections, no longer than 5-foot length segments. The segments will be appropriately marked as to the sequence of segments and sample location.

CPE geologists will log the vibracores by describing sedimentary properties by layer in terms of layer thickness, color, texture (grain size), composition and presence of clay, silt, gravel, or shells and other identifying features. Photos of the vibracore will be taken at 2-foot intervals and provided as part of the deliverable. Sediment samples will be extracted from the vibracores at irregular intervals based on distinct stratigraphic layers in the sediment sequence. The vibracores will then be wrapped and archived. Cores will be stored for a period of up to two (2) years or a

time following the construction of the project, whichever comes first. After this time, cores will be relinquished to the client or disposed of.

The sediment samples taken from the vibracores during the logging process will be analyzed to determine color, percent fines (mud/silt) and grain size distribution. During sieve analysis, any obvious uncharacteristically large fragments (such as whole shell or large shell fragments) will be removed, and the description (weight and size) of the material will be noted. The wet, dry and washed Munsell colors will be noted. Sieve analysis of the sediment samples will be performed in the same way described under Sub-Task 2B. The sediment analysis included in this scope of work does not include carbonate analysis.

If Sub-Task 2C is required, the results of the analysis will be included in the letter report described under Sub-Task 2A. This letter will ultimately be submitted as an addendum to the CAMA Major Permit application. If Sub-Task 2C is completed, the letter report will include a map of the location of the vibracores, vibracore logs, photographs, and sediment grain size distribution curves. The letter report will also include conclusions drawn from the data in terms of sediment compatibility of the Borrow Area with the recipient beach. Two (2) hard copies and a digital copy of the letter report will be provided to the TOWN at the same time it is submitted by CPE to the Division of Coastal Management.

Sub-Task 2D: Cultural Resource Assessment

CPE, along with its chosen sub-contractor, will conduct a comprehensive underwater cultural resource assessment of the proposed borrow areas shown in Figure 1. The objective of this assessment is to identify any potentially significant cultural resources within the proposed borrow areas. The southern proposed borrow areas (D-4, D-5, D-6, and D-7), located offshore of the Town of Kill Devil Hills and in proximity to Borrow Area A, which was used for the 2022/2023 Dare County beach re-nourishment project, fall within federal waters on the Outer Continental Shelf (OCS) and are under the jurisdiction of the Bureau of Ocean Energy Management (BOEM). The northernmost proposed borrow area (E-8), located approximately 3.7 miles north of the Town of Duck, is situated in state waters.

The assessment surveys will be designed in coordination with and approved by the Underwater Archaeology Branch of the NC DNCR and BOEM. Sub-Task 2D only includes conducting a geophysical survey for potential archaeological resources. It does not include any archaeological diving. The survey will assess potential effects on cultural resources, and, as necessary, establish appropriate buffer zones around such resources to mitigate impacts from proposed construction on potentially significant cultural resources in the vicinity. As part of the assessment, bathymetric data will be collected between previously surveyed track lines to obtain a higher resolution bathymetric surface of the borrow sites.

The sub-contractor will provide all personnel and equipment to carry out the survey, process the data, and provide a written report detailing the investigation. The report will be provided to the NC DCM, NC DNCR, the USACE, and BOEM. The report will include methodology, historical background information, previous investigations, a description of the findings as well as

conclusions and recommendations. CPE will support the TOWN and subcontractor with coordination with NC DNCR and BOEM to obtain approval for the project. However, consultation with Federally recognized tribes is not included in this proposal.

