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<th>EVALUATION CRITERIA - PROJECT SPECIFIC CRITERIA</th>
<th>Coastal Systems International, Inc. 464 South Dixie Highway Coral Gables, FL 33146</th>
<th>Gahagan &amp; Bryant, Inc. 7501 NW 4th Street, Suite 208 Plantation, FL 33317</th>
<th>Olsen Associates, Inc. 2618 Herschel Street Jacksonville, FL 32204</th>
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| 1. Ability of Firm and Professional Personnel: Max Total – 30 Points | Coastal Systems International, Inc. (Coastal Systems) has an established reputation for planning effective strategies and delivering complex solutions for projects in coastal and other waterfront environments. For over 20 years, Coastal Systems has helped clients realize their vision by engineering cost-effective solutions in the design of marinas, beaches, coastal structures, environmental and public space enhancements, and other specialized projects. We have amassed significant experience in completing projects with unique designs and requiring construction under challenging conditions. From initial field investigations in hydrographic surveying and marine resource assessments through environmental impact assessment, regulatory permitting, design and construction, we provide clients with a field-to-finish solution.

Our team is dedicated to serving clients with a multi-disciplined approach, while ensuring diligent and personalized service. The firm is uniquely organized with field investigation, engineering and environmental/permitting teams to provide all of the technical elements required for coastal and waterfront project implementation.

Coastal Systems provides a full array of services to supplement beach nourishment projects including beach profiling/hydrographic surveys, environmental assessments and mitigation design, and construction administration. Our project experience also includes mitigation projects such as the design and creation of wetlands and mangrove planters, the filling of dredged depressions, and the creation and monitoring of artificial reefs. The following conveys our capabilities:
- Analysis of Historic Erosion/Accretion
- Regional Sediment Budgets
- Mathematical and Numerical Simulations
- Design of Erosion Control Structures
- Funding Procurement

The GBA Team is comprised of Gahagan & Bryant Associates, Inc. (GBA); Moffatt & Nichol, Inc. (M&N); W.F. Baird & Associates, Ltd. (Baird); and CSA Ocean Sciences, Inc. (CSA). Together, we have the technical expertise, equipment, and staff to address all aspects of the Broward County Segment III Shore Protection Project. GBA will lead the team through all phases of this contract, including Phase I – Engineering, Design, and Permitting; Phase II – Pre-construction Services; Phase III – Construction Services; and Phase IV – Post-construction Services.

GBA was founded in 1974 and specializes in providing coastal consulting and engineering services for a variety of projects, including beach nourishment, shoreline stabilization, inlet management, sand bypassing, maritime navigation improvements and dredging, port development, coastal habitat restoration and mitigation, and coastal construction services. Our services, from concept to completion, include surveying (biological and physical), geotechnical investigations, met-ocean and coastal processes analyses, sediment budget and transport analyses, project feasibility studies and cost estimation, conceptual and long-term sustainability design, coastal resiliency planning and implementation, permit processing, grant application processing, state and federal funding procurement assistance, preparation of construction plans and specifications, construction inspection, post-construction monitoring, independent technical review, and more. GBA’s dedicated soils laboratory, based in Tampa, Florida, is mobile and our private fleet of hydrographic survey vessels allows us to streamline our field investigations during and after the design and construction process.

GBA has provided coastal engineering services for numerous unique coastal projects. Our services include conceptual feasibility design, funding procurement, preparation of construction documents and specifications, permit processing, grant application processing, state and federal funding procurement assistance, preparation of construction plans and specifications, construction inspection, post-construction monitoring, independent technical review, and more. GBA’s dedicated soils laboratory, based in Tampa, Florida, is mobile and our private fleet of hydrographic survey vessels allows us to streamline our field investigations during and after the design and construction process.

In the last 35 years, OAI engineers have designed, permitted, and constructed over 110 separate Federal and non-federal 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. More than two dozen of the beach fill projects in Florida, the Bahamas and the Caribbean have been located adjacent to hardbottom resources. In this same period, the firm also has been responsible for the construction of over 60 structural stabilization projects, including the implementation of seawalls, revetments, and bulkheads as well as shore-stabilizing groins and breakwaters of various sizes and configurations. These include structures built of rock, concrete, steel and vinyl sheetpiles, and sand-filled geotextile structures.

OAI has the requisite experience, expertise, and resources to assist Broward County in the planning, design, permitting, and implementation of the next phase of the Segment III beach restoration project. Olsen Associates, Inc. is particularly well qualified to assist Broward County with this project due to our experience and successful implementation of similar projects in Broward County over the past 20 years.
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- Environmental Impact Analysis
- Local, State and Federal Permitting
- Hydrographic and Bathymetric Surveys

Coastal Systems has extensive experience in obtaining Joint Coastal Permits (JCP) from the Department of Environmental Protection (FDEP) in South Florida. Refer to pages 9 – 11 for more detail.

long-term sustainability design, final design, plans and specifications, cost estimation, independent technical review, construction management, and post-construction monitoring. GBA also regularly provides services to coordinate construction and negotiate cost-sharing between local, state, and federal stakeholders to ensure maximum project success. Our team has direct experience in working with the USACE on federal projects. We have supported and/or performed elements of Feasibility Studies, Assumption of Maintenance (AOM) reports, the authorization process, negotiation of Project Participation Agreements (PPAs) and Memorandums of Agreement (MOAs), as well as the Section 10 and Section 404 permitting processes. We are very familiar with structure of the USACE from the district level through the division level, headquarters, and the Office of the Assistant Secretary of the Army (ASA), with extensive relationships throughout. Other coastal engineering services provided to municipal clients include:

- Beach Program Management including beach management planning, beach nourishment design, dune restoration, beach profile monitoring, offshore borrow source investigation, inlet stabilization, regional sediment management, and coastal resiliency
- Geotechnical investigations and engineering including vibrocores; rotary drilling/SPT; probing; grain size, carbonate, and organics analyses; and Munsell color
- Biological assessments to include hardbottom surveys, biological monitoring, endangered species assessments, sea turtle nesting surveys, and mangrove assessments
- Dredging engineering including design of new dredging and maintenance dredging of channels, boat slips, and ship berths

Since its establishment in 1982, OAI has been widely regarded for completing challenging coastal projects and introducing innovative and successful solutions to coastal engineering practice. Included among those innovative solutions are the first full-scale use of imported aragonite sand for beach nourishment in the United States, the unique application of both “leaky” and “tuned” coastal structures for shoreline stabilization, the design of complex marine structures, comprehensive planning and implementation of measures to minimize sand losses to ocean inlets, mathematical modeling of shoreline changes and storm protection for oceanfront development, analysis of set-back policies for oceanfront development, and the world’s first large-scale structural rehabilitation of coral reefs damaged by vessel groundings in southeast Florida. The firm is known for its diversity of projects within classical coastal engineering – ranging from large-scale beach restoration for municipal clients to “boutique” beach creation for international resorts. Structural projects include a broad range of examples along many of the world’s temperate shorelines, such as piers, artificial reefs, aquaria intakes, seawalls & revetments, marinas, etcetera.

