Beach Preservation Ad Hoc Committee
9:00 a.m., Thursday, March 20, 2025
City Hall Council Chambers
1207 Palm Boulevard, Isle of Palms, SC 29451

Agenda

1. Call to order and acknowledgement that the press and the public have been duly notified of this meeting in accordance with the Freedom of Information Act
2. Review and recommend firm to provide second opinion on beach management issues
3. Next steps
4. Adjournment

City of Isle of Palms
Request for Qualifications (RFQ 2025-01) for
Beach Management- Second Opinion

BACKGROUND

The city is requesting qualifications from firms that specialize in managing beaches that suffer from erosion to provide City Council with guidance on beach erosion and management practices, plans and policies.

The Isle of Palms has a long history of dealing with erosion on the northern end of the island, but over the last two years the island has suffered severe erosion in new areas.

In response to these issues, the Council created an Ad Hoc Committee in early 2024. The objective of this committee was to provide the Council with recommendations on how the beach could be more proactively managed and identify funding sources to fund beach renourishment and protection.

In January of 2025, this committee presented a series of recommendations (see attached) to the Council and one of those recommendations was to seek a second opinion on emergency measures, protective actions, the future beach nourishment program and possible other beach protection options (groins, sandbag installation and other emergency protective actions taken during the last 2 years).

This request for qualifications is the first step in the process of obtaining the second opinion described in that report.

SCOPE AND DELIVERABLE OF SECOND OPINION

The chosen firm will be expected to:

1. Review of existing data and information, including:
    a. Report and recommendations from Beach Ad Hoc Committee
    b. Prior beach management efforts
    c. Planned future projects
    d. City regulations that prohibit erosion control structures within 250 feet of mean high water
    e. Beach monitoring reports and surveys
    f. Existing imagery to understand inlet shoal bypass events
    g. See more here: https://www.iop.net/administration/beach-restoration
2. Provide a written report that includes:
    a. Opinions on the impact of each item listed above
    b. Opinions on possible solutions and alternatives to reduce erosion and enhance the effectiveness of renourishment projects
    c. Opinions on causes of recent acceleration of erosion on southern end including whether or not Breach Inlet is being negatively impacted by updrift nourishment projects

3. Present the findings, opinions, and recommendations to City Council and be prepared to answer questions (expectation would be that this would be an person meeting and last about 45 minutes).

REQUEST FOR QUALIFICATIONS SUBMITTAL INSTRUCTIONS

Consistent with the purchasing procedures specified in Section 1-10-7 of the city code, the city is requesting qualifications based on demonstrated competence and qualifications.

By the close of business on **Friday, March 17,** please provide a document via email to dkerr@iop.net that illustrates the firm's qualifications and includes:

- No more than 6 pages
- A cover letter introducing the firm
- A description of the firm's qualifications
- A description of the key personnel that would be involved in the project and a description of their areas of expertise
- Examples of similar projects including references

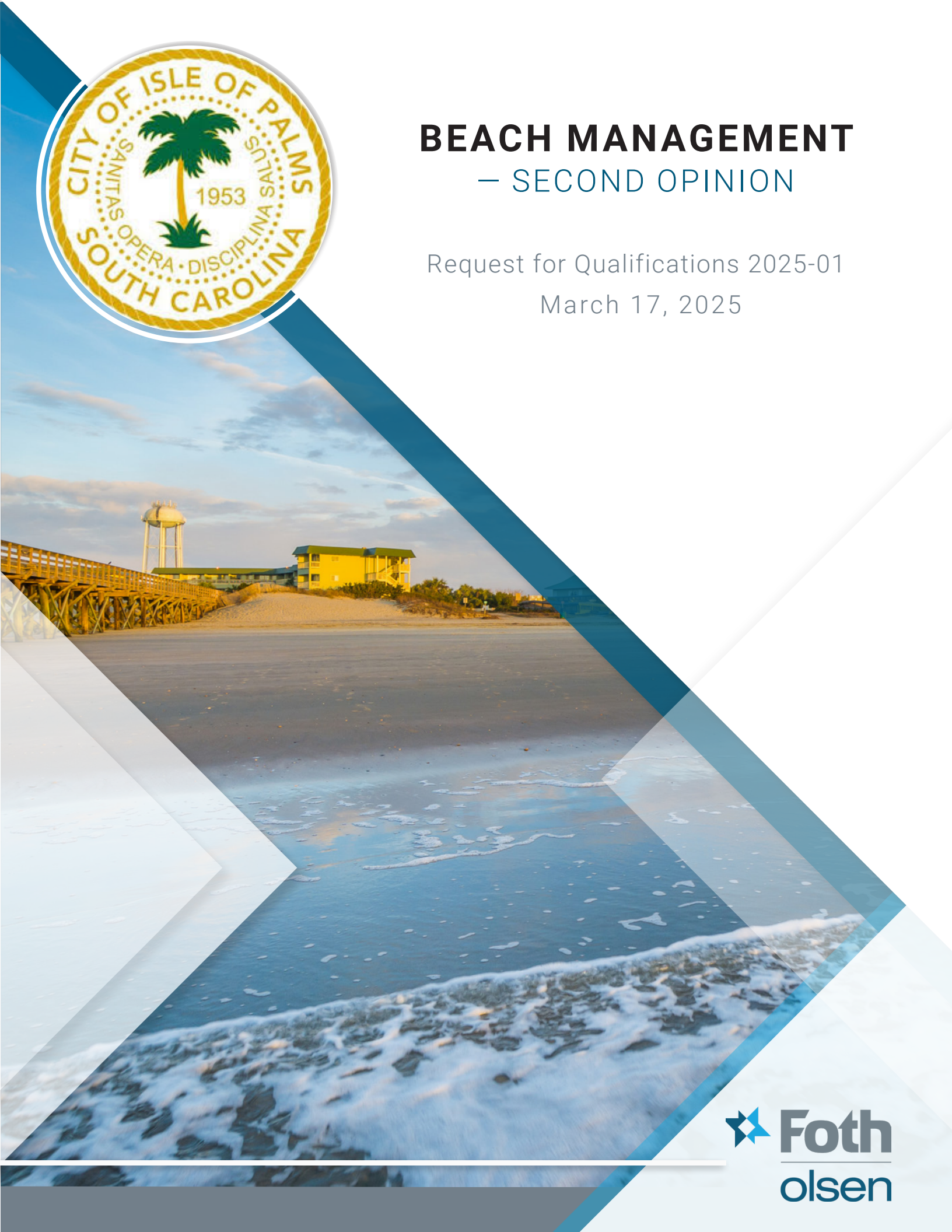
EVALUATION PROCESS AND CRITERIA

To choose a firm to provide these services, a city committee (expected to be the Beach Preservation Committee) or City Council, will evaluate the qualifications of each firm that responds and develop a method to determine an order of preference of which firm to engage. The preferred firm will be contacted and an attempt will be made to negotiate a fair and reasonable cost for the project. If a satisfactory cost cannot be negotiated with the firm considered to be most qualified, negotiations with that firm shall be formally terminated and negotiations with the next most preferred firm will begin and this process will repeat until an agreement is reached or the process is terminated or modified.

BEACH MANAGEMENT
— SECOND OPINION

Request for Qualifications 2025-01

March 17, 2025



Foth olsen

2618 Herschel Street
Jacksonville, FL 32204
904.387.6114

> "Not only are they great to work with, they are incredibly well organized, with exceptional attention to detail. They communicate and collaborate seamlessly, even when projects get a little messy, as they sometimes do. We owe a lot of our project success to the work and support we get from Foth.
>
> *Foth Ports & Harbors Client*

March 17, 2025

Mr. Douglas Kerr
Interim City Manager
City of Isle of Palms
dkerr@iop.net

Re: Response to RFQ 2025-01 for Beach Management - Second Opinion

Dear Mr. Kerr,

The engineering firm of Foth Infrastructure & Environment, LLC (Foth | Olsen) is pleased to respond to this request for consulting services and to assist the City of Isle of Palms (IOP) with a second opinion review of its Beach Management Plan (BMP). Our firm has years of experience providing comprehensive beach management services to governmental clients throughout the southeast. We are well-qualified to assist IOP with a second opinion review.

Our most relevant and specific experience is our decades-long work with the Town of Hilton Head Island. Foth | Olsen has been the Town's coastal engineering consultant since 1986 and the Engineer of Record for all of the Town's beach management planning and projects for this highly successful beach management program. Other recent relevant experience includes our development and implementation of comprehensive BMPs for the Village of Bald Head Island, NC; Flagler County, FL; the Town of Longboat Key, FL; and St. John's County, FL. Each of these studies included assessment of beach conditions, review of inlet-related effects to beach conditions, development and evaluation of beach management options, cost-benefit analysis, review of regulatory considerations, and collaboration with government staff and board members for plan selection and implementation. In addition to our beach management planning experience, we have completed dozens of large-scale beach restoration projects, identified through comprehensive planning exercises.

Our professional staff is internationally recognized for contributions to comprehensive beach management. For the IOP second opinion work, Christopher G. Creed, P.E. will serve as the principal investigator. Mr. Creed, who has been with Foth | Olsen since 1992, has focused his practice on comprehensive beach management for communities throughout the southeast. Mr. Creed will be supported by exceptional staff, including Dr. Albert E. Browder, P.E. Like Mr. Creed, Dr. Browder has more than 30 years of experience with Foth | Olsen and is an industry-leading expert in beach management planning and project implementation.

Our firm prides itself on its responsiveness to clients. We have provided comprehensive services to dozens of county and municipal clients that require proactive, innovative, and efficient shoreline management. We bring vigor, innovation, independence, and the qualifications necessary to successfully assist IOP with a second opinion. We look forward to the favorable consideration of our firm.