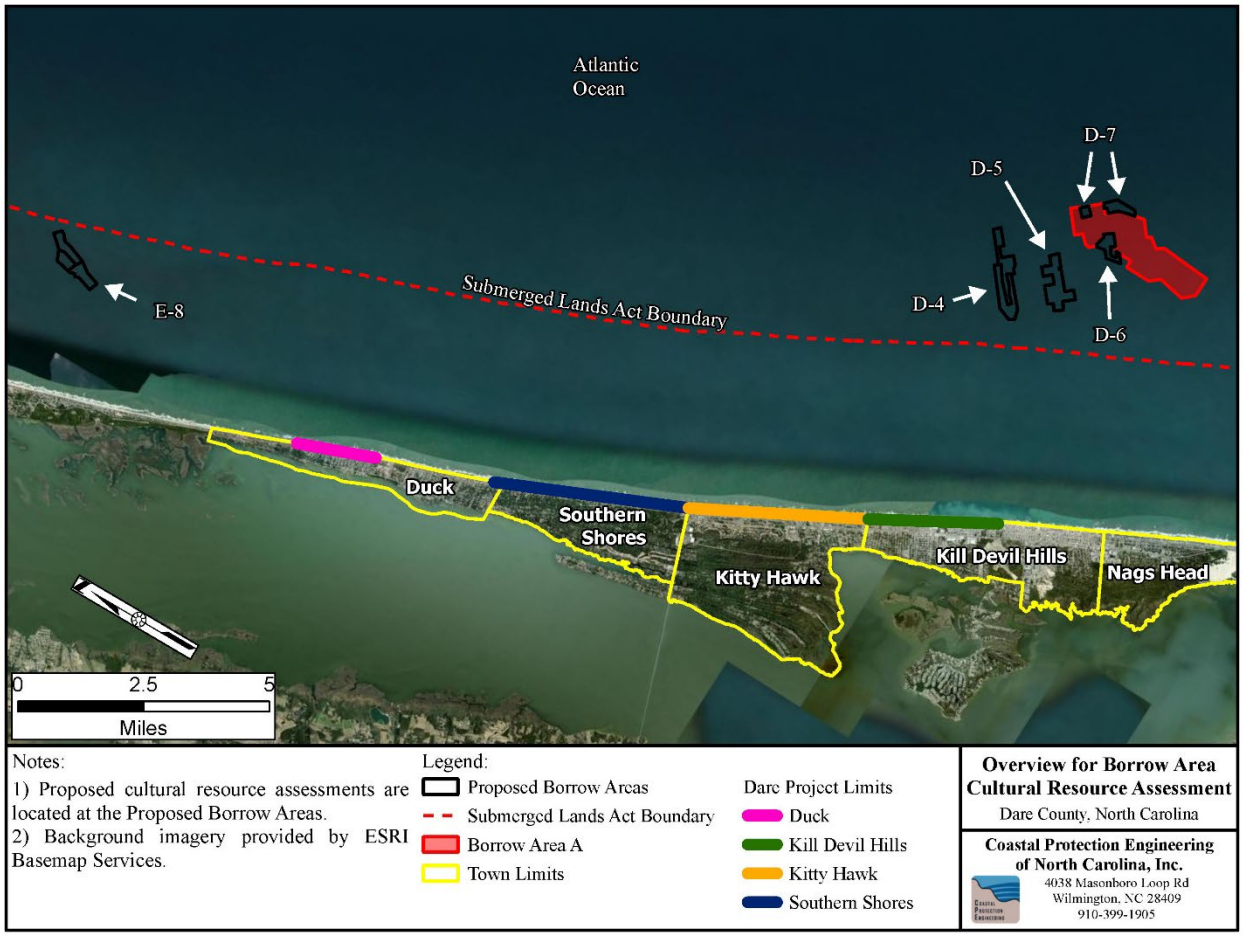

Figure 1. Overview Map of Proposed Borrow Areas for Cultural Resource Assessment

TASK 3: Engineering and Design

In 2021, CPE completed a detailed engineering design report for the Town of Southern Shores Beach Management Program. The recommended beach fill design differed north and south of the beach access at Fourth Avenue (station -153+05). The recommended design for the southern segment, which includes 15,305 feet of the TOWN's oceanfront, included placement of beach fill at the design berm elevation of +6 ft. NAVD88 to provide a reasonable level of storm damage reduction and additional fill to mitigate the potential for hotspot erosion in the central 3,900 feet of the project area between station -70+00 and station -110+00. The recommended design for the southern segment also included advanced fill to maintain the integrity of the project design over a 5-year renourishment interval. The recommended design for the northern segment, which spans