With a focus on coastal engineering practice, OAI includes the following specialty areas:

- coastal engineering, including beach and dune restoration;
- offshore and upland sand source investigations and borrow area development;
- studies of waves and currents, coastal morphology, estuary hydraulics, sand & beach erosion, including mathematical [numerical] modeling;
- beach management planning, including Federal project planning, and the preparation of Federal and non-federal project planning documents;
- environmental permit acquisition;
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|---|---|---|---|
| • Habitat restoration including beneficial reuse of dredged material, wetland creation, and dune enhancement  
Refer to pages 10-15 for specific detailed experience. | • project funding grant applications;  
• post-storm project response and funding assistance (FEMA, FL DEM, USACE);  
• design and implementation of coastal structures including jetties, groins, breakwaters, revetments, and seawalls;  
• inlet, navigation & dredging projects;  
• marinas, boat ramps, navigation aids, docks, piers, and other aspects of boating and recreation;  
• reef restoration, hardbottom mitigation and mitigation artificial reef design and construction;  
• setbacks, siting, waterfront facilities and resort planning/development;  
• peer review; and  
• expert witness testimony. |

The firm employs nine full-time coastal engineers, of whom seven are licensed Professional Engineers, and two of whom hold earned doctoral degrees from the University of Florida in coastal & oceanographic engineering. The firm likewise employs full-time drafting and office administration staff and maintains a group of field inspectors to provide construction observation services for the firm. The firm’s senior staff each has anywhere from 19 to 40+ years of practice in the discipline, and the firm as a whole has over 145 years of combined coastal engineering experience. The staff shares assignments such that each engineer is introduced to, and ultimately experienced in, all aspects of coastal engineering practice. The firm does not seek or conduct assignments in other aspects of engineering, nor does its staff conduct biological studies, topo/hydrographic surveys, or similar tasks, except as incidental to its fundamental engineering requirements. Instead, the firm relies upon a “team approach” by which it works with, or subcontracts, like-minded professionals and firms that specialize in those disciplines required to complement the coastal engineering aspects of a project. OAI
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### 1. Ability of Firm and Professional Personnel:

**b. Describe the qualifications and relevant experience of the Prime Vendor's Project Manager(s), all key staff and subconsultants' key staff that are most likely to be assigned to the Project; include résumés for all key staff listed; and provide an organizational chart for the members of the Prime Vendor's proposed team.**

**Points Value: 10**

**Project Manager/Principal-in-Charge = R. Harvey Sasso, PE**

As the Principal-In-Charge, Mr. Sasso is responsible for providing overall management, direction and coordination to the engineering team for professional services related to all projects undertaken by Coastal Systems. In this capacity, he determines time schedules; allocates resources; directs joint ventures, sub-consultants and team members in performing field investigations and technical evaluations; and directs the development and evaluates the feasibility of design alternatives.

Mr. Sasso has over 30 years experience as a professional coastal engineer, having worked on numerous projects in Florida, the Caribbean, and Europe. He has been involved in all aspects of coastal/marine projects, including project design, engineering analysis, environmental permitting, and the legal, political and managerial elements of project implementation.

He has a reputation for providing a business approach to engineering having planned, designed and implemented numerous coastal/waterfront development projects. Mr. Sasso pioneered a regional approach to coastal sediment budget from Hillsboro Inlet in Broward County to Government Cut in Dade County. This sediment study encompassed 35 miles of shoreline, two counties, four inlets, one taxing district and ten municipalities.

**Engineering Department Head = Andres Perez, PE**

**Project Manager = Penny L. Cutt**

Ms. Cutt has 22 years of experience in the field of environmental monitoring, assessment, planning and regulatory permitting in southeast Florida. Prior to joining the private sector in 2007, she worked as a regulator at the local, state and federal levels. She recently opened GBA’s Broward County office to better serve clients in this region. She is able to quickly evaluate complex scientific information and communicate it to lay leaders for decision-making purposes. Ms. Cutt has a proven track record negotiating complex technical issues, particularly with regard to aquatic and coastal ecosystems, with a variety of interest groups.

Ms. Cutt very effectively and equitably applies scientific, regulatory, and financial judgment when evaluating complex scientific and technical information and issues. She also effectively manages workflow and product delivery and accurately identifies key issues and project needs to achieve environmentally sustainable ecosystem solutions. Ms. Cutt has served on the Broward County Marine Advisory Committee for the past 7 years and was recently appointed to the Broward County Climate Change Task Force. The GBA Team will be led by Ms. Cutt, who is located just 7 miles from the Broward County Government Center. She will be responsible for assigning tasks to the appropriate team members and monitoring the progress of all task assignments through regularly scheduled team meetings. Ms. Cutt will ensure that all project activities and tasks are completed in a timely and efficient manner, working with Broward County to immediately address any issues or needs.

**Project Manager = Christopher G. Creed, PE, D.CE**

Christopher G. Creed, P.E., D. CE, will serve as project manager and point-of-contact for tasks assigned to OAI for the Broward County projects. Mr. Creed is a Vice President of Olsen Associates, Inc. He has been with this firm since 1992 and has over 25 years of extensive professional experience related to the planning, design, permitting and implementation of Federal and non-federal beach/dune restoration and inlet management projects in Florida and other areas of the southeastern US, the Caribbean, and Mexico. For the better part of the past 20 years, Mr. Creed has worked extensively with Broward County, and served as the Engineer or Record, to plan and implement renourishment events along Segments II and III and the Port Everglades Inlet Sand Bypass Project. His particular expertise is related to large, comprehensive Federal and non-federal beach and dune restoration projects including the Broward County Federal Shore Protection Project. His recent experience includes project manager, technical lead and Engineer-of-Record for the Broward County Federal Shore Protection Project - Segments II and III and the Town of Hilton Head Island comprehensive beach management program and 2016 Islandwide Beach Restoration Project. Through these experiences, Mr. Creed brings broad experience and expertise related comprehensive beach restoration planning and implementation as well as USACE Civil Works planning, funding, and project implementation. His experience and expertise with the latter
Mr. Perez has over 17 years of civil engineering experience in Florida. He has completed the planning, design and construction administration for site/civil projects including parks, streetscape, and Right-of-Way. He has also completed designs for private site developments such as hotels, condominiums, parking lots/garages, commercial properties and dry stack marinas. These projects have required the design of stormwater management systems consisting of retention areas, drainage wells, exfiltration trenches, and outfalls. These projects have also required the design of water and sanitary sewer services.

His site/civil design experience in Florida includes the permitting of projects through agencies such as the Florida Department of Environmental Protection (DEP), South Florida Water Management District, and Florida Department of Transportation. He has processed stormwater management designs through these agencies to obtain Environmental Resource Permits (ERP), and he has demonstrated experience with projects adjacent to the coast and/or waterfront. These projects have required extensive coordination with diverse project teams to design projects that meet the development programming goals for both public and private sector clients, but that also meet the stringent regulatory permitting criteria to manage surface water runoff.