Sincerely,

Foth Infrastructure & Environment, LLC

CHRISTOPHER G. CREED, PE, BCCE
Senior Coastal Engineer & Client Team Leader
Chris.Creed@Foth.com
904.612.7983

ALBERT E. BROWDER, PH.D., PE, BCCE
Senior Coastal Engineer & Client Team Leader
Al.Browder@Foth.com
904.860.5103

FIRM QUALIFICATIONS

KNOWLEDGE. EXPERIENCE. COMMITMENT




The Foth I Olsen Ports and Harbors Group of 65 coastal engineering and waterfront experts specializes in providing comprehensive coastal engineering and marine infrastructure solutions coast to coast. We bring extensive expertise specific to beach and dune restoration and maintenance to ensure the sustainability of shoreline improvements throughout the southeastern US, including the following key areas of expertise:

Coastal Protection and Resilience Planning and Design

- Beach management planning
- Analyses of project effects to the coastal system
- Beach and dune restoration design
- Offshore sand borrow area design
- Studies of waves, currents, and coastal morphology
- Numerical modeling
- Beach evolution analysis and evaluation
- Coastal structure design (e.g., groins, breakwaters, seawalls, and revetments
- Inlet management studies, including sediment budget development
- Integration of natural solutions for sustainable coastal resilience

Environmental Permitting/Regulatory

- Environmental surveys
- State permitting - Florida, Georgia, South Carolina, North Carolina, Alabama
- Department of Army (USACE, federal) permitting
- National Environmental Policy Act (NEPA) compliance activities with all federal regulatory and resource agencies - US Army Corps of Engineers (USACE), US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Bureau of Ocean Energy Management (BOEM), Federal Emergency Management Agency (FEMA)
- BOEM Lease Agreement Acquisition for use of sand from Federal Outer Continental Shelf (OCS)

Contract Document Development

- Final design development
- Construction plans
- Technical specifications
- Construction cost estimating
- Bid assistance
- Construction contract management

Bathymetric and Geophysical Surveys

- Single-beam and multibeam sonar to capture high-resolution bathymetric surveys
- Seabed classification surveys and sub-aquatic vegetation surveys

Strategic Funding

- General state funding program knowledge for all coastal states in the Southeastern US
- Federal Emergency Management Agency (FEMA) Category B and G Post-Storm Analysis, Project Worksheet Development, Reimbursement, and Project Close-out
- Florida Department of Environmental Protection Beach Management Funding Assistance Program
- Grant management and accounting

> "Foth is by far the most analytically thorough engineering firm I have ever worked with. Their response time is immediate; they are fiscally conservative. They basically have become part of our team and family.
>
> *Foth Ports & Harbors Client*

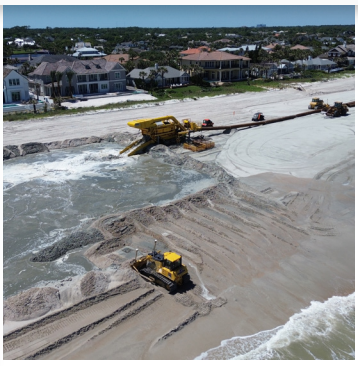
Our robust Ports & Harbors team has successfully completed coastal and waterfront projects for private and public clients across the United States. Shoreline and waterfront design and engineering require a blend of structural, civil, hydrodynamic, environmental and geotechnical engineering disciplines, along with a comprehensive understanding of environmental implications to meet project challenges. Foth I Olsen's experienced team of specialized engineers and scientists comprehensively addresses all aspects of shore restoration and stabilization, climatic and environmental issues.

Foth I Olsen's track record in regulatory permitting of complex marine and shorefront projects is unparalleled in the southeastern United States. Our senior staff in Jacksonville, FL bring experience ranging from 20-40+ years. Our team includes 12 full-time coastal engineers, seven (7) of whom are licensed Professional Engineers. Three (3) hold doctoral degrees in coastal and oceanographic engineering from the University of Florida. We also have full-time drafting and office administration staff, and field inspectors to provide construction observation services. Our team brings considerable experience in beach restoration, marina and oceanfront resort development and shorefront management projects, inlet interactions with adjacent shorelines, coastal stabilization works, navigation projects, and coastal construction regulation throughout the southeastern United States, the Caribbean, Mexico, Central America, Hawaii, Indian Ocean and the Middle East. Over the past 40+ years, our engineers have designed, permitted, and constructed over 140 separate beach and/or dune restoration projects, ranging in sand volume from less than 2,500 cubic yards to well over 7,300,000 cubic yards. We have also been responsible for the construction of more than 70 structural stabilization projects, including the implementation of seawalls, revetments, groins breakwaters, flushing canals, bulkheads, etc. Over the course of all these projects, our team has developed a strong reputation for innovative, timely and successful solutions to coastal engineering challenges.

In addition to the engineering staff, our firm owns and operates a complete suite of state-of-the-art numerical modeling software for the study of waves, currents, tides, salinity, sediment transport, and beach morphological changes, associated with the sandy coastal environment. These numerical models include the Delft3D and Delft UNIBEST-CL+ morphological and shoreline change modeling packages. The Delft-3D system is used to develop and evaluate 2- and 3-dimensional time-dependent simulations of hydrodynamic, sediment transport, storm surge, and morphologic (beach and seabed) changes associated with waves, tides, rivers, winds, coastal structures, dredging, and other natural or anthropogenic forces. The firm also operates a variety of wave transformation (refraction/diffraction) models -- the choice of which depends upon the project objective, budget, input wave data, bathymetry, ambient tidal currents, and end-use. Foth I Olsen routinely utilizes these model results to identify sediment transport and wave energy distributions along shorelines, primarily via GENESIS or SWAN/UNIBEST. Storm surge and beach profile response modeling is conducted through DELFT-3D, ADCIRC, and XBEACH/SBEACH/EDUNE/CCCL models, respectively.

With the majority of our clientele, we have developed long-time relationships of a decade or more, providing comprehensive coastal engineering. These relationships include service of over 30 years to the Town of Hilton Head Island, SC; the Village of Bald Head Island, NC; Broward County, FL; the Canaveral Port Authority, FL; Brevard County, FL; Nassau County, FL; among others. Each of our clients will attest to our responsiveness to their needs and requests, ranging from the timely completion of engineering analyses/design and permitting tasks, to prompt reply to emails, phone calls, or meeting attendance. We conscientiously engage work with new clients with the intent to provide services for the long-term, developing partnerships, and serving as a seamless extension of their team.

> "The Foth team demonstrates excellent communication and problem-solving skills, ensuring smooth collaboration throughout the project."
>
> *Foth Ports & Harbors Client*



KEY PERSONNEL

YOUR PROJECT. OUR TEAM

CHRISTOPHER CREED, PE, BCCE

Senior Coastal Engineer &
Client Team Leader

B.S.C.E. I Civil Engineering | NC State University
M.C.E. I Civil, Coastal & Oceanographic Engineering I University of Delaware
Professional Engineer I FL #49445; SC #23064; NC #037119; GA #044304
ACOPNE Board Certified Coastal Engineer

Mr. Creed brings over 30 years of extensive experience in comprehensive beach restoration planning and implementation, as well as USACE Civil Works planning, funding, and project execution in coastal, marine, and insular environments. He has authored dozens of beach and inlet planning and management studies and USACE planning and project funding documents for non-federal local sponsors of federal projects.

Mr. Creed specializes in significant federal and non-federal beach and dune restoration projects. He has served as project manager, technical lead, and Engineer-of-Record (EoR) for various community comprehensive beach management programs, including th Town of Hilton Head Island, SC. Additionally, he has extensive experience in leading offshore sand search investigations, delineating, and successfully permitting offshore and upland borrow areas for beach restoration. Mr. Creed also collaborates with local governments to secure federal and state funding assistance for their projects.

RELEVANT EXPERIENCE:

- Town of Hilton Head Island, SC, Multiple Beach Renourishment Projects (since 1992)
- Village of Bald Head Island, NC, Multiple Beach Management and Restoration Projects
- Flagler County Dune/Beach Restoration, Flagler County, FL
- Palm Beach County, North County Comprehensive Shore Protection Project, Multiple Projects
- Palm Beach County,, Federal Shore Protection Project, Ocean Ridge Reach
- Martin Count Hurricane Milton Beach Restoration/Protection
- Port Everglades Entrance Sand Bypass Project
- Broward County Federal Shore Protection Project, Segments II and III, Multiple Projects
- Hillsboro Inlet District, FL Comprehensive Inlet Management

ALBERT BROWDER, PHD, PE, BCCE

Senior Coastal Engineer &
Client Team Leader

B.S. I Mechanical Engineering I Clemson University
M. Eng. I Civil, Coastal & Oceanographic Engineering
Ph.D. I Civil & Coastal Engineering I University of Florida
Professional Engineer I AL #26227; FL #57403
ACOPNE Board Certified Coastal Engineer

Dr. Browder boasts over 30 years of experience in planning, engineering analyses, design, permitting, cost analysis, plans and specifications, and construction administration for large-scale civil works projects in coastal, marine, and insular environments. His expertise encompasses federal and non-federal beach and dune restoration projects throughout Florida and the southeastern United States.

Dr. Browder serves as the designer, permit agent, principal investigator, and Engineer of Record for numerous beach projects across the southeastern U.S. He is widely recognized for his work in identifying inlet impacts on adjacent shorelines and the practical implementation of inlet sand management, tidal inlet dynamics, inlet impacts, sediment budgets, and sand management. His services as a technical peer reviewer are increasingly sought after, providing local communities with independent assessments of their beach management strategies.

RELEVANT EXPERIENCE:

- Longboat Key, FL Beach Nourishment and North End Structural Stabilization
- Pensacola Beach, FL Beach Nourishment
- South Amelia Island Shore Stabilization
- Orange Beach/Gulf State Park/Gulf Shores Comprehensive Beach Restoration and Management
- St. Johns County Emergency Berms Project (Post-Ian/ Nicole)
- Nassau County, FL Beach Access Relocation
- Santa Rosa Island Authority Dune Enhancement Project
- City of Fernandina Beach Coastal Engineering
- Alabama Department of Conservation & Natural Resources Gulf State Park Beach Nourishment

SIMILAR PROJECTS
PROVEN EXPERIENCE

BEACH MANAGEMENT
Town of Hilton Head Island, SC

The Town of Hilton Head Island has trusted Foth I Olson as its coastal engineering consultant since 1986. In the late 1980s, we worked with the Town to develop a beach management and restoration plan through a comprehensive, island-wide feasibility study that included a detailed review of island morphology, historical beach change, storm impacts, project alternatives, and offshore sand source availability. Our team has led all offshore and upland sand search investigations used to identify seven (7) offshore and two upland sand borrow areas for use as beach fill; and assisted with the development of a comprehensive beach management plan, the establishment of an island-wide development and beachfront setback policy, dune restoration projects, post-storm assessments and FEMA public assistance funding requests, and environmental monitoring. We perform annual monitoring along more than 16 miles of island shoreline with twice annual beach profile surveys. The monitoring results continually refine future beach renourishment and shore protection projects for the island's comprehensive beach management. We have worked with the Town to complete five (5) comprehensive beach restoration and renourishment projects, three (3) emergency restoration projects, five (5) FEMA Cat G actions and one (1) FEMA Cat B emergency dune project. We have also designed and implemented six (6) strategic shore-stabilizing structures projects intended to improve performance of the overall beach restoration program. Currently, Foth I Olson is leading the Town's effort to permit and construct the 2025 scheduled renourishment of the 16 miles of managed beach.