4,319 feet from Fourth Avenue to the Northern TOWN boundary, included the placement of beach fill to provide a sufficient useable beach width to achieve the TOWN's goal of maintaining a healthy beach that provides sufficient useable beach and supports valuable shorebird and sea turtle nesting habitat. Given the fact that the volumetric changes observed north of Fourth Avenue have been accretional since 2013, advanced fill was not included in the beach fill design along the northern segment.

In preparation of the anticipated 2027 project, CPE will evaluate design adaptations aimed at improving the overall project performance of the beach nourishment project and provide an engineering report describing the recommendations. The design adaptations will focus on three (3) primary aspects to include: 1) continue to evaluate the project performance monitoring data to determine adequate advanced fill quantities for the proposed 2027 project in order to achieve project goals, 2) evaluate the optimum quantity needed along the southern three (3) miles of the TOWN and whether there is any need for advanced fill to be placed along the northern 0.8 miles, and 3) evaluate the feasibility of extending the nourishment interval from 5 years to 6 or 7 years. Pending approval of these recommendations, CPE will incorporate the updated design into the permit applications described under Task 1.

Beach Profile Data: CPE has conducted annual monitoring surveys of the TOWN's oceanfront beach since 2017. CPE is currently under contract with the Town of Southern Shores to collect beach profile data in June 2025. These data will be used to evaluate the design adaptations described in the previous paragraph.

Sub-Task 3A: Beach Fill Performance Evaluation and Modeling

The re-nourishment project design will be based on a detailed analysis of the performance of the 2017 and 2022/2023 beach re-nourishment project performance as well as analysis of sediment transport and morphological changes evaluated through the use of numerical modeling. It is well known that any beach fill placed along a shoreline will be subject to gradual loss of material due to background erosion, i.e., the observed historic rate of shoreline change in the project area, as well as diffusion losses due to the alongshore spreading of the fill material out of the placement area.

In order to evaluate beach nourishment design alternatives including advanced fill densities, optimal fill configuration, and varying fill densities to achieve a longer nourishment interval, a variety of tools and methods will be employed. CPE engineers will review available oceanographic data, meteorological data, topographic/bathymetric data and geotechnical data, incorporating more recent data into the data previously reviewed to design the 2017 and 2022/2023 projects. Where applicable, updates to the descriptions of the physical characteristics of the project area will be provided in terms of tides, winds, waves, surge, extreme storms, and relative sea level rise. CPE will also conduct a detailed volumetric change analysis comparing trends observed since the 2023 project was constructed with the performance of the 2017 project. This will include evaluation of how modifications to the fill configuration for the 2022/2023 project may have improved project performance.

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF SOUTHERN SHORES, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2027 BEACH NOURISHMENT

In 2021, CPE conducted a comprehensive numerical modeling study to support the four northern Dare County Towns in evaluating project-specific engineering alternatives and identifying cost-saving opportunities through a coordinated regional approach. The Delft3D modeling suite was utilized to simulate wave dynamics, hydrodynamics, and morphological changes. The model incorporated existing bathymetric and topographic data and was calibrated to wave measurements from the USACE Field Research Facility (FRF). A regional wave model domain was developed, which extended from the northern boundary of the Town of Duck through the southern end of the Kill Devil Hills project area. To capture site-specific conditions, higher-resolution local flow and wave grids were developed for each individual project area. The calibrated 2021 model was then used to refine the design of the 2022/2023 re-nourishment project for each Town and optimize performance.