**Director = Danielle H. Irwin**

Ms. Irwin has over 15 years of experience in the field of water resource management including environmental monitoring, assessment, planning and regulatory permitting in the State of Florida. She is able to quickly evaluate complex scientific information and communicate it to the public and elected officials for decision-making purposes. Ms. Irwin has a proven track record negotiating terms from authoring several USACE planning and project funding documents for the non-Federal local sponsor of Federal project that included General Design Memorandums (GDM), General Reevaluation Reports (GRR), Limited Reevaluation Reports (LLR), and Project Partnership Agreements (PPA). Mr. Creed also has extensive proven experience with leading and conducting offshore sand search investigations and delineating and successfully permitting offshore and upland borrow areas that have ultimately been permitted from use for beach restoration.

Mr. Creed has worked with local governments to pursue both Federal and State funding assistance for projects and recently led a critical review of the Florida Department of Environmental Protection (FDEP) ranking process for State cost-share funding for inlets. His work contributed to proposed changes to Statute and Rule that govern the state’s beach and inlet funding assistance program. Mr. Creed works from the OAI office in Jacksonville, FL but travels frequently to southeast Florida to support those projects where he serves as project manager.

**Advisor/Staff Liaison/Engineering Task Lead = Dr. Kevin R. Bodge, PE, D.CE, D.PE**

Dr. Kevin R. Bodge, P.E., D.CE, D.PE is a Senior Vice President of Olsen Associates, Inc. Dr. Bodge has over 30 years of professional experience, including particular expertise with analysis, permitting, design, and monitoring of Federal and non-federal beach/dune restoration projects throughout Florida, the southeastern US, and diverse international settings. He is the designer, permit agent, principal investigator, and/or Engineer-of-Record for dozens of beach and navigation improvement projects in Florida and throughout the globe, many of which include jetties, groins, seawalls, revetments and other coastal structures. Dr. Bodge is internationally...
complex technical issues, particularly with regard to wetland, aquatic and coastal ecosystems, with a variety of interest groups. Ms. Irwin very effectively interprets and applies rules and statutes to the benefit of projects, considering scientific facts and political pressures to achieve successful outcomes. She effectively manages workflow and product delivery, accurately identifies key issues and project needs to achieve environmentally sustainable ecosystem solutions.

Ms. Irwin has extensive background in regulatory permitting of recreational water access, wetland mitigation, coastal development, and beach projects having worked as a regulator for the Florida Department of Environmental Protection (FDEP). Her regulatory experience includes oversight of statewide programs including Beaches, Inlets and Ports Joint Coastal Permitting, Coastal Construction Control Line Permitting, Environmental Resource Permitting, Beach Management Funding Assistance, Mitigation Banking, Mining, and Oil and Gas Regulation. Her background is key to facilitating project development from a policy, permitting, and funding perspective. As a former business owner of an environmental consulting firm, Ms. Irwin also understands the need for accurate, efficient work products as well as the importance of meeting the needs of clients.

**Environmental/Permitting Department Head** = Adriana Cabrera

Ms. Cabrera provides a range of services to public and private clients in her role as Environmental/Permitting Department Head. Her responsibilities include coordination with project teams and regulatory agencies relative to code compliance requirements for securing environmental permit approvals at local, county, state, and federal levels. She specifically manages projects involving coastal and environmental permit applications, marine managed large-scale beach restoration projects and various inlet and deep draft channel projects across the country. His responsibilities include project management, topographic and hydrographic surveying of channels and beach profiles, permit procurement, channel design and layout, borings analysis and testing of borrow and fill materials, preparation of plans and specification, construction inspection, tidal studies, and design of erosion control studies. Mr. Bryant has extensive experience in obtaining state and federal permits for beach restoration and navigation projects in the State of Florida, and is familiar with permitting requirements of the USACE, FDEP, and USFWS. He has provided FEMA coordination for FIRM revisions and obtained numerous FEMA Category B and G reimbursements in Florida, North Carolina, and Massachusetts.

**Coastal Engineer = Kevin M. Kremkau**

Mr. Kremkau has over 19 years of experience in the design and management of navigation and shore protection projects around the country. He has provided coastal engineering services including beach nourishment design, dune restoration, geotechnical investigations, offshore sand search investigations, shore protection design, dredge material placement area design, hydrographic surveys, dredging production analysis, and dredge equipment specification. He has served as the engineer-of-record for projects including navigation channel improvements, dredged material placement areas, beneficial use of dredged materials, and marsh restoration. As a project manager, Mr. Kremkau has provided project permitting, construction management, cost estimating, and coordination with governmental agencies including the U.S. Army Corps of Engineers (USACE), Florida Department of Environmental Protection (FDEP), U.S. Fish and Wildlife Service (USFWS), and the State recognized for his pioneering work in applied numerical analysis, innovative use of coastal structures, identification of inlet impacts, and in particular, practical implementation of inlet sand management, tidal inlet dynamics, inlet impacts and sediment budgets, and sand management. Most recently, his services as a technical peer reviewer have been increasingly sought to provide local communities with an independent assessment of their beach management and navigation project plans. Dr. Bodge works from the OAI office in Jacksonville, FL.

**Advisor/Staff Liaison/Engineering Task Lead = Dr. Albert E. Browder, PE, D.CE**

Dr. Albert E. Browder, P.E., D.CE has extensive beach management and beach/dune construction experience in Florida and Alabama, having recently managed over $32.5M in beach nourishment construction in 2016. Dr. Browder’s most recent Engineer-of-Record and project management experience include the phased renourishment of the engineered beaches at Longboat Key, FL, a complex multi-Contractor project that involved excavation by dredge of the navigation channels at both ends of the island with designed beach placement, supplemented by truck haul nourishment along the central portions of the island. Through extensive work with local governments following numerous hurricane-related disasters, Dr. Browder is an expert in post-storm damage assessments, FEMA funding assistance documentation, disaster planning and post-disaster emergency response for coastal projects, including the management and implementation of FEMA-sponsored emergency berm and engineered beach restoration projects. Dr. Browder works from the OAI office in Jacksonville, FL. 
### Turtle Lighting Permit Applications and Other Specialized Regulatory Agency Requirements

Ms. Cabrera’s project management responsibilities include coordination and review of project design plans, and other technical/legal data to determine a project’s scope of work, including the elements required to efficiently obtain environmental and construction permits. She also assists project teams in facilitating project design relative to code compliance and permit issuance. In addition, Ms. Cabrera applies her experience to the evaluation of technical and legal data required to effectively determine the feasibility of proposed projects and facilitate their implementation. She also coordinates project teams for coastal and waterfront development projects; including design professionals, technical disciplines, and legal counsel.

She has an in-depth understanding of many regulations and procedures governing coastal construction, and has established relationships with key regulatory agency personnel to expedite processing. Ms. Cabrera is accustomed to tight schedules and regularly coordinates teams of architects, engineers, scientist and environmental attorneys.

**Senior Project Manager = Liliane Smatt**

Ms. Smatt has over 12 years of project management experience in construction, environmental permitting and design consulting. Areas of expertise include coastal and waterfront site development focusing on project feasibility, conceptual design and permitting strategy. Ms. Smatt oversees implementation of specialized projects that include coastal/waterfront resorts, residential, and mixed-use structures, docks and marinas, beach nourishment, inlet stabilization and maintenance, beach and inland coastal waters shoreline stabilization structures, stormwater drainage systems, parks and other recreational areas.