Shawn Colin, AICP, Assistant Town Manager
843.341.4696 I shawnc@hiltonheadislandsc.gov

BEACH MANAGEMENT
Village of Bald Head Island, NC

To address chronic shoreline erosion and coastal flooding along the Atlantic Ocean and Cape Fear River shorelines of Bald Head Island, the Village worked with Foth I Olsen to develop and manage a comprehensive beach management strategy consisting of beach restoration and renourishment, inlet management and structural stabilization solutions. Implementation of the strategy over the past 30 years has included the study, design, engineering and construction oversight of multiple stabilization projects on the Island's interior and ocean-facing shorelines. The projects have been complicated by the presence and active management of the Wilmington Harbor Federal Navigation Project entrance channel adjacent to Bald Head Island. Aggressive shore-stabilizing solutions have been required closest to the Federal navigation channel where erosion rates are typically the highest and coastal storm flooding the most frequent. To support project scoping and design, our team developed a fully coupled Delft3D hydraulic, sediment transport and morphological numerical model to simulate the inlet and riverine hydraulics and drive sediment transport in the vicinity of the island's shoreline, project area and Federal navigation channel. The modeling effort has subsequently been used for multiple simulations for design and permitting.

Chris McCall, Village Manager
910.457.9700

BEACH RESTORATION
Ponte Vedra Beach, FL

Stephen Hammond, Coastal Environment Project Manager
904.209.0272 I shammond@sjcfl.us

Ponte Vedra Beach, FL worked with Foth I Olsen to conduct feasibility analyses, engineering, design, permitting, and construction management for a beach restoration project in 2024. As the Engineer of Record for the project, Foth I Olsen managed the establishment of the Erosion Control Line; created the project technical specifications, construction drawings, and cost analysis for the beach nourishment project; provided contract management, construction review and administration; and will be performing the post-construction reporting services. The project placed over two million cubic yards of sand along the 8.9-mile length of Ponte Vedra Beach. The project borrow is located roughly four miles offshore in Federal Waters. Foth I Olsen designed and managed the borrow area development and coordinated with the Bureau of Ocean Energy Management to collect geotechnical data, complete an Environmental Assessment, and acquire a BOEM lease for St. Johns County for the use of the beach-compatible sand. Weeks Marine, Inc., was the selected Contractor and the project was constructed for $36M.

BEACH RESTORATION
Longboat Key, FL

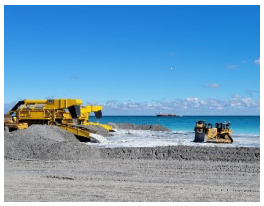
The Town of Longboat Key manages 10.2 miles of Gulf of Mexico shoreline in Manatee and Sarasota Counties, FL. Foth | Olsen provides coastal engineering in support of the Town's Beach Management Plan including design, permitting, bidding, contract management, construction and post-construction observation/reporting for renourishment projects. Foth | Olsen also provides grant management assistance.

In 2021, our team served as the EoR and permit agent for the Town's Beach Nourishment and North End Structural Stabilization Project, and for two (2) different dredging and beach nourishment projects that excavated ebb shoal channels of the tidal inlets at either end of Longboat Key (New Pass and Longboat Pass). The combined projects placed over 1,005,000 cubic yards of sand along five different segments of the shoreline, and constructed five low-crested permeable rock groins along the northern terminus of the island at Greer Island to manage decades-long chronic erosion. We provided design, permitting, construction contract documents, bidding, contract management, construction observation, permit compliance, and post-construction reporting services for all aspects of the project, and assisted the Town to secure and manage grants and reimbursements from the Florida DEP, Florida DEM, and FEMA.

In 2024, Foth | Olsen served as the EoR for the New Pass Terminal Groin Rehabilitation Project to sand-tighten the structure and reduce sand losses to New Pass. Currently, we are performing annual physical monitoring and a post-Debby analysis of the Town's Gulf shoreline.

Charles Mopps, PMP, Program Mgr/Assist. Public Works Dir.
941.316.1988 ext. 2226 | cmopps@longboatkey.org

COMPREHENSIVE SHORELINE RESTORATION AND MANAGEMENT
Palm Beach County, FL



The North County Comprehensive Shore Protection Project (NCCSPP) combines two existing shore protection projects to facilitate economical and efficient regional management of the County's beach and sand resources. Specifically, the non-Federal Juno Beach Nourishment Project was merged with the Jupiter-Carlin Federal Shore Protection Project. The 4.9-mile-long project area is divided into three segments: Segment I (Jupiter-Carlin), Segment II (dune only), and Segment III (Juno Beach).

Foth | Olsen was instrumental in the project formulation and development. We prepared design reports detailing the current state of the project shorelines, the anticipated future sand needs, and recommendations for updating the previously constructed construction templates along the Segment I and III reaches. The resulting updated construction templates include a variable construction slope more favorable to marine turtle nesting and designed to meet the volumetric needs of this erosional shoreline, while maintaining the overall footprint established by previous projects. The latter is important to avoid expansion of the County's previously fulfilled hardbottom mitigation requirements. To mitigate coastal storm risk, the NCCSPP design incorporates a contiguous, engineered dune throughout all three project segments, which ultimately assisted FEMA in granting Category G eligibility along Segment III. Foth | Olsen has conducted post-storm surveys and engineered beach projects along the NCCSPP and throughout the County. Our study and subsequent work with FEMA officials was instrumental in acquiring ~22M for reconstruction of portions of the engineered beach and dune.

Andy Studt, Program Supervisor
561.233.2539 | AStudt@pbcgov.org

BEACH MANAGEMENT PLAN
Flagler County, FL

P. Ansley Wren-Key, Ph.D., Coastal Engineering Administrator
386.313.4112 | awren-key@flaglercounty.gov

Flagler County includes 18 miles of Atlantic Ocean shoreline in northeast Florida. Foth | Olsen was engaged to guide the County in the development of proactive beach management strategies to restore the beach and dune, perform long-term maintenance, and repair episodic storm damage along the entire County shoreline. We organized the county shoreline into sub-segments, documented historical beach and dune management activities, calculated storm-induced and background erosion, characterized the native sediment; identified potential sand sources for beach nourishment; quantified future sand needs; projected the effects of sea level rise; developed strategies to leverage state and federal funding opportunities; assessed storm vulnerability; and presented project implementation considerations.

Our team presented various project alternative concepts to reestablish and maintain a wide, protective beach and dune, while minimizing impacts to the coastal system and adjacent natural resources. Foth | Olsen worked with stakeholders to establish objectives and select a preferred plan, and identified several beach erosion control initiatives, planning studies, and management needs to facilitate the implementation of the preferred plan. Topics included an administrative structure for the beach management program, local funding, natural resources, offshore borrow area expansion, permitting, easements, federal participation, public access, and public parking.

Foth | olsen

Foth Jacksonville, Florida Office
2618 Herschel Street
Jacksonville, FL 32204
920. 497.2500

foth.com

HUMISTON
& MOORE
ENGINEERS
COASTAL
ENGINEERING DESIGN
AND PERMITTING

5679 STRAND COURT
NAPLES, FLORIDA 34110
FAX: 239 594 2025
PHONE: 239 594 2021

March 17, 2025

Douglas Kerr
Deputy City Administrator
Director of Building, Planning and Licensing
City of Isle of Palms
P.O. Drawer 508
Isle of Palms, SC 29451

Re: Independent Technical Review of Isle of Palms 2025 Beach Management.

Dear Mr. Kerr:

It is with great pleasure that we are providing you with this *Letter of Interest* for the referenced RFP for consideration in your selection of a coastal engineering consultant to provide Independent Technical Review engineering consulting services.

Humiston & Moore Engineers (H&M) was established in 1991 located in Naples, Florida, which specializes in the field of coastal engineering. At H&M, our mission statement is *Restoring Beaches as Natural Coastal Systems.* In response to the Isle of Palms Request for professional engineering services, H&M is a highly qualified team of professionals who specialize in the coastal environment, with extensive experience in management of barrier islands and tidal inlets needed to address the technical elements of the Isle of Palms beach management.

We look forward to providing the Isle of Palms with an objective science-based, and Independent Technical Review for the 2025 Isle of Palms Beach Management.

If you have any questions or need additional information regarding this submittal, please contact us. Please visit our website for general information about H&M. http://www.humistonandmoore.com

Sincerely,

HUMISTON & MOORE ENGINEERS

Mohamed Dabees. Ph.D. PE. BC.CE.
Vice President

HUMISTON & MOORE ENGINEERS

Firm Description and Key Personnel

Humiston & Moore Engineers (H&M), located in Naples, Florida, has been providing specialized services for over 34 years and will be the prime consultant on this project. Since 1991, H&M has established itself as a significant contributor to the field of coastal engineering, particularly in Florida. H&M has a well experienced coastal engineering staff, with proven proficiency in erosion control design through the practical yet innovative applications of both sustainable technologies and natural and nature-based solutions. H&M has state-of-the art coastal modeling capabilities including coastal processes, inlet morphology, waves, sediment transport, and regional and localized hydrodynamic modeling.

H&M's success with complex coastal engineering projects is not only a function of the firm's technical capabilities but also extensive experience with the design and performance of coastal projects and the state and federal regulatory permitting processes. Mr. Moore, president of H&M, was formerly the supervisor of the Florida DEP staff, responsible for review of State of Florida coastal construction permit applications. Over the past thirty-three (33) years, this experience has broadened with hands-on coastal engineering design and management experience. H&M has proficient experience with the State of Florida DEP Joint Coastal Permitting (JCP) reorganized under the Water Resources Management Division, U.S. Army Corps of Engineers permitting, DEP Environmental Resource Permitting, and the State DEP Coastal Construction Control Line (CCCL) permitting programs, as well as the State DEP Beach Management Funding Assistance Program.