As part of this Scope of Professional Services, CPE proposes to develop a continuous Delft3D model domain encompassing the Southern Shores, Kitty Hawk, and Kill Devil Hills project areas. This regional modeling approach builds on previous efforts and allows for a continuous representation of the active beach system across all three Towns. The integrated domain will support the evaluation of sediment transport dynamics, fill performance, and diffusion losses both within and between the three subsections of the project area. By simulating the interconnected behavior of the entire shoreline, this approach will help inform optimal fill configurations, identify opportunities for regional coordination, and support the development of long-term, resilient nourishment strategies for each Town.

CPE will perform updated wave, flow, and morphology calibrations using the newly developed extended Delft3D model grid that encompasses the contiguous shoreline of Southern Shores, Kitty Hawk, and Kill Devil Hills. The wave and hydrodynamic models will be calibrated using available data from the USACE FRF. The morphology model will be refined to reflect current trends observed across the entire project area. A representative 1- to 2-year period will be selected based on the latest beach profile data to evaluate modeled morphological changes against measured conditions, and model parameters will be adjusted as needed to improve alignment with observed trends.

Once the wave, hydrodynamic, and morphology models are calibrated, we will update the model using the most recently collected 2025 topo-bathymetric data and sediment characteristics to support the evaluation of up to four (4) beach re-nourishment design configurations. These simulations will inform design modifications to the fill configuration to enhance project performance, while also aiding in the evaluation of recommended advanced fill densities, and the assessment of the feasibility of extending the re-nourishment interval from 5 years to 6 or 7 years. Each alternative will be simulated in Delft3D over short-term (1- to 2-years) and long-term (5- to 7-year) periods, and the results will be evaluated based on annual volumetric losses within the project area.

CPE will also utilize a one-line shoreline evolution model, such as GENCADE (developed by the USACE) or ShorelineS (developed by Deltares), to evaluate the feasibility of extending the

renourishment interval from 5 years to 6 or 7 years. One-line models are well-suited for assessing alongshore spreading of placed material, particularly in areas where shore-parallel bathymetry influences longshore sediment transport. This approach will help quantify potential diffusion losses and complement the volumetric analysis that will be gained through the use of the Delft3D model to assess fill performance for the Southern Shores project area. The results will support refinement of the nourishment design and help inform the use of increased fill densities aimed at supporting longer nourishment intervals of 6 or 7 years across the three Towns (Southern Shores, Kitty Hawk and Kill Devil Hills).

CPE also proposes to perform a comprehensive, long-term analysis of wave conditions and potential sediment transport in the study area. This analysis will integrate the Delft3D-WAVE model with the Coastal Engineering Research Center (CERC) sediment transport formulation, as detailed in the USACE Shore Protection Manual (1984). The effort will use the existing "working" wave model developed for the Southern Shores project area, applying the CERC formula, which estimates longshore sediment transport proportional to the longshore energy flux. The analysis will provide longshore sediment transport rates and directions. The analysis will evaluate the past 20- to 30-year historical period to characterize broader sediment transport patterns and will then compare trends observed between the 2017 and 2023 projects, as well as trends observed since the 2023 project was completed. This comparison will provide insight into how recent fill configurations have performed relative to the underlying transport conditions and will inform the design of the proposed 2027 project.

Engineering Report: CPE will prepare an engineering report that documents the process employed to evaluate the various design adaptations. The report will clearly establish the project goals and objectives, provide a brief project history and describe the project location. The report will also provide information on data used in the design process such as wave, water level, meteorological, topographic/bathymetric, and geotechnical data. The report will also provide a description of the physical characteristics of the project area in terms of tides, winds, waves, surge, extreme storms, and relative sea level rise. The report will provide methodology and results for each of the various design analyses conducted. The report will also provide a detailed description of the various beach fill options considered and provide justification for the recommended design configuration. The report will also include basic information on the borrow areas recommended for use.

CPE will prepare a comprehensive modeling appendix that will include details on the various model configurations and input parameters used. The modeling appendix will provide details on the calibration process, simulation scenario details, shoreline evolution model outputs, and supporting figures and plots illustrating model performance and comparative results across alternatives. This appendix will support and complement the discussion of alternatives that will be provided in the main engineering report.