### Division of Historical Resources

Mr. Kremkau has also provided FEMA coordination for FIRM revision and Category B and G reimbursements.

**Environmental Manager = Dana L. Cheney, Sr.**

Ms. Cheney has over 20 years of experience with design, permitting, and project management of coastal and marine engineering projects involving shore protection, beach and marsh restoration, environmental mitigation, hazardous waste disposal and remediation, and routine operations and maintenance (O&M) for navigation channels as well as port developments. She is familiar with the intricacies of the interagency coordination and actively works with local, state, and federal agencies to expedite project permitting and procure project funding. Ms. Cheney is especially skilled in USACE Section 10/404 permitting, Texas Commission on Environmental Quality (TCEQ) and U.S. Environmental Protection Agency (EPA) stormwater permitting and compliance, TCEQ solid waste permitting and disposal, oil and gas waste treatment facilities permitting and remediation, and permitting through the Railroad Commission of Texas. Ms. Cheney is also proficient with developing Spill Control and Countermeasures Plans (SCCPs), Stormwater Pollution and Prevention Plans (SWP3s), Dredged Material Management Plans (DMMPs), and Environmental Impact Statements (EISs) and Environmental Assessments (EAs) in compliance with National Environmental Policy Act (NEPA), Clean Water Act (CWA), Coastal Zone Management, and wetland delineation policies.

**Coastal Engineer = Carlton F. Bryant, PE**

Mr. Bryant is a Professional Engineer with over 30 years of experience in engineering design, infrastructure design, transportation planning and project feasibility, conceptual design and permitting strategy. Ms. Smatt oversees implementation of specialized projects that include coastal/waterfront resorts, residential, and mixed-use structures, docks and marinas, beach nourishment, inlet stabilization and maintenance, beach and inland coastal waters shoreline stabilization structures, stormwater drainage systems, parks and other recreational areas.

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**Principal/Advisor = Erik J. Olsen, PE**

Mr. Olsen received his academic training from the University of Florida. As the Principal Engineer for Olsen Associates, Inc., Mr. Olsen performs engineering, permitting and project management functions related to hydraulics, coastal processes, environmental impact assessment, shore stabilization, water and energy resources, and coastal management.

Mr. Olsen’s general experience includes the design and implementation of numerous coastal protective structures, beach erosion control investigations, tidal inlet stability analyses, flood insurance studies, hydrographic studies, marina design, navigation projects, and impact assessment of coastal development. His experience has included diverse and challenging projects: including numerous marina and resort amenity designs throughout the southeastern United States, the Caribbean and Mexico; review of analytical methodologies employed for coastal zone regulation; dredge and fill projects; and unique work such as that related to a floating nuclear power plant and preliminary design criteria for an ocean airport in the Virgin Islands. He is particularly active in the evaluation and solution of large scale beach erosion problems, beach restoration, the assessment of effects of inlets or navigation projects on beaches, and the permitting of multi-faceted coastal projects.

Mr. Olsen has acted as special consultant to resort developments or developers, both Erosion and Inlet Districts, coastal counties, municipalities, States and governmental agencies. He routinely acts as an expert witness on coastal engineering topics for both the private and public sector. Similarly, Mr. Olsen frequently makes educational presentations regarding Coastal Construction Regulation and other related matters to the Florida Bar, the State Chamber of Commerce Environmental Seminar, Engineering and...
facilities, and environmental enhancement projects. She has ample experience working with various environmental agencies such as the Florida Department of Environmental Protection (FDEP), Florida Fish and Wildlife Conservation Commission (FWC), Federal Emergency Management Agency (FEMA), US Army Corps of Engineers (USCOE), as well as all local municipalities in Miami-Dade, Broward, and Palm Beach counties.

Ms. Smatt coordinates with project teams and regulatory agencies relative to code compliance requirements for securing comprehensive permit approvals at local, county, state, and federal levels. She has an in-depth understanding of the many regulations and procedures governing coastal/waterfront construction, and has established relationships with key regulatory agency personnel.

**Marine Scientist/Biologist = Christie Barrett**

Ms. Barrett has over 14 years of experience in the field of environmental monitoring, assessment, planning and regulatory permitting at the local, State and Federal levels. Experience includes environmental assessments associated with beach nourishment, marina construction, marina and canal dredging, coastal structures, fiber-optic cable installation, coral reef damage by vessels, dune restoration, artificial reefs construction and long term monitoring, evaluation of the effectiveness of mitigation, biological monitoring of nearshore and offshore coral reef and ephemeral hardbottom habitats in association with beach nourishment related projects, threatened and endangered species surveys, biological surveys involving seagrass habitat, dune and upland vegetation surveys, shorebird and in-water sea turtle surveys.

Ms. Barrett has obtained environmental approvals and permits working directly with the and design, hydrographic surveys, site work, plans review, scheduling, estimating, and project management for design and construction. Mr. Bryant is involved in all phases of planning and design, plans and specifications, permitting, hydrographic and topographic surveying, inspection, and management of dredging projects relating to harbor and waterway improvements as well as beach nourishment, wetland creation/restoration, and confined disposal facilities. He has used many computer applications including MicroStation and AutoCAD CADD systems, Terramodel surface modeling system, Primavera project control system, spreadsheets, database programs, and extensive use of various civil engineering packages, including GBA proprietary hydrographic survey data collection and processing software.

**Coastal Engineer = Michael Tatigian, PE**

Mr. Tatigian has over 10 years of experience on coastal engineering projects in locations that span most of the Atlantic Seaboard and Gulf of Mexico. Mr. Tatigian has worked with a considerable number of differing dredge plants, including, but not limited to hopper dredges, hydraulic dredges, clamshells, and a multitude of attendant support plants. Mr. Tatigian is well versed in both land and hydrographic surveying including multibeam, single beam, RTK, C.R.A.B., and differential leveling. Mr. Tatigian is also responsible for project cost estimating, production estimating and analysis, alternatives analysis, and permitting. Mr. Tatigian provides environmental compliance, oversees quality assurance, and manages USACE submittals, in addition to performing sediment transfer calculations, providing beneficial use planning, performing sea level rise impact analysis, conducting coastal storm defense planning, and designing shore stabilization structures and techniques.

**Architect Professional Societies, Public Bodies, homeowner groups, etc.**

Mr. Olsen has directed numerous General Design Memorandums, Detailed Project Reports and special studies for various Districts of the U.S. Army Corps of Engineers. He has likewise participated in the formulation of three favorable Section 1-11 studies involving federal navigation project mitigation of adjacent shoreline damage.

Mr. Olsen has authored papers concerning the implementation of coastal construction regulation, beach nourishment design terminal structures, and the effects of inlet stabilization on littoral processes. He is a member of the American Society of Civil Engineers, the Florida Engineering Society, the National Society of Professional Engineers, and is a registered professional engineer in the States of Florida, Georgia, South Carolina, North Carolina and Alabama. Mr. Olsen is likewise certified as a Diplomate in Coastal Engineering by the Academy of Coastal, Ocean, Port and Navigation Engineering by the Academy of Coastal, Ocean, Port and Navigation Engineers. He is a former Director of the Florida Shore and Beach Preservation Association. Mr. Olsen has acted as a contributing professional to several State of Florida Blue Ribbon committees including those on Comprehensive Beach Management and Inlet Management.