Through the comprehensive state and federal permitting process, H&M has established and maintained an excellent rapport with local, state and federal regulatory and environmental agencies. Over the past 33 years H&M has demonstrated its ability to address complex coastal issues and provide coastal engineering services on all aspects of a beach nourishment project. This includes related fields of costal engineering design and analysis such as erosion control structures, living shorelines, inlet management of sand resources, beach/dune design, permitting, bidding and construction phase services, and project performance evaluation and monitoring for a wide range of coastal engineering projects.

"H&M's ability to focus on forward planning and problem solving combined with expertise and reputation with State and federal agencies sets them apart."

Neil Dorrill,
Division Administrator
Pelican Bay Services Division

Collier County

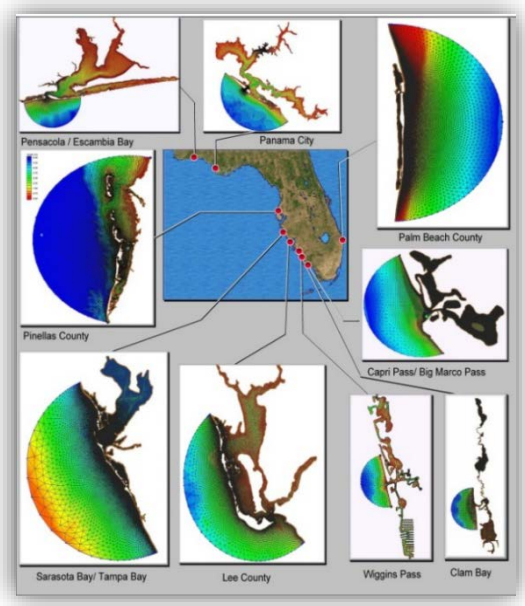
H&M Organization: H&M has eight employees, all working from the Naples office. The H&M professional staff includes four registered Professional Engineers, with expertise in coastal engineering. Engineering support staff includes a geologist and staff engineers, with experience in the construction oversight of erosion control, beach restoration and dredging projects, and background in quality control and AutoCAD training. Administrative support is provided by an employee with proficient experience in finance.

"Collier County has been using Humiston & Moore Engineers as one of its principle consultants for over 20 years. Excellent quality, performance and Knowledge"

Gary McAlpin, PE
Coastal Zone Management.

Collier County

Technical Capabilities: The most cost-effective way to approach a coastal engineering problem is to first establish a thorough understanding of the dynamic coastal processes that have caused the problem. Developing this level of understanding of those processes is necessary for the development of effective design criteria to solve the problem.
H&M has completed a variety of coastal projects, effectively and efficiently managing contracts and collaborating with subconsultants, contractors, coastal beach municipalities, and stakeholders. A well-designed project supported by well-informed municipalities may be completed on schedule by ensuring consistency and clear communication.



Computer Modeling Capabilities: One of the areas in which H&M has been a leader is in technical development and application of advanced modeling procedures. H&M's staff includes internationally recognized expertise in this field, who have developed numerical models and advanced modeling procedures. H&M contribution to the research and development of coastal processes modeling and application is well documented through publications and technical reports.

Due to the complex nature of littoral dynamics which are driven by many variables, effective use of technical modeling tools require a thorough understanding of the real world of coastal processes; weather dependent variability of natural processes, interaction of tidal currents with littoral forces, and how human intervention will influence natural processes. This understanding is achieved through years of experience in analyzing the evolution and morphology of beaches. Combining technical skills with years of practical experience has resulted in H&M's success in designing solutions to coastal problems.

Geological/Geotechnical Analysis and Development: Through the number of beach restoration and erosion control projects planned, designed and permitted over the past 33 years, H&M has gained a substantial amount of experience in working with the Florida Department of Environmental Protection's (DEP) evolving effort for improved management of sand resources, identification of higher resolution of geotechnical data for improved sand compatibility analysis and the need for a comprehensive management of sediment data.

"Very knowledgeable and capable coastal engineering firm. It was a pleasure dealing with Brett Moore and his entire staff."

Scott Krawcznk
Deputy Public Works Director

H&M has worked successfully with the Florida Department of Environmental Protection staff in satisfying requirements to obtain necessary permits for dredging inlets and borrow sites for use in beach restoration projects. Marc Damon, P.E., along with other staff, provide high levels of combined experience and expertise in developing sediment data collection programs and conducting evaluations for sand compatibility and borrow area design. H&M's experience gained through the design, permitting and monitoring of H&M beach restoration projects and erosion control projects establishes H&M as a resource to assist the City and Town in the further development of practical Florida based solutions. This is essential for future planning of environmental change considering climate change and its projected impacts along Florida's coastline.

Key Staff of Humiston & Moore Engineers - Prime Consultant

Humiston & Moore's team of specialized and experienced technical staff bring a high level of skill and hands-on technical knowledge to every project. Selected senior staff members are highlighted here, and resumes are provided for reference. H&M has a strong support staff for technical analysis, plan preparation, and state and federal permitting. Resumes are also provided for senior technical staff from the team subconsultants.

Brett D. Moore, P.E., D.CE.
Principal-in-Charge / Co-Founder, President

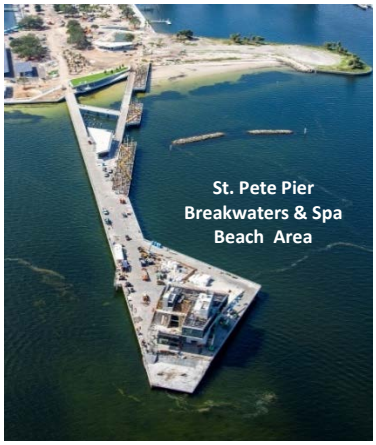
Brett D. Moore, P.E., D.CE., has over 38 years of experience in coastal engineering after obtaining his master's degree in Coastal Engineering from the University of Delaware in 1982. As co-founder of Humiston & Moore Engineers (1991 – present), Mr. Moore has been responsible for the design and management of a broad range of coastal engineering projects including but not limited to four beach restoration projects, eight erosion control projects, numerous inlet and erosion studies and truck haul beach fill projects. In terms of more recent coastal engineering projects relevant to this submittal, Mr. Moore was the Engineer of Record for:

a) The 2016 South Siesta Key Beach Restoration Project in Sarasota County encompassing 2.2 miles of shoreline and 700,000 cubic yards of sand from an offshore borrow source.
b) The 2019 Central Marco Beach Project on Marco Island, Collier County, in close design coordination with Dr. Dabees.
c) The 2020 South Marco Beach Restoration Project I Collier County.
d) The Honeymoon Island State Park Restoration Project (Phases I and II) in Pinellas County, and the Interim Post-storm 2025 North Beach Renourishment.

Mr. Moore has been the lead engineer and project manager for numerous projects while at H&M and understands not only the complex state and federal regulatory process, but how to get projects completed through team collaboration. Since co-founding H&M, Mr. Moore has developed a strong network of team subconsultants for a wide range of coastal engineering projects.

Mr. Moore participates in technical conferences, has authored technical papers and has spent the last 33 years on the development of H&M as one of the significant contributors to coastal engineering technology through completed projects and studies in Florida. He is an active member of the local chapter of the American Society of Civil Engineers and the Florida Shore and Beach Preservation Association, was appointed to the Florida DEP Coastal Engineering Technical Advisory Committee in 1999, which was led by Dr. Dean, was an Ex-Officio Board Member of the Florida Shore and Beach Preservation Association from 2014-2016, and in 2009 accepted a board position on the Steering Committee of the on-going State-wide Beach Habitat Conservation Plan development at the request of the Secretary of the state DEP. In 2013, Mr. Moore received the FSBPA Jim Purpura/T.Y. Chiu Engineering Award 2013 for *outstanding contribution to coastal engineering that enhances beach preservation, in recognition of innovative scientific research or for long excellence and contributions in coastal engineering*.

Mohamed A. Dabees, Ph.D., P.E., BC. CE.
Principle Engineer/ Vice President



Mohamed A. Dabees, Ph.D., P.E., D.CE. is a registered professional engineer with over 31 years of experience in coastal engineering and has been with H&M since 2000. Dr. Dabees obtained his Doctorate in Coastal Engineering from Queens University, Ontario, in 2000, where his dissertation included the development of an advanced coastal process model. Since that time, he has been working at H&M where he has continued the development and application of numerical Modeling of coastal processes. He has provided technical analysis and design for various federal, state and local projects. His work focuses on beach and inlet morphology modeling and analysis of beach and inlet management alternatives. Additional applications of his expertise include evaluation and analysis of erosion control, tidal inlets, long-term morphology, regional sand management, beach restoration and coastal structures. His contribution to the research of long-term morphology modeling is documented through numerous publications and technical reports. In addition to ongoing coastal process modeling and tidal circulation studies, Dr. Dabees is the Engineer of Record and Project Manager for the following projects:

"Humiston & Moore was instrumental to the success of the St. Pete Pier Project."

"The City of St. Petersburg has been extremely pleased with the work of Mohamed Dabees and Humiston & Moore."

Raul Quintana, AIA
City Architect
City of St. Petersburg

st.petersburg

a) The complex breakwater and beach design as part of the downtown St. Petersburg Pier Renovation.
b) The Clam Pass Maintenance Dredging Project and Management Plan in Naples, Florida.
c) Review and evaluation of beach erosion control project along Debidue Island, South Carolina. The HM analysis included detailed modeling and analysis of wave climate, barrier island evolution and anthropogenic influences on the chronic erosion problem along part of the shoreline

d) Tigertail Lagoon/ Sand Dollar Island Ecosystem Restoration project. A Natural and Nature-based large-scale design for coastal resiliency implemented in Marco Island Florida in 2023. This example of Engineering with Nature provided sustainable multi-tier coastal protection from restoring and maintaining a sand spit and tidal lagoon that previously collapsed following storm impacts, the design included repurposing sand within the system to maintain the integrity of the sand spit and allowing the tidal lagoon and living shorelines feature to provide protection and resilience to the upland developments on Marco Island. The project was featured in the 2024 Engineering With Nature Atlas published by the US Army Corps of Engineers Research and Development Center ERDC.
https://issuu.com/poweroferdc/docs/atlasv3-erdc-sr-24-2/s/49121929

Dr. Dabees has been and continues to be a contributing member of several Technical Design and Advisory Committees for projects throughout Florida. He is recognized internationally as an expert in the field of coastal modeling and has established innovative procedures in evaluation of inlet evolution and stability analyses.