Sub-Task 3B: Engineering Plans

Once CPE has completed the analyses of the various design adaptations, a set of engineering plans will be developed. The plans will include detailed plan view and cross section view drawings of both the borrow areas and the proposed beach fill, including allowable dredge cut depths, berm

elevation, berm width, and project extent. These plans will be incorporated into the permitting applications discussed under Task 1.

EXHIBIT B:
BREAKDOWN OF COSTS
TOWN OF SOUTHERN SHORES, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2027 BEACH NOURISHMENT

Table 1. Breakdown of the total cost of the Design and Environmental Permitting Services for the proposed 2027 Beach Nourishment Project.

TASK	DESCRIPTION	Cost
1	**Environmental Documentation and Permitting**	**$74,991.75**
1A	Permitting	$21,935.00
1B	Environmental Documentation	$44,371.75
1C	BOEM Lease Request	$8,685.00
2	**Borrow Area Permitting Support Services***	**$101,533.98**
2A	Bathymetric Survey and Sediment Sampling of Borrow Area A	$15,957.28
2B	Borrow Area A Surface Sample Sediment Analysis (Optional)	$5,127.50
2C	Borrow Area A Supplemental Vibracores (Optional)	TBD
2D	Cultural Resource Assessment	$80,449.20
3	**Engineering and Design**	**$140,444.25**
3A	Beach Fill Performance Evaluation and Modeling	$122,594.25
3B	Engineering Plans for Permit Applications	$17,850.00
	TOTAL BASE COST (EXCLUDES OPTION ITEMS)*	**$311,842.48**
	TOTAL COST OF OPTIONAL ITEMS (SUB-TASKS 2B AND 2C)*	**TBD**
	TOTAL COST (INCLUDING OPTIONAL ITEMS)*	**$316,969.98**

*Cost does not include Sub-Task 2C as cost for Sub-Task 2C is TBD.

Some costs associated with Task 1, Task 2, and Task 3 are being cost shared between the Towns of Duck, Southern Shores, Kitty Hawk, and Kill Devil Hills. In the event that any of the Towns decide not to move forward with the design and permitting of the project, the other 3 Towns' costs would necessarily increase; however, at this time, all four Towns have indicated their desire to move forward with design and permitting for the proposed 2027 project.

As stated in Exhibit A – Scope of Professional Services, Tasks 2B and 2C are optional items that may be required based on the results of Sub-Tasks 2A, 2B, and coordination with the NC Division of Coastal Management. Prior to initiating efforts included under these optional sub-tasks, CPE will provide a recommendation to the TOWN regarding the need to proceed and seek written authorization from the TOWN prior to proceeding.

EXHIBIT C:
LIST OF DELIVERABLES
TOWN OF SOUTHERN SHORES, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2027 BEACH NOURISHMENT

The following items have been identified as deliverables for the completion of this scope of work.

- Monthly progress reports;
- Major CAMA Permit Application;
- Dept. of the Army Permit Application;
- Final Environmental Assessment;
- Final Supplemental Essential Fish Habitat Assessment;
- BOEM Lease Request Packet;
- Letter Report regarding Borrow Area A Infilling
- Borrow Area Design Report
- Cultural Resource Assessment Report;
- Engineering Report; and
- Permit Drawings

A detailed description and an individual schedule for each deliverable are provided below.

Monthly Progress Reports: CPE will provide the TOWN with a 1 page, summary of the project status via e-mail approximately every 30 days during the course of the anticipated 12-month contract period. The letter will describe activities completed throughout the month and update the anticipated schedule of milestones as appropriate.

Major CAMA Permit Application: The Scope of Work includes the development and submittal of the complete Major CAMA permit application directly to the NC Division of Coastal Management. Barring any unforeseen circumstances, the Major CAMA Permit Application will be provided along with other final deliverables within 8 months following written authorization to proceed.