**Principal Environmental Scientist = Cheryl L. Miller**

Ms. Cheryl L. Miller is the President and Principal Scientist of Coastal Eco-Group (CEG), Inc. CEG has developed a highly-respected reputation for marine environmental assessment and monitoring capabilities. Ms. Miller has over 21 years of professional experience in environmental planning, permitting, NEPA assessment/documentation,
### Staff of Federal, State and Regional Agencies

- U.S. Army Corps of Engineers, Florida Department of Environmental Protection, and other local government marine resource management agencies on a variety of ocean and coastal resource management and science issues. Experience also includes application of grants, funding applications, Joint Coastal Permits, Environmental Resource Licenses, and preparation of Environmental Impact Statements, Environmental Assessments, Biological Assessments, Cumulative Impact Assessments, Essential Fish Habitats, Biological Opinions (in conjunctions with FWS) and UMAM documentation.

- Ms. Barrett was one of the co-authors for the authored Benthic Ecological Assessment for Marginal Reefs (BEAMR) for Broward County Segment III.

### Senior Civil Designer = Orestes Betancourt

- Mr. Betancourt has over 20 years of experience in site/civil engineering and has completed projects for a variety of sites including hotels, condominiums, marinas, resorts, industrial/commercial areas, and parks. He regularly coordinates with project consultants including architects, engineers and mechanical/electrical/plumbing (MEP) to ensure consistent site/civil design with project requirements.

- Mr. Betancourt provides design and construction administration services associated with site civil and utility projects undertaken by Coastal Systems. He has provided civil design, construction inspections, field surveys and planning layouts for numerous site/civil and permitting projects throughout South Florida and the Caribbean. Mr. Betancourt conducts inspections and interacts with contractors to ensure the project is completed according to design plans and specifications. Annually he prepares and processes approximately six to ten construction administration services.

### Project Geologist = Jonathan R. Barker, PE

- Mr. Barker has extensive experience in coastal geology and geomorphology, sand searches, project management, maintenance and new work dredging projects, beach restoration design, construction management, as well as geologic, geophysical, and geotechnical investigations including vibracoring and standard penetration test borings. Mr. Barker conducts geologic analyses and oversees GBA’s in-house geotechnical laboratory. He has served as project manager for geophysical surveys investigating geologic hazard potential utilizing electrical resistivity, ground penetrating radar and multi-channel analysis of surface waves (MASW). He has drafted and reviewed numerous geologic, geotechnical, and geophysical investigations and reports. Along with geotechnical investigations, Mr. Barker is a skilled surveyor, conducting multiple single beam hydrographic surveys, topographic surveys, sub-bottom profiling surveys, and side scan sonar surveys.

### Technical Survey Manager = Paul A. Seaboldt, PLS, PSM

- Mr. Seaboldt is the senior supervising surveyor for the performance of hydrographic, topographic, construction layout, as-built/record, quantity, and control surveys. He has performed dredge inspections and provided RTK GPS training. He has also performed construction, geodetic, celestial, cadastral and boundary surveying; RTK GPS, topography, and GPS geodetic control surveys. He is proficient utilizing the latest versions of AutoCAD, Terramodel, Land Innovations, StarPlus, and other similar software.

### Coastal Engineer = Jayne D. McClure, EIT

- Ms. McClure is highly skilled in technical communication and assists GBA project teams from coast to coast with engineering technical and marine ecological surveys, including submerged aquatic vegetation mapping, analysis, and mitigation design/implementation for coastal projects throughout Florida and the southeastern United States. From 2002 to 2004, Ms. Miller was employed as an Environmental Specialist with the FDEP, Bureau of Beaches and Coastal Systems, where she conducted the regulatory and ecological review of environmental resource and joint coastal permit applications. Her direct experience as both a regulatory reviewer and consulting environmental professional ecologist provides her with a comprehensive understanding of the development and permitting process of beach and dune management and construction projects in Florida. All CEG biologists have M.S. degrees, and scientists with more than three years of experience at CEG have all been approved by the FDEP to conduct permit-required hardbottom and benthic community monitoring. All monitoring activities will be compliant with the FDEP Standard Operation Procedures for Nearshore Hardbottom Monitoring.

### Environmental Scientist = Dr. David Gilliam

- Dr. David Gilliam is an Assistant Professor at the Nova Southeastern University Oceanographic Center in Dania Beach, Florida. Dr. Gilliam and his staff bring to our team more than 20 years of experience working with hardbottom resource topics in Florida and the Caribbean. His specific expertise is related to the reef and hardbottom resources in southeast Florida. Dr. Gilliam will support our team’s needs for comprehensive mapping of hardbottom resources include coral resources listed and threatened and endangered under the Endangered Species Act (ESA). Dr. Gilliam will be supported by Dr. Brian Walker, also of the Nova Southeastern University Oceanographic Center, for characterization and mapping of hardbottom areas surveyed by the Nova team.
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<td>ten site plans for developments in South Florida. These plans include civil engineering designs for water distribution, sanitary sewer, paving, grading, irrigation and stormwater management facilities. His stormwater management design experience includes the use of best management practices as well as injection wells and exfiltration trenches.</td>
<td>Environmental Scientist = Tyler Chappell Mr. Tyler Chappell is Vice President/Principal Biologist of The Chappell Group, Inc. His capabilities include wetland jurisdictional determinations, environmental feasibility studies, Phase I ESAs, seagrass surveys, gopher tortoise surveys, environmental permitting with all agencies, mitigation design, mitigation monitoring, and coastal engineering. Mr. Chappell has performed numerous endangered and threatened species surveys, jurisdictional determinations, and environmental monitoring reports. Mr. Chappell has over 18 years of experience in many types of environmental permitting, including residential/commercial docks and marina permitting.</td>
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<td>Environmental/Permitting Project Manager/Marine Biologist = Mark Hartman Mr. Hartman is a trained marine biologist, and AAUS Full-Certified Scientific Diver, with extensive experience evaluating and quantifying potential perturbations in nearshore coastal environments, such as seagrass beds, estuarine habitats, hardbottom communities, and coral reefs. With over ten years of professional research and consulting experience, Mr. Hartman has an extensive knowledge of coastal biology and coastal zone management in the United States and the Caribbean. Mr. Hartman regularly conducts seagrass, sponge, and coral resource surveys, comparative assessments, and long term monitoring, relative to Project environmental regulation compliance. He has experience in a wide range of coastal and environmental analyses, including wetland assessment and restoration, water quality assessments, and regularly uses the findings of his field inspections to effectively determine the feasible scope of work for Projects, including key elements required to obtain environmental and construction permits. His background provides a thorough understanding of estuarine and marine systems’ assessments, identification of potential environmental impacts, sound scientific and statistical analyses, and preparation of scientific/technical reports. His regular project management responsibilities include marine and wetland resource assessments, gathering required field data, preparation of scientific/technical reports, and review and documentation, construction plans and specifications, and general reporting. With an academic background in coastal, offshore, and ocean engineering, Ms. McClure performs met-ocean (wind, wave, and water level) statistical analyses, engineering analyses, and geotechnical investigations in support of shore protection, beach nourishment, marsh habitat restoration, and port development projects. As a member of GBA’s surveying team, Ms. McClure plans survey projects including cost estimation and scope of work formulation, collects hydrographic single beam and multibeam data, collects mobile terrestrial LiDAR data, processes survey data, and reviews all QA/QC measures. Ms. McClure’s technical skills include Microsoft Office, AutoCAD, Bentley MicroStation, Hypack, Hypack Hysweep, Trimble Terramodel and Geomatics Office, Ensoft StablPro, ArcGIS ArcView, USACE Coastal Engineering Design and Analysis Software (CEDAS), and NASA’s SpecsIntact.</td>
<td>Operations and Design Review = Martin R. Snow Mr. Snow has over 37 years of experience as a dredging contractor with Great Lakes Dredge &amp; Dock Company and additional experience with GBA as a consultant on dredging projects. His experience includes design assistance, cost estimating, management of large dredging projects, construction claims evaluation, and consulting on dredging equipment selection and production.</td>
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<td>Coastal Engineer = Timothy K. Blankenship, PE Mr. Blankenship has over 20 years of experience in all facets of coastal engineering including the planning, design, and monitoring of shore protection projects. Projects have included beach nourishment and coastal structures such as jetties, breakwaters, and dredging contractor with Great Lakes Dredge &amp; Dock Company and additional experience with GBA as a consultant on dredging projects. His experience includes design assistance, cost estimating, management of large dredging projects, construction claims evaluation, and consulting on dredging equipment selection and production.</td>
<td>Environmental Permitting Advisor = Herschel Vineyard, Esq. Mr. Herschel Vineyard, Esq. of Foley and Laudner’s Jacksonville and Tallahassee offices will be the team's government relations lead member, who will participate in the development of project permitting strategies and, with OAI and Flagler County, as necessary, facilitate review of project permits and interagency coordination during the regulatory process. Mr. Vineyard is a former Secretary of the Florida Department of Environmental Protection and currently offers liaison services between his Clients and local, State, and Federal regulatory agencies.</td>
<td>Hydrographic/Beach Surveys = John Morgan, PLS John Morgan, P.L.S. is the President of Morgan and Eklund, Inc., a land and hydrographic surveying firm in Deerfield Beach, FL. Mr. Morgan is a Professional Surveyor &amp; Mapper with almost 40 years of experience in all phases of surveying, including topographic and...</td>
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environmental permit processing. His responsibilities also include planning, coordination, and management of large scale coastal projects, including beach nourishments, marina developments, port and channel dredging, and other various marine development projects.