Dr. Dabees is recognized internationally as an expert in the field of coastal modeling and has established innovative procedures in evaluation of inlet evolution and beach stability analyses. His contribution to research and development is recognized over the past 25-years through regular participation in reputable international conferences, publications, editorial reviews and collaboration with coastal engineering institutions in North America, Europe, Australia and Japan.

"Humiston & Moore Engineers have had a continuing services contract with DEP for over 20 years. They have provided, borrow area design & permitting, and coastal construction on both sides of the CCCL. They have, in DEP partnership with local governments, designed & permitted major beach restorations, major erosion control structure fields & conducted permit mandated post construction monitoring. They are respected by both DEP & Corps permitting Agencies. They are a high-quality full-service engineering firm; I cannot recommend them more highly."

Marshall W. Flake
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Coastal Project Coordinator & Project Manager
Division of Recreation and Parks
3900 Commonwealth Boulevard, MS 530
Tallahassee, Florida 32399-3000
Off: 850-245-3170 Cell: 850-443-7916
marshall.flake@floridadep.gov

Marc Damon, M.S., P.E.

Senior Coastal Engineer

Marc Damon, M.S., P.E., is a registered professional engineer in the State of Florida with over 19 years of experience in coastal engineering. Mr. Damon obtained his Bachelor of Science and Master's Degree from the Florida Institute of Technology in 2001 and 2003, respectively.

As a coastal engineer with H&M since 2004, Mr. Damon has been involved with beach nourishment design and analysis as well as erosion control studies, design, and permitting. Mr. Damon has a strong mathematical background and excels in numerical modeling, data reduction, and statistical analysis. Mr. Damon has completed advanced training in application of the XBeach model, developed by Deltares (Delft University, Netherlands) with support from the USACE and several other partner organizations to simulate hydrodynamic and morphodynamic processes and impacts on sandy coasts. Mr.

Damon has completed applications of this model along areas of the Florida coastline. Mr. Damon provides input on analysis of background conditions, evaluation of design criteria, and alternatives analysis for coastal project design.

Mr. Damon is knowledgeable in the application of the FEMA Coastal Hazard Analysis Modeling Program (CHAMP). Mr. Damon has been responsible for coordinating numerous applications of the CHAMP model for evaluation of flood zone designations and successfully processing Letters of Map Revision (LOMR) utilizing site specific valuation of the wave model. Mr. Damon has established a strong rapport with the FEMA Contractors for various regions in the processing of the LOMR requests.

Sophia M. Gutierrez, M.S.

Coastal Geologist

Sophia Gutierrez is a coastal geologist with specialties in barrier islands, tidal inlets, beach nourishment and numerical modeling. She obtained her Bachelor of Science and Master's degrees from the University of South Florida in 2022 and 2024, respectively. At Humiston & Moore Engineers, Sophia plays a key role in the research and analysis of barrier island evolution and applying numerical modeling in support of the design and management of chronic erosion problems.

Relevant Publications and References:

Dabees MA, Fleming M and Damon M (2022) Natural and nature-based features for environmental enhancement and coastal storm risk management: a case study on Marco Island, Florida, United States. *Front. Built Environ*. 8:884692. doi: 10.3389/fbuil.2022.884692 https://doi.org/10.3389/fbuil.2022.884692

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Dabees, M. A. (2018). "Hurricane Irma's morphologic response on beaches and tidal inlets in southwest Florida, USA," in Proc. Of the *36th International Conference on Coastal Engineering*, Baltimore, USA, July 30–August 3, 2018. https://icce-ojs-tamu.tdl.org/icce/article/view/8306/7114

Dabees, M. A., and Kraus, N. (2008). "Cumulative effects of channel and ebb shoal dredging on inlet evolution in southwest Florida, USA," in Proceedings of the *31st International Conference on Coastal Engineering*, Hamburg, Germany, August 31–September 5, 2008 (World Scientific), 2303–2315. http://cirp.usace.army.mil/Downloads/PDF/dabees-kraus-ICCE08.pdf

Dabees, M. A., and Moore, B. D. (2014). "Evaluation of beach erosion up-drift of tidal inlets in southwest and central Florida, USA," in Proceedings of *34th Conference on Coastal Engineering*, Seoul, Korea, 2014. https://icce-ojs-tamu.tdl.org/icce/index.php/icce/article/view/7918

Dabees, M. A., and Kraus, N. C. (2004). Evaluation of ebb-tidal shoals as a sand source for beach nourishment: General methodology with reservoir model analysis. Proc. *17th National Conf. on Beach Preservation Technology,* Tallahassee, FL, February, 2004, Tallahassee, FL: CD-ROM, FSBPA, 21 pp. https://cirp.usace.army.mil/Downloads/PDF/dabees-kraus-FSBPA04.pdf

Gutierrez, S., Wang P., Royer E.L, Bishop J., and Dabees M. (2025) Long-Term Performance of Cyclic Beach Nourishment and Roles of Erosional Hotspots. *Journal of Coastal Research*, March 2025. In Press.

March 13, 2025

City of the Isle of Palms
1207 Palm Blvd.
Isle of Palms, SC 29451

Re: RFQ 2025-01 City of Isle of Palms Request for Qualifications for Beach Management – Second Opinion

Dear Selection Committee:

We are happy to submit this qualifications document for the City of Isle of Palms Request for Qualifications for Beach Management – Second Opinion. As a result of our research into the City beaches and supplemental information provided with the request for qualifications, we have a good understanding of the need for this second opinion on the beach management plan produced by Coastal Science and Engineering, and we are well equipped to help you address the complex issues facing your local beaches. The City of Isle of Palms will benefit from our decades of experience protecting and restoring beaches with similar erosion issues across the Southeastern U.S. For over 35 years, we have planned, designed, permitted, and/or monitored more than 50 beach or dune projects. Our extensive coastal experience and expertise, will allow us to provide an efficient analysis and review of your beach conditions and management plan, leading to best-practice management solutions and funding resources that provide cost savings for the City.

Many of our clients experience erosion challenges similar to those faced by the City of the Isle of Palms. We include a description of a feasibility assessment we are completing for Volusia County, Florida, the location of Daytona Beach, which experienced severe and chronic beach erosion exacerbated by recent hurricanes. Taylor Engineering's beach resilience experts recognize that each beach is uniquely situated and has distinct challenges. Our experts will use their expansive knowledge to provide a targeted solution for the specific issues faced by the beaches within the City of Isle of Palms, including long-term solutions and future planning, beach management policies, and emergency protective actions. We can offer the City the benefit of our specialized experience and portfolio of projects ranging from smaller beach management studies such as that at the Town of Narragansett to beach nourishments and large-scale planning for the U.S. Army Corps of Engineers (USACE) like our experience on the South Atlantic Division Sand Availability and Needs Determination Study.

If you have any questions about this submittal, please contact me at (904) 731-7040 or jmarino@taylorengineering.com. We appreciate this opportunity to present our qualifications and look forward to providing the highest quality services to the City of Isle of Palms.

Sincerely,

Christopher J Bender, PhD., P.E., BC.CE
Vice President, Coastal Engineering

Firm Qualifications

Since 1987, Taylor Engineering, Inc. has provided leading-edge solutions to challenges in the water environment. The company focuses its attention on water-related engineering, planning, management, and environmental challenges with an emphasis on coastal regions. The company takes on projects — coastal restoration and management, coastal processes analysis, beach nourishment, coastal structures, ports, harbors and marinas, environmental restoration and management, waterfront access structures, wave and storm-surge modeling, flood control, flood insurance studies, and more — that cover the spectrum of water related issues. Each service shares a common characteristic: it supports projects occurring in the water or at the water's edge.

Key services within our core areas of expertise include:

- Shore Protection and Erosion Control
- Coastal Processes Analysis
- Coastal Hydraulics, Wave, and Beach Modeling
- Beach Nourishment
- Waterfront Recreation Facilities
- Dredging and Dredged Material Management
- Marine Structures
- Geographic Information Systems
- Living Shorelines & Nature-Based Solutions
- Community Resilience and Sea-Level Rise Planning
- Hydrology and Hydraulics Analysis and Modeling
- Flood Control and Floodplain Management
- Water Resources Management
- Environmental Assessment, Planning, Permitting, and Restoration
- Mitigation Design
- Policy, Planning, and Programming
- Construction Phase Services

Our experience highlights include:

- **Specialized Expertise**: Our team comprises licensed and board-certified professionals with specialized skills in coastal engineering, environmental permitting, and regulatory compliance, guaranteeing efficient project execution even in challenging coastal environments. We support continued research and development of coastal solutions through the Taylor Engineering Research Institute (TERI) at the University of North Florida (UNF) and our collaboration with numerous other institutes.
- **Proven Track Record:** Taylor Engineering's portfolio boasts a diverse array of beach projects, each demonstrating our commitment to excellence and sustainability for the communities we serve. These projects have spanned from the Gulf coast, around the tip of Florida, and up the Atlantic Coast to New England. Notably, we hold contracts with the U.S. Army Corps of Engineers (USACE) Philadelphia District to support national Coastal Storm Risk Management and with the USACE Engineer Research and Development Center (ERDC) Coastal Hydraulics Laboratory and through these contracts we have delivered analyses and solutions for regional scale projects that require thinking outside the "sand box". Additionally, we have expertise spanning 2.5 decades at our featured Martin County project.
- **Tailored Outreach:** We prioritize effective public outreach by crafting customized messages that break down complex analyses and issues into clear, accessible information. Our approach ensures that audiences understand these critical, complex coastal topics, foster engagement and informed decision-making. By aligning communication strategies with stakeholder needs, we increase transparency with the community, build trust, and drive positive public response to intricate projects in the coastal environment. Our outreach efforts span a diverse range of clients—from federal agencies like FEMA and USACE to local municipalities at the county and city levels. In our featured projects, outreach has been a key project component leading to success.

Staff and Capabilities

Taylor Engineering is one of the largest Florida-based coastal, marine, and water resources engineering firms, and few, if any, companies can match Taylor Engineering's company-wide focus on coastal and water resource engineering, sciences, and management. Of Taylor Engineering's 68 staff, 46 are engineers, scientists, and geologists; 29 are coastal, ocean, or marine engineers; and 5 are marine biologists, aquatic ecologists, or environmental scientists. In addition, Taylor Engineering's 10 civil, structural, and environmental engineers and geologists specialize in disciplines related to

engineering in the water environment — marine structures, dredging, and hydrology and hydraulics. Thirty-four members of our professional staff hold advanced degrees in engineering or the sciences.