Dept. of the Army Permit Application: The Scope of Work includes the development and submittal of the Dept. of the Army Individual Permit Application directly to the U.S. Army Corps of Engineers. Barring any unforeseen circumstances, the Dept. of the Army Individual Permit Application will be provided along with other final deliverables within 8 months following written authorization to proceed.

Final Environmental Assessment (EA): An EA under NEPA is a concise public document that provides sufficient evidence and analysis for determining whether the U. S. Army Corps of Engineers should issue a Finding of No Significant Environmental Impact (FONSI) or prepare an Environmental Impact Statement (EIS). It is designed to help public officials make decisions that are based on an understanding of the human and physical environmental consequences of the

proposed project and take actions, in the location and design of the project, that protect, restore and enhance the environment. Barring any unforeseen circumstances, the EA will be provided along with other final deliverables within 8 months following written authorization to proceed.

Final Essential Fish Habitat (EFH) Assessment: A supplement to the "Batched" EFH submitted to NMFS for the 2022 re-nourishment project will be prepared with additional information, newly designated EFH constituents (should they exist), and updated biological data relevant to the project area. Assuming new borrow area(s) will be included within the proposed project, information on those sites will also be included. The "Batched" EFH assessment will be submitted by CPE on behalf of the four Towns to the USACE and BOEM. The USACE and BOEM will then enter consultation with NMFS Habitat Conservation Division (HCD) who will review the document to ensure it is comprehensive and complete. Barring any unforeseen circumstances, the supplement to the Batched EFH will be provided along with other final deliverables within 8 months following written authorization to proceed.

BOEM Lease Request Packet: The Scope of Work includes the development and submittal of a request to BOEM for a new non-competitive negotiated lease agreement that will allow for the use of borrow material from within federal waters. Barring any unforeseen circumstances, the BOEM Lease Request Packet will be provided within 8 months following written authorization to proceed.

Letter Report regarding Borrow Area A Infilling: A brief letter report detailing the results of Sub-Task 2A will be prepared and submitted to both the TOWN and NC DCM. If based on analysis of the data collected and coordination with NC DCM, optional Sub-Tasks 2B and 2C are needed, the results of these supplemental investigations will also be incorporated into the letter report. The report will provide graphics sufficient to illustrate changes within the borrow area. As an appendix to this letter report, a signed and sealed survey report will also be provided. The survey report will include a description of the methodology and equipment used, a survey chart of the borrow area with contours, and survey notes. Furthermore, if optional Sub-Tasks 2B and 2C are needed, the sediment analysis data, logs, photographs, etc., will be included as an appendix to the letter report. Barring any unforeseen circumstances, the letter report will be provided within 6 months following written authorization to proceed.

Cultural Resource Assessment Report: A report detailing the cultural resource assessment will be provided as a deliverable. The report will be provided to the NC DCM, NC DNCR, the USACE, and BOEM. The report will include methodology, historical background information, previous investigations, a description of the findings as well as conclusions and recommendations. Barring any unforeseen circumstances, the letter report will be provided within 6 months following written authorization to proceed.

EXHIBIT C:
LIST OF DELIVERABLES
TOWN OF SOUTHERN SHORES, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2027 BEACH NOURISHMENT

Engineering Report: An engineering report will be provided that documents the processes employed to evaluate the various design adaptations. The report will provide information on data used in the design process and a description of the physical characteristics of the project area in terms of tides, winds, waves, surge, extreme storms, and relative sea level rise. The report will provide methodology and results for each of the various design analyses conducted. The report will also provide a detailed description of the various beach fill options considered and provide justification for the recommended design configuration. The report will also include information on the borrow areas recommended for use. Barring any unforeseen circumstances, the engineering design report will be provided within 9 months following written authorization to proceed.

Permit Drawings: A set of engineering plans will be developed that include detailed plan view and cross section view drawings of both the borrow areas and the proposed beach fill, including allowable dredge cut depths, berm elevation, berm width, and project extent. These plans will be incorporated into the permitting applications discussed under Task 1. Barring any unforeseen circumstances, the permit drawings will be provided within 8 months following written authorization to proceed.