**Environmental/Permitting Project Manager = Taylor Scheuermann**

Ms. Scheuermann provides various environmental services to public and private clients in her role as Environmental/Permitting Project Manager. She specifically manages projects involving coastal and environmental permit applications, among other specialized regulatory requirements at the local, county, state, and federal levels. She has expertise working with various environmental agencies such as the Florida Department of Environmental Protection and U.S. Army Corps of Engineers, as well as all local municipalities in Miami-Dade, Broward, Palm Beach, and Duval counties. She has an in-depth understanding of the many regulations and procedures governing coastal/waterfront construction, and has established relationships with key regulatory agency personnel.

Ms. Scheuermann has an extensive knowledge of coastal biology and coastal zone management in the US. She has conducted mangrove and fish assemblage resource surveys, and she has experience in a wide range of coastal and environmental analyses. Her areas of focus include coastal and waterfront site development, specifically project feasibility, conceptual design, and permitting strategy. Her regular project management responsibilities include coordination with project teams and regulatory agencies, thorough historic and current research, and environmental permit processing.

groins. He has conducted numerical modeling studies of coastal processes along shorelines, as well as for the design of marinas and harbors. He has also planned and conducted field investigations consisting of hydrographic surveys, oceanographic data collection, and underwater inspections throughout the U.S. and internationally. Mr. Blankenship has specific coastal process experience compiling field data sets and utilizing GIS spatial analysis tools to evaluate sediment budgets in littoral cells between inlets. He has also planned and design inlet improvements that have included coastal structures and dredging. Mr. Blankenship has extensive experience with design and permitting of beach nourishment projects and he has managed marine works projects involving all types of marine construction equipment including cutterhead, hopper, and mechanical dredge plants. Mr. Blankenship has also designed mitigation for unavoidable impacts to marine resources, with projects that include dredge hole filling for seagrass mitigation and artificial reef design. Mr. Blankenship has extensive coastal engineering experience in Broward County, Florida. He was coastal engineer for two truck haul beach nourishment projects implemented within Segment III in 2001 and the more recent project constructed in 2012. He was also project engineer for the design/build construction for the Segment III mitigation project in 2004.

**Coastal Engineer = Santiago R. Alfageme**

Mr. Alfageme has more than 20 years of experience as both project manager and project engineer on a wide range of projects involving coastal and estuarine processes, state-of-the-art modeling, shore protection measures, sediment management, coastal structure design, ecosystem restoration, navigation improvements, and dredging. His coastal erosion and sediment transport experience includes detailed analysis of hydrographic projects. Mr. Morgan and his firm provide dozens of years of experience and knowledge pertaining to the standards, technologies, and data presentation for surveys related to beach nourishment, dredging, and navigation projects. Mr. Morgan likewise oversees the firm’s Quality Assurance/Quality Control program of Morgan and Eklund, Inc. which assures surveys meet or exceed local, state and federal standards.

**Topographic/Upland Surveys = Dodie Keith-Lazowick, PLS and Lee Powers, PSM**

Ms. Dodie Keith-Lazowick, P.L.S. and Mr. Lee Powers, P.S.M. of Keith & Associates, Inc. in Pompano Beach, FL have 35 and 12 years of professional experience with land surveying is south Florida. As widely respected surveyors and civil engineering, Keith & Associates, will support OAI with all required upland survey and documentation matters. OAI and Keith & Associates worked together during the planning phase of the Broward Segment II project when documentation of upland development conditions along more than 8 miles of shoreline was required as input to USACE required planning analyses.