The skills and experience of our team include coastal and environmental engineering and management; coastal and environmental restoration design; environmental sciences and permitting; hydraulic, morphological, and hydrodynamic modeling; coastal, riverine, and estuarine processes; marine engineering; hydrology and hydraulics; structural engineering; civil engineering; and construction administration, observation, and certification. Several senior team members bring additional years of experience working in key coastal and environmental engineering divisions of federal and state agencies. Additional support staff includes AutoCAD technicians, programmers, geographic information systems (GIS) analysts, IT personnel, finance and accounting specialists, and technical editors.

Taylor Engineering also operates a Coastal and Marine Geosciences Laboratory (Coastal-Geo Lab) in Jacksonville, Florida. The main function of the Coastal-Geo Lab is to collect and analyze sediment samples, specifically for the identification of beach-compatible sediments. Through this laboratory, Taylor Engineering oversees the collection, classification, sampling, sieve analysis, data manipulation and interpretation, and reporting of sediment samples for borrow area design, dredging project planning, emergency response, dredged material management area offloading, and coastal nourishment. The lab is accredited through AASHTO and validated by USACE.

Key Personnel

Ms. Laurent, Dr. Bender, Mr. Craig, and Ms. McClain will serve as the project leads to support the City's efforts; we provide a brief introduction to these key personnel and their assigned role below.

Wendy Laurent, P.E. | Project Manager/Coastal Engineering Lead

Ms. Laurent manages and provides support for coastal engineering projects. She works on a variety of projects, including beach nourishment, inlet management, sand source investigations, coastal condition characterization, beneficial use of dredged material and regional sediment management, structure-induced sediment scour, wave mechanics and loading, FEMA flood insurance studies, and natural resource economic benefit studies in addition to public outreach and permitting.

Christopher Bender, Ph.D., P.E., BC.CE | Principal in Charge

Dr. Bender directs the coastal engineering service group at Taylor Engineering. Over his 20-year career, he has taken a leading role in the simulation and evaluation of hurricane surge, wave mechanics and loading, littoral processes, shoreline protection, and sediment transport. He has successfully applied models to analyze coastal processes and develop coastal engineering solutions for beaches and coastal areas for Atlantic and Gulf Coast locations from New England to Texas.

Kenneth Craig, P.E. | Senior Advisor/QA/QC

As senior vice president, Mr. Craig leads the company's dredging and navigation service group. He possesses a unique, experience-based skill set that spans a broad range of coastal zone issues. Mr. Craig provides managerial oversight on many of the company's largest clients and contracts and has decades of practical beach management experience through the permitting, design, and analysis of multiple projects in varied environments. He frequently acts as project liaison to local, state, and federal agencies regarding project-related issues such as design, permitting, and funding options.

Nicole McClain, P.E. | Assistant Project Manager

Ms. McClain provides support for a variety of coastal engineering projects. Her main focuses include data collection and analyses for beach nourishment monitoring, coastal condition characterizations, resilience and adaptation planning, inlet management modeling, and riverine and coastal transition zone modeling.

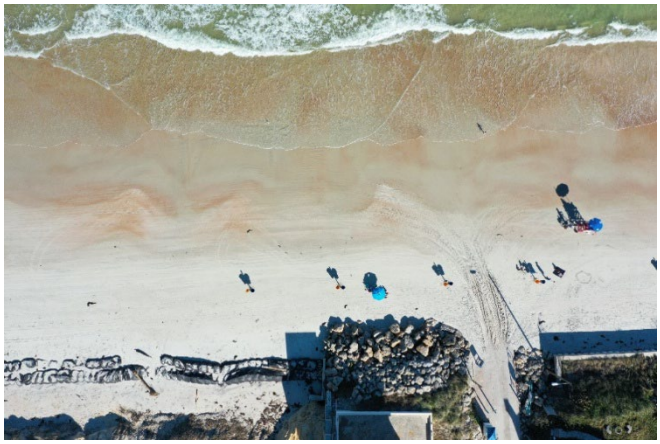
Similar Projects and References

Taylor Engineering's coastal planning, engineering, and modeling experience spans all aspects of erosion protection, beach nourishment, dune restoration, sediment transport systems, and coastal/marine structures. Specifically, we have experience planning, designing, permitting, and/or monitoring more than 50 beach or dune projects. We are confident that the below beach-related projects and client references attest to our commitment to excellence and sustainability for the communities we serve. We encourage the City to contact any of these clients regarding Taylor Engineering's technical strength, client service, and commitment. The four featured projects include the Volusia County Feasibility Assessment, Narragansett Town Beach Carrying Capacity Study, the Sand Availability Needs and Determination Study, and the Martin County Beach Restoration and Resilience Project. The descriptions provided include additional project details and client contact information.

Volusia County Beach Feasibility Assessment | Volusia County, Florida

Jessica Fentress | Coastal Division Director, Dept. of Public Works | 904.248.8072 ext. 20356

Over the past decade, many significant storms have caused severe and chronic beach erosion along the Volusia County shoreline. In 2022, Hurricane Ian caused significant erosion to the Volusia County shoreline as it made its way across Florida. It was quickly followed by Hurricane Nicole, which caused catastrophic beach erosion and property damage to the Volusia County shoreline as it traveled from the Bahamas west toward Florida. To better understand the most vulnerable areas within the County and the actions available to protect these areas, the County requested that Taylor Engineering provide a scope to assess the risk to the County shoreline and evaluate the feasibility of different beach management solutions along their coastline.



Volusia County Shoreline showing multiple shoreline management features following Hurricane Milton in 2024

This project includes a thorough review of the historical shoreline condition and erosion rates over the past decade. In addition to the analysis of historical morphology changes, Taylor Engineering investigated the impacts of sea level rise on the County's shoreline. To accompany this data collection effort, the team compiled a comprehensive catalog of all historical data and reports, making future data requests and assessments simple to complete and allowing for quick geospatial viewing. This information supports the risk assessment, which also includes analysis of the buffer between infrastructure and the ocean and information regarding the infrastructure type and community demographics. The team will then assess the feasibility of ten shoreline management options including structural, non-structural, and natural or nature-based features. At the conclusion of this study, a final report will document the recommended feasible shoreline strategies to revitalize and better manage the County's 37 miles of beach. The recommendations will be provided to the County council for adoption, guiding the future of beach management in each of their communities.

Public outreach is a major component of this scope as the culture and heritage of the Volusia County beaches runs deep, and it is of the utmost importance that the communities have a say in future beach management activities. As of early 2025, the team has conducted its first round of public outreach meetings across the County. At these meetings, we discussed the historical shoreline changes and the initial stages of the risk assessment. We also received feedback from the communities related to their observations of the shoreline and preferred management solutions. Taylor Engineering will coordinate a second round of outreach meetings to discuss the recommended shoreline management strategies and receive feedback before heading to the County council for approval in late 2025.

Narragansett Town Beach Carrying Capacity Study | Narragansett, Rhode Island

Michelle Kershaw | Director, Narragansett Parks and Recreation | 401.782.0606

In 2023, the Town of Narragansett retained Taylor Engineering to complete a multi-parameter carrying capacity study for Narragansett Town Beach to provide recommendations for beach operations and management that will enhance the experience of beach visitors and create a safe and resilient beach. The carrying capacity analysis included a desktop study that reviewed relevant publicly available beach elevation data to analyze beach changes and examine how estimated sea level rise may influence the beach over the next decade. The desktop study also included an analysis of trends associated with water usage and beach pass and attendance data provided by the Town of Narragansett and an analysis of parking availability in the beach lots and nearby pier area.

Narragansett Town Beach Entrance at the South Pavilion

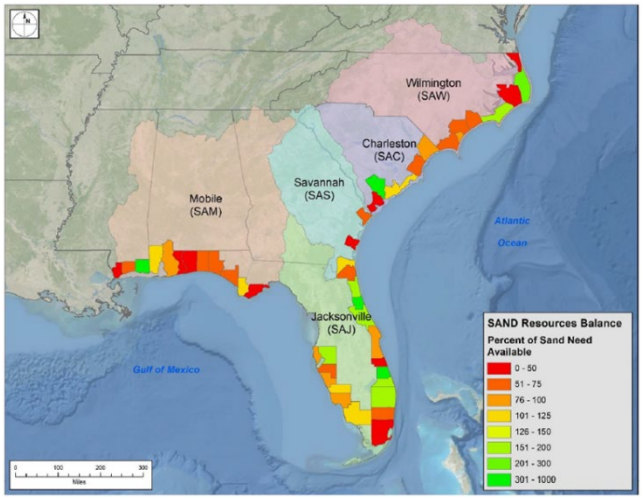
As a part of this study, Taylor Engineering created an online beach user survey with questions for beach visitors regarding their trips to Narragansett and their beach experiences. With assistance from the Town, the online beach user survey received 1,118 responses. We also created an employee experience survey for lifeguards, beach employees, and fire and police personnel to better understand their job requirements and how beach users impact their day-to-day tasks. Taylor Engineering utilized Unmanned Aircraft System (UAS) photos to supplement beach pass data and estimate the number of beach users, the spatial distribution of beach users, and how the usage fluctuates throughout the day.

Following the desktop study and site visits, Taylor Engineering processed all information and data collected to analyze beach use and its effect on the ecological, safety, social, and economic components of the beach. Taylor Engineering analyzed and summarized the concerns of beach personnel and beach users based on the user and employee surveys. The carrying capacity study included an analysis of the available beach width, or the space to recreate, and the historical and potential future beach morphology (shape and structure/erosion and accretion) trends to determine how beach recreation could be impacted. As a component of the study, Taylor Engineering examined survey results and the available data to estimate water and facility usage per beach visitor. As a result of the above summarized multiparameter carrying capacity study, Taylor Engineering provided the Town of Narragansett recommendations for beach operations and management based on existing and future beach conditions and management strategies implemented elsewhere throughout the United States.