**Geotechnical Consulting = Garfield Wray, PE**

Mr. Garfield Wray, P.E. is the founder, president and principal engineer of Down-to-Earth Geotechnical Consulting, Inc. a Broward County small business enterprise (SBE) located in Ft. Lauderdale, FL. Mr. Wray brings to our team more than 31 years of local geology and geotechnical engineering experience as well as extensive construction oversight and inspection for a wide variety of projects in southeast Florida. Mr. Wray and his team will support OAI through geotechnical data collection, analyses, and laboratory services required for upland and possibly offshore sand borrow site development. Mr.
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<td>Marine Structural Engineer = Vanessa Benzecry, EI</td>
<td>shoreline and profile evolution, historical and projected erosion rates, and development of inlet and shoreline sediment budgets and shoaling reduction measures in channels and harbor basins. Mr. Alfageme also has extensive experience in coastal and estuarine numerical modeling, including ocean and estuarine hydrodynamics involving storm surge, salinity, temperature, and cohesive and non-cohesive sediment transport. In addition, his modeling experience includes simulation of waves and surf zone hydrodynamics, as well as littoral sediment transport and shoreline evolution. He has performed numerous modeling studies to evaluate potential project impacts using variety of hydraulic, coastal, and estuarine numerical models, including Delft3D, MIKE3, MIKE21, ADCIRC, RMA-2, RMA-4, ADDAMS, REFDIF, CGWAVE, SBEACH, GENESIS, and several other hydrodynamic, sediment transport, and wave propagation models. He has also developed and implemented physical models to study coastal systems and marine structures.</td>
<td>Wary and his team will also provide construction field oversight and inspections during construction of the Segment III project reaches. D2E was an integral team member for OAI for the completion of the Segment II Federal Shore Protection Project.</td>
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<td>Geological Data Collection = Fred Kaub, PG</td>
<td>Geological Data Collection = Richard Horgan</td>
<td>Mr. Fred Kaub, P.G. is the President and founder of American Vibracore Services, Inc. Mr. Kaub and the AVS team provide geotechnical and geophysical data collection services, principally for marine investigations and sand borrow area development. AVS provides the capability to collect sediment Vibracore and other geological samples in a broad range of marine environments and water depths. The AVS team likewise provides laboratory services to analyze samples and provide products suitable for design and permitting purposes.</td>
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<td>Surveyor = Aaron Boehning</td>
<td>Civil and Coastal Engineer = Ira Brotman, PE</td>
<td>Mr. Brotman has more than 20 years of experience in the design, construction, and rehabilitation of complex civil engineering projects, with specific emphasis on dredging, beach nourishment, soil consolidation dredged material placement, and geotechnical engineering. He is very familiar U.S. Army Corps of Engineers (USACE) processes and procedures, and has significant experience with the USACE’s new “SMART Planning” process. Mr. Brotman successfully facilitated coordination between the USACE and the local sponsor on numerous dredging and navigation projects. He has permitted beach nourishment projects using USACE contract “betterments” to obtain suitable beach fill material on short notice following storm events. Mr. Brotman has extensive experience in the deepening and stabilization and marine and civil structures.</td>
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<td>GIS Analyst = Sandra Rahman</td>
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<td>Refer to pages 12 to 17 and 154 to 171, 173 to 177, 187 to 188, 199 to 203, 205 to 207, 211 to 214, 216 to 220, 233 to 240 for resumes</td>
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<td>Refer to Page 13 for organizational chart</td>
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Ms. Rahman is responsible for processing all field data collected by Coastal Systems for use in analysis, monitoring, and design. She regularly utilizes Digital Terrain Modeling (DTM) software to generate contour maps and calculate cut/fill volumes for a variety of coastal and dredging projects. She is also responsible for providing deliverables in GIS formats, as well as providing full GIS capabilities for the firm with ESRI software.

Before Coastal Systems, Ms. Rahman worked for the Petroleum Company of Trinidad and Tobago. She was responsible for computer-aided drafting and design using AutoCAD. In addition, she was responsible for scanning, vectorizing, and digitizing, GPS post-processing, cadastral and topographic maps, geological drawings, royalty and volume computations using terrain-modeling software, and managing the database for thousands of drawings as well as control point records.

Engineering Technician = Lester Sanchez

Mr. Sanchez has over 12 years of extensive experience in the fields of architecture, structural engineering, civil engineering, construction technology, marine engineering and CADD design. As a great asset to the Coastal Systems team, he coordinates with other trades and consultants in the civil, structural, marine, mechanical, electrical, and architectural fields in the preparation of comprehensive construction documents. He has been responsible for the project’s support, CAD design and drawing administration for multi-million dollar private and government projects in South Florida.

Additionally, Mr. Sanchez provides construction administration for ongoing projects. These services include site inspections, coordination with clients, responses to Requests for Information (RFI’s), evaluation of shop drawing widening of navigation channels, as well as the analysis and design of dredged material placement areas.

Coastal Engineer = Yong Chen, PE, PhD

Dr. Chen has consulting experience in all phases of coastal engineering projects involving planning of field investigations and processing of field data from hydrographic surveys, geotechnical investigations, and wave/current gauges; navigation channel, port, and harbor planning; sediment dredging analysis; FEMA coastal floodplain mapping; and wave statistical analysis, wave propagation, storm surge analysis, and sediment transport analysis. He evaluates structural design projects involving riprap shore protection, breakwaters, and jetties, as well as single point mooring systems and marina basin dredging. Dr. Chen has extensive experience in developing and utilizing software packages for numerical model simulations of coastal processes. He has applied the DHI MIKE 21 modules for wave propagation and transformation, hydrodynamics, as well as the sediment transport packages. Dr. Chen has extensive beach management experience in Southeast Florida that has included projects in Broward County, Florida. He is experienced with FDEP-approved methods to evaluate the equilibrium toe of fill (ETOF) from proposed beach fill templates adjacent to nearshore marine resources.

Coastal Engineer = Brian P. Joyner, PE

Mr. Joyner has 20 years of diversified experience in water resources and coastal engineering. His experience covers a wide range project types, including coastal and harbor areas, urban and rural riverine floodplains, and urban stormwater collection systems. He specializes in the detailed analysis and modeling of hydraulic/hydrodynamic, wave, and sediment
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<td>submittals, and Resident Project Representative (RPR). He interacts with clients, contractors, project lead managers/engineers in order to make a project into a success.</td>
<td>transport processes for design of coastal infrastructure projects. He is responsible for projects involving existing and planned new flood barriers and storm water pump stations and is significantly involved in multiple coastal and storm water projects. He has served in lead roles on numerous other large and small projects in the United States, primarily in coastal Virginia, North Carolina, and Florida.</td>
<td>Geotechnical Lead = Peter G. Andersen PE Peter G. Andersen has more than 20 years of experience in the Geotechnical Engineering and Materials Testing field, including more than 11 years with AACE. Peter worked at an international Geotechnical and Environmental Consulting firm from 1997 through 2006 (Ardaman &amp; Associates, Inc.) where he served as Project Engineer for the development of recommendations for site preparation and foundation design for projects throughout South Florida and outside of the United States including numerous low- and high-rise structures, bridges, piers, buried structures, transmission towers, silos, roadways, drainage structures, offshore mooring facilities, seawalls, retaining walls, anchoring systems, excavation bracings, underpinning measures, dams and levees. From 2002 through 2006, he served as Senior Project Engineer and Assistant Branch Manager where in addition to the above listed responsibilities, he was in charge of planning and supervision of field and laboratory geotechnical exploration programs for both public and private sector clients. Currently, Peter serves as the Vice Pres. and Principal Geotechnical Engineer for Andersen Andre Consulting Engineers, Inc. Refer to page 13 for organizational chart Refer to pages 14-64 for resumes</td>
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<td>Senior Modeling Scientist = Oleg Mouraenko, PhD Dr. Mouraenko is a senior modeling scientist with expertise in alternative analyses, planning and design studies, and environmental studies principally focused on the application of computer-aided analysis. Dr. Mouraenko’s numerical modeling expertise involves the application of numerical models to analyze coastal, estuarine, and riverine processes for coastal and marine engineering projects in the United States and internationally. Dr. Mouraenko is proficient with the use of many numerical models including MIKE by DHI, Delft3D, and others. Typical modeling studies involve two- or three-dimensional modeling of hydrodynamics, waves, sediment transport, storm surge, salinity intrusion, plume dispersion, water quality, and storm wave (tsunami, hurricane, etc.) agitation and its impact on ship maneuvering/mooring. Dr. Mouraenko’s expertise extends to metocean data, statistical data, and coastal processes analyses. His experience includes coastal/estuarine/riverine hydrodynamics and sediment transport; wave transformation and wave agitation analysis; metocean data analysis; MIKE by DHI and Delft 3D; and Matlab, high performance computing. Refer to pages 22 to 27 for greater detail Refer to pages 28 to 91 for resumes Refer to page 18 for organization chart</td>
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1. **Ability of Firm and Professional Personnel:**
   c. Describe the Prime Vendor’s experience in designing and processing federally authorized beach renourishment projects which included permitting, performing construction observations, and post-project monitoring.