Sand Availability and Needs Determination (SAND) Study | USACE South Atlantic Division (SAD) - North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Puerto Rico, U.S. Virgin Islands

Clay McCoy | USACE Jacksonville Project Manager | 904.232.3657

Rising sea levels and an increased frequency in higher intensity storms are a threat to natural resources and infrastructure in the coastal environment. In this context, the federal government undertook the South Atlantic Coastal Study (SACS) to proactively examine ways to enhance coastal resilience. The Sand Availability and Needs Determination (SAND) study quantified sand needs and available sand resources for all current beach nourishment projects, both federal and non-federal, in the South Atlantic Division (SAD) of the U.S. Army Corps of Engineers (USACE) for the next 50 years.



SAND study results illustrating the 50-year beach quality sand availability

The SAND study undertook a collaborative approach, engaging 12 federal and state agencies led by technical experts from all five SAD districts and Taylor Engineering. The study engaged stakeholders, state and federal agencies, and coastal communities throughout the life of the study to receive input, promote transparency, vet results, disseminate findings, and build consensus. Engagement opportunities included a project introduction webinar, multiple status update webinars, and district workshops at all five SAD districts to present preliminary data results and solicit final input. The final deliverables were a publicly available online geodatabase and report summarizing this information.

The project team quantified sand needs for all beach nourishment projects and available sand resources (e.g., offshore, RSM, and/or upland sources) by County. Regionally, a total of 1,336,000,000 cubic yards of sand are needed to support the 50-year sand needs, and 1,566,000,000 cubic yards of sand resources were identified. While regional sand resources are greater than documented sand needs as of today, economically viable long-term sources are limited in many areas across the region. Sand shortages are documented in numerous counties of every state in SAD and municipalities in Puerto Rico.

Martin County Beach Restoration and Resilience | Martin County, Florida

Jessica Garland | Martin County Coastal Program Manager | 772.288.5795

In 2000, Martin County retained Taylor Engineering as its coastal engineering consultant for assistance with nourishment of the federal Martin County Shore Protection Project (SPP) on Hutchinson Island. In addition to assisting in the 2000 nourishment (constructed in 2001/2002), Taylor Engineering has since worked with the County to resolve a variety of coastal issues related to beach nourishment, shore protection, post-storm assessments, offshore borrow areas, and resilience with nourishments in 2004, 2013, and 2018.

These projects have required Taylor Engineering to work with both state and federal officials to assess coastal processes within the project area and the immediate vicinity; modify the federal beach design; define the sand source; reach local, state, and federal governmental consensus on responsibilities, funding, and cost-sharing levels; and minimize environmental effects, including possible damage to the nearby sensitive hardbottom. Additional project elements included borrow area design, project design, construction observation, contract administration, and permit compliance, including turbidity and post-construction monitoring.

Martin County SPP pre- and post-nourishment in 2018

To date, Taylor Engineering continues to provide design, permitting, construction observation, and monitoring of the beach fill performance and coordination for future nourishment of the SPP with the County and regulatory agencies. Recognizing that engineered beach and dune systems protect the coastal community and provide recreation and environmental enhancements that yield a positive economic impact, in 2021, Martin County contracted Taylor Engineering to investigate options to modify the project design in the future to increase the performance of the beach fill and enhance resilience along this section of Hutchinson Island. Phase one of this project found that the most viable option includes increasing the elevation of the beach berm to account for sea level rise—this is feasible due to the project's 1994 General Design Memorandum delineating project elevations on a tidal datum. Taylor Engineering is currently working with the County and regulatory agencies to update the beach template and extend the project to add in a local project option that will "close the gap" and provide continuous shore protection connecting four projects and stretching 10 miles.

March 12, 2025

Douglas Kerr, Deputy City Administrator
City of Isle of Palms
P.O. Drawer 508
Isle of Palms, SC 29451

Subject: Request for Qualifications (RFQ 2025-01) for Beach Management – Second Opinion

Dear Mr. Kerr and Evaluation Committee:

Coastal Protection Engineering LLC (CPE) welcomes the opportunity to submit our credentials for the subject Request for Qualifications (RFQ). CPE is a coastal services firm specializing in beach and inlet management. We were founded by established industry leading professionals with a deliberate focus on providing local government clients with highly specialized coastal engineering services to support projects that restore, manage, and protect coastal resources and infrastructure in a sustainable and resilient manner.

As seasoned coastal professionals, our team of engineers and coastal scientists has designed, permitted, administered construction, monitored, and managed coastal projects of all sizes. We have worked extensively throughout the Carolina's, along Florida's East and Gulf Coast, and in Massachusetts, New York, and Viriginia. Our team has partnered with coastal communities facing many of the same challenges that Isle of Palms faces. Dozens of local government coastal clients have relied on CPE to manage their long-term coastal protection and inlet management programs, and our success is highlighted by a sizeable portfolio of long-time repeat coastal clients.

While CPE maintains an excellent reputation with our clients, our team is also widely recognized throughout the coastal engineering industry. Our team members have been acknowledged by various state and national organizations such as the American Shore and Beach Preservation Association (ASBPA), North Carolina Beach, Inlet, and Waterways Association (NCBIWA), and Florida Shore and Beach Preservation Association (FSBPA) for their significant contributions to coastal science and engineering. CPE is frequently sought out to provide independent third-party reviews of studies conducted by other professional firms, reinforcing our reputation for technical excellence and objective unbiased analysis.

Our deliberate focus on locally managed beach and inlet management programs makes us an ideal candidate to provide the services sought by Isle of Palms. As detailed in our submittal, our team has extensive experience with beach management programs that include major inlet management components. Even more relevant to this RFQ, is CPE's ongoing work assisting property owners at the south end of Isle of Palms with a study of Breach Inlet. We are analyzing the coastal processes driving dynamic shoreline changes in this coastal segment.

In addition to this cover letter, please find attached the information requested which includes a description of our firm's qualifications, a list and summary of expertise for the key personnel to be used for this project, and examples of similar projects with references.

We are confident that our enclosed response meets or exceeds all the requirements of this RFQ and highlights CPE's commitment and capability to achieve your project needs and objectives.

Sincerely,

Ken Willson
Managing Partner
Coastal Protection Engineering LLC.
4038 Masonboro Loop Rd.
Wilmington, NC, 28409
kwillson@coastalprotectioneng.com |910-399-1905

Description of CPE Qualifications

CPE has carefully reviewed your Request for Qualifications, the Beach Preservation Ad Hoc Committee Report and other relevant program history materials. The scope of work outlined in the RFQ indicates that the selected firm will be responsible for reviewing a range of technical reports, beach management plans, previous and planned beach management efforts, the City's regulations regarding erosion control structures, and publicly available data to develop a comprehensive understanding of erosional and accretional trends. Based on this review, the selected firm will prepare a written report for the City of Isle of Palms and present their findings, including evaluations of past plans and studies, and recommendations for future solutions and alternatives to help achieve the City's beach management goals.

We are confident that our qualifications align with the specific needs of the City, outlined in the subject RFQ. To illustrate this point, we have focused our response to highlight four primary aspects of our firm that we believe make us the ideal partner to provide the City with an objective, second opinion.

- Deliberately established to provide coastal communities with comprehensive beach and inlet management services
- Proven experience designing, permitting, and managing beach projects influenced by tidal inlets
- Specific experience studying and evaluating beach erosion issues related to Breach Inlet
- Highly respected within the coastal engineering industry, with a well-established history of conducting independent third-party reviews and providing professional evaluations of work performed by other coastal engineering firms

CPE was founded by industry-leading coastal professionals with extensive experience in managing coastal programs and a strong focus on providing specialized consulting services for beach and inlet management projects to local governments. Our team has been serving coastal communities along the U.S. East and Gulf Coasts for decades, with many of our senior staff working together for over 20 years on projects similar to those in Isle of Palms. We are well-versed in the City's program, including past studies, actions, monitoring, and planned initiatives, and are confident that our depth of experience with similar projects in the region will bring significant value to the City.

CPE has extensive experience in designing and implementing inlet management projects. Our team has managed over 30 projects addressing inlet-induced erosion. Our firm's core competencies include the evaluation of inlet hydrodynamics, sediment budgets and transport patterns, and navigational alternatives to identify the most effective management actions while conserving valuable sand resources. We design projects for inlet maintenance, beach nourishment, structural stabilization, dune construction, or a combination of any or all these components. Additionally, we offer a distinct advantage in state-of-the-art numerical modeling experience, applying advanced modeling techniques to plan and design bypassing and shoal dredging, channel configurations, and coastal structures projects. Our approach is firmly rooted in fundamental coastal processes, relying on established theories, monitoring data, and sound engineering judgment to ensure reliable and effective coastal projects.

While CPE's extensive experience with tidal inlets and inlet-induced erosion is a key differentiator, we offer an even greater advantage through our direct and ongoing work at Breach Inlet — giving us unmatched local knowledge of the specific coastal dynamics affecting Isle of Palms. In early 2024, local property owners engaged CPE to discuss their concerns about persistent erosion along the south end of the island. Since then, we have completed two in-depth site visits, collaborated closely with experts to develop a qualitative coastal process analysis, and recently received authorization to advance a formal study. We are now actively analyzing

publicly available data to better understand the site-specific factors contributing to recent erosion near Breach Inlet.

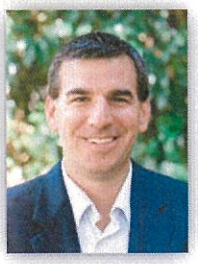
This firsthand knowledge and ongoing involvement uniquely position us ahead of any other firm responding to this RFQ. Our familiarity with Isle of Palms and Breach Inlet, combined with our review of recent studies, surveys, and the City's beach and inlet management plans, will allow us to accelerate project initiation and deliver timely, well-informed recommendations tailored to local conditions.

A strong indicator of our qualifications to conduct the type of specialized services sought by the City is the number of local government clients who have relied on our staff for decades to partner with their communities to solve complex coastal challenges. Our team is also seen as industry leaders by our peers throughout the niche industry of coastal engineering. Our reputable engineers and scientists have received numerous awards from both State and National Coastal Industry groups. Furthermore, our team is regularly sought out as a teaming partner by other engineering firms because of our honesty, integrity, and relevant coastal engineering experience. On multiple occasions, we have been asked to provide third party opinions on other professional engineers' work. We take this very seriously and follow ethical standards for notifying these other engineers of our charge and providing them with the opportunity to offer additional context/information that may not be included in publicly available documents. This not only serves to uphold ethical engineering standards and professional respect but also closes the gap in potential rebuttals that could come as a result of not having considered the whole picture.