   **Points Value:** 5

   - The firm employs former regulators with extensive environmental permitting experience at both the state and federal levels, and this background facilitates the complex permitting process associated with these types of beach management projects. Refer to Page 6

   - GBA has provided coastal engineering design, permitting, surveying, and inspection services on numerous federally authorized beach nourishment projects, both for shore protection and regional sediment management purposes. In support of these projects, GBA has provided beach profile and inlet monitoring surveys to evaluate sediment transport and monitor shoaling rates; coordinated design elements on behalf of the local sponsors, obtained state permits and water quality certifications, obtained state lands easements, and provided construction inspection and nearshore hardbottom monitoring services.

   **Martin County – St. Lucie Inlet FL**

   - GBA has provided coastal engineering services to Martin County since 2001. Continuing to serve as a consultant to the County today, over the years, GBA has provided a full range of services to support inlet management and navigation. Services have included new work and maintenance dredging design, sand bypassing and beach nourishment design, permitting, environmental and water quality monitoring, geotechnical investigations, Independent Technical Review (ITR) and peer review of numerous studies, coastal process analysis, sediment budget evaluation, determination of sediment transport rates, and construction management.

   - As the project engineer for the local sponsor of the federal navigation project, GBA was tasked with assisting USACE with the project design, plans development, and obtaining FDEP permits for the construction of a littoral sediment basin and for subsequent maintenance dredging events. Since 1998, inlet projects have included over 3 million CY of dredging with a total cost of over $64 million, including structural improvements. As part of the regional sediment management program, GBA has provided the equivalent scope of services described in this RFP for beach renourishment and related beach management practices for Broward County since 1997 and prior, in addition to providing similar services to projects throughout Florida and elsewhere since 1992.

   **Federal Projects:**

   - Since 1982, Olsen Associates, Inc. (OAI) has provided professional coastal engineering services for all aspects of both Federal and non-Federal projects located in the coastal zone -- including the analysis, modeling, design, state and Federal permitting, plans & specifications, construction management, public and interagency coordination, funding, and monitoring. The projects have included beach, dune restoration, inlet, and navigation projects.

   - OAI and its sub-consultant team have both long-term and contemporary experience with both Federal and non-federal shore protection and dune projects. In the last 35 years OAI engineers have designed, permitted, and constructed over 110 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.

   - OAI has successfully provided the equivalent scope of services described in this RFP for beach renourishment and related beach management practices for Broward County since 1997 and prior, in addition to providing similar services to projects throughout Florida and elsewhere since 1992.
Studies), develops sand borrow areas, negotiates sand use lease agreements for with the Bureau of Ocean Energy Management (BOEM), assists with federal and State funding, prepares project design recommendations, reviews US Army Corps of Engineers (USACE) plans and specifications through the USACE biddability, constructability, operability, and environmental (BCOE) review process, prepares and participates in public briefings, reviews project construction, prepares permit-required submittals for construction, and performs pre- and post-project environmental and physical monitoring required by permits. OAI performs these tasks under contract to the Local Sponsor, working in close cooperation with -- but independent from -- the USACE. Through these works, OAI is fluent in all aspects of the complex Federal processes for developing, authorizing, permitting, funding, and constructing federal shore protection and navigation projects. Importantly, through this approach, OAI successfully works to get projects built within the Federal civil works program -- with highest possible quality and least practical cost – and by representing the best interests of the Local Sponsor.

Through these works, OAI is fluent in all aspects of the complex Federal and State of Florida project processes for developing, authorizing, permitting, funding, and constructing federal shore protection and navigation projects. Federal projects for which OAI is the Local Sponsor’s coastal engineering consultant include the following:

- Broward County, FL Segment III [Federal shore protection project - 2005/06]
- Broward County, FL Segment II [Federal shore protection project – 2016]
- Mid-Reach, Brevard County, FL [mitigation design and EIS – 2005 through present]
Pinellas County Shore Protection Project

The Pinellas County Shore Protection Project totals 21.8 miles of shoreline. There are three constructed and authorized segments that are actively maintained by the federal government in cost share with Pinellas County; Sand Key at the north end, Treasure Island in the middle, and Long Key at the south end. Sand Key is the largest of the segments and is set to expire in 2043, undergoing three renourishment events to date.

GBA provided design of the shore protection project at Indian Rocks Beach, Sand Key, Pinellas County, FL for the USACE. Design analysis included cost estimates for 10 alternative methods of providing sand for beach fill including hopper dredges, clamshell dredges, hydraulic dredging, pump-in pump-out operation, and overland alternatives. The project also included design and preparation of plans and specifications, design calculations, and cost estimates.

GBA provided design of the shore protection project at Indian Shores Beach, Pinellas County, FL for the USACE. Services included design analysis and development of plans, specifications, and cost estimates.

East Ocean View Beach Nourishment

M&N provided planning, permitting, analysis, design, construction documents and post-construction-award services for a full-scale beach restoration project to protect and stabilize East Ocean View Beach on an accelerated time schedule. The initial project, in the Winter of 2003, involved placing 359,000 cu yd of beach fill along 5,300 ft of shoreline. The beach was nourished in 2009 with the placement of an additional 196,000 cu yd.

- Patrick AFB, FL [truck-haul & hydraulic beach/dune nourishments – 1998, 2001, 05, 11, 14]
- Brevard County, FL [Federal shore protection project: north & south reaches – 2000, 05, 10, 14]
- Fernandina Beach, Nassau County, FL [Federal shore protection project – 2008, 2017-planning]

Refer to pages 22 to 28 for full project descriptions

Independent Expert Peer Review (IEPR) for Federal Project Planning Experience: It is also important to note that Mr. Christopher Creed, P.E. and Dr. Kevin Bodge, P.E. of OAI, each have direct and significant experience with the congressionally-mandated IEPR review process of Corps of Engineers civil works process. Under subcontract to Battelle, these two principals of OAI have served as IEPR peer-reviewers for three Corps feasibility studies in regard to large-scale dredging, shore protection, marsh restoration projects. Additionally, Dr. Bodge assisted the Jacksonville District in responding to its first IEPR review, regarding one of its projects in