Key Personnel

Our team is a highly skilled, close-knit group of professionals who have worked together across disciplines to meet the needs of dozens of coastal communities. We are united by a strong commitment to our clients and an unwavering focus on technical excellence, value, and the consistent delivery of high-quality work products. Organized as a passionate and dedicated team of coastal engineers, numerical modelers, marine biologists, coastal geologists, and technical specialists, we bring a comprehensive and collaborative approach to every project. Importantly, our firm's exclusive focus on coastal projects ensures that each member of our multidisciplinary team has direct, hands-on experience with the types of projects and services the City requires. Our integrated approach, combining multiple scientific and technical disciplines, has allowed us to deliver exceptional value to our clients and successfully navigate some of the most complex coastal management challenges.

Based on our understanding of your program and the services listed in the RFQ, we offer an interdisciplinary team with the relevant beach and inlet management experience needed to effectively evaluate the data and related project information to provide an informed and honest second opinion. Below, we have outlined the experience of five key team members who are expected to play a central role in the work described in the RFQ.



Ken Willson – Senior Program Manager

Mr. Willson is a senior program manager and has assisted coastal clients throughout the southeastern U.S. for over 20 years. Mr. Willson has managed a significant number of large-scale beach and inlet management programs including inlet realignment projects, large scale city-wide beach nourishment programs and multi-town cooperative beach nourishment programs. He has led interdisciplinary teams of engineers, scientists, modelers, and other professional staff through concept development, design, permitting, construction, monitoring, and project performance analysis for a wide variety of beach and inlet management projects. His broad knowledge base of coastal geology, engineering, environmental science, policy, and finance has allowed him to effectively manage and

communicate information to diverse groups of stakeholders. Mr. Willson serves on the Executive Committee of the Boards of Directors of the American Shore and Beach Preservation Association (ASBPA) and the North Carolina Beach, Inlet, and Waterways Association advocating for funding and policy changes at the State and federal level.

Tara Marden - Senior Coastal Geologist

Ms. Marden brings nearly 30 years of expertise in coastal geology and engineering to the project. She has successfully led dozens of beach management and tidal inlet initiatives and has established many successful public-private partnerships for regional dredging and beach nourishment programs benefiting both municipalities and private homeowners. Ms. Marden collaborates closely with clients, environmental regulators, and contractors to ensure smooth project execution from site assessment through construction. With over 100 successfully managed projects, she has extensive experience in coastal engineering, resilience, regulatory permitting at local, state, and federal levels, project management, and financing. Ms. Marden is currently managing CPE's work at Breach Inlet and managed a high-profile 160-year-old boundary dispute on the Belle Baruch Foundation property in Georgetown County, SC. She coordinated experts and worked with legal teams to assess the effects of inlet migration on property boundaries. Her testimony provided vital data on shoreline change, tidal inlet migration and sediment deposition, playing a key role in the legal proceedings.

Lindino Benedet, Ph. D – Principal Coastal Scientist

Dr. Benedet is a coastal scientist specializing in numerical modeling with over 25 years of professional experience. He was one of the first coastal scientists to utilize the advanced numerical model Delft3D to support the evaluation and design of coastal projects and has participated in dozens of numerical modeling studies globally with his unique qualifications. His expertise includes process-based numerical modeling of coastal processes, coastal sediment transport, hydrology and water quality, meteorological and oceanographic measurements, vulnerability analysis and evaluation of flood mitigation/SLR adaptation strategies, dredging, beach nourishment, and marsh restoration.

Thomas Pierro, PE, BC.CE – Principal Coastal Engineer

Since 2001, Mr. Pierro has designed, permitted, and supervised construction of numerous beach nourishment and coastal structure projects throughout the Eastern U.S. with a focus on inlet management. He excels at representing the local sponsor and coordinating with state and federal agencies for construction of both non-federal and federal projects. As Principal Engineer for CPE, he directs complex analysis of beach/inlet processes, designs programs that control high erosion near coastal inlets, and promotes forward thinking throughout his team to support sustainable coastal programs. Mr. Pierro is a Board-Certified Coastal Engineer (BC.CE) by the American Society of Civil Engineers and recipient of the distinguished FSBPA Engineering Award for outstanding contributions to field of coastal engineering.

Brad Rosov – Senior Marine Biologist / Permitting Specialist

Mr. Rosov is a Senior Marine Biologist and Permitting Specialist who brings over 20 years of environmental permitting, documentation, and coastal fieldwork experience to the team. Throughout his career, Mr. Rosov has worked to permit dozens of large scale beach nourishment and other coastal shore protection projects, including those contending with tidal inlet-related issues. His understanding of environmental policy, coastal/marine biology, and the federal and state-level regulatory framework has aided our team with the design of

environmentally viable solutions and the efficient permitting of a wide array of projects.

Examples of Similar Projects and References

As a specialized coastal engineering firm with core competencies focused on beach and inlet management programs, nearly all of our project experience aligns directly with the scope of your solicitation. Over the last 25 years, our team has designed, permitted, and implemented dozens of projects that included tidal inlet channel realignment, terminal groins, beach nourishment, and beneficial use placement of dredge material. Below, we highlight three (3) projects that are most relevant to this RFQ. Each project includes a reference, and we encourage the City to contact them to hear firsthand about our expertise, responsiveness, and commitment to delivering effective coastal solutions.

Ocean Isle Beach Shoreline and Inlet Management Plan, NC:

CPE has been providing comprehensive coastal engineering services to the Town of Ocean Isle Beach for over 14 years. This work began as a feasibility study in 2011 to evaluate various strategies for managing high erosion rates along the east end of the Island associated with Shallotte Inlet. Ultimately the recommendation was to construct a terminal groin and beach fill to stabilize the east end. CPE managed the design, environmental permitting and ultimately the construction of the terminal groin project, which was completed in 2022. Over the past 14 years, the Town also relied on CPE to develop a comprehensive Shoreline Management Plan that serves as an adaptable 30-year plan for the comprehensive management of the Town's oceanfront. Since 2017, we have monitored the beaches and provided annual updates on the health of the beach and the performance of the projects implemented along the Town's ocean and inlet shores. Most recently, our team was hired by the Town to design, permit, and implement a dune project along the easternmost portion of the island to reduce the risk of storm damage and flooding. *REFERENCE: Mayor Debbie S. Smith – Phone: 910-443-4801; Email: mayor@oibgov.com*

Manatee County Comprehensive Coastal Program, FL: Our team has been providing coastal engineering services to Manatee County for nearly 20 years in support of their highly successful coastal management program. Our engineers and biologists have assisted the County with feasibility studies and coastal engineering design, numerical modeling support, permitting, agency coordination, construction services, hardbottom monitoring, mitigation planning, beach profile monitoring, funding assistance, and public outreach. Our team has designed beach nourishment, and coastal structure projects for protection of the County's eroded shoreline on Anna Maria Island and has developed Inlet Management Studies for Passage Key Inlet and Longboat Pass located north and south of the island, respectively.

In 2023, CPE completed the Inlet Management Study for Passage Key Inlet, which is the primary sand source for the Anna Maria Island beach nourishment program. The inlet is a sediment "sink" as evidenced by the large ebb shoal resulting from sediments flowing to the inlet complex from both the north and south. The inlet's ebb shoal complex was initially dredged in 2002 for the initial nourishment of the federally authorized Manatee County Shore Protection Project (SPP) on Anna Maria Island and has been periodically dredged as a sand source for beach nourishment projects on Anna Maria Island and Longboat Key.

The repeated use of the ebb shoal as a sand source has necessitated the need for an inlet management study to evaluate the impacts of dredging the shoal and the continued use of the shoal as sustainable sediment source for future beach nourishment projects within the region.

CPE developed a sediment budget for Passage Key and adjacent beaches, which provided a better understanding of the coastal dynamics of the Passage Key inlet system and adjacent beaches. We employed aerial imagery, available metoceanographic and topo-bathymetric data, and numerical modeling. The study utilized the sediment budget and numerical modeling to define and examine borrow area alternatives in Passage Key Inlet with the objective of balancing the sediment budget between the inlet and adjacent beaches; and to analyze each strategy for potential impacts to the inlet, adjacent shorelines and overall coastal system with respect to waves, currents, sediment transport, and morphological changes. *REFERENCES: Charlie Hunsicker – Phone: 941-742-5923; Email: Charlie.hunsicker@mymanatee.org*

Shoreline and Volume Change Analysis and Technical Support – Caswell Beach, NC: Caswell Beach is located in Brunswick County, approximately 27 miles from the North Carolina/South Carolina border. The Town is part of a federal sand management program that dredges sand from the Wilmington Harbor Navigation Channel and places material along the coastal communities on either side of the shipping channel. Caswell Beach is located on the western shoulder of the mouth of the Cape Fear River. The federal shipping channel running through the mouth of the large inlet is dredged approximately every 2 years. Caswell Beach and its neighbor to the west (The Town of Oak Island), collectively receive approximately 1/3 of the material dredged from the channel. The Village of Bald Head Island gets the other 2/3 of the sand. The sand management plan calls for the Village of Bald Head Island to receive sand in Year 2 and Year 4 of a 6-year cycle, and for Caswell Beach/Oak Island to receive sand in Year 6.

In addition to the federal navigation projects, the adjacent communities of Oak Island and the Village of Bald Head Island, are competing for sand resources encompassed in a large shoal known as Jay Bird Shoals that lies directly offshore of Caswell Beach. While the sand that Caswell Beach receives from the federal navigation project is sufficient to mitigate long-term erosion along its oceanfront, the Town has an interest in ensuring that actions taken by the adjacent Towns or the USACE do not negatively impact the Towns beaches.

Since 2017, our team has provided the Town of Caswell Beach with professional services associated with ensuring the various adjacent projects do not adversely impact their beaches. Over that time, our staff have coordinated extensively, on behalf of the Town, with the US Army Corps of Engineers, the NC Division of Coastal Management, the adjacent Towns and their respective coastal engineers. This work has included the review of technical documents developed by the US Army Corps of Engineers, monitoring and numerical modeling studies prepared by the adjacent Towns' coastal engineers, and permit applications for various proposed actions. Starting in 2020, our team began conducting an annual assessment of shoreline and volume changes occurring along the Towns beaches to evaluate whether actions taken by adjacent communities were adversely impacting Caswell Beach. *REFERENCE: Joseph Pierce – Town Manager – Phone: 910-278-5471; Email: jpierce@caswellbeach.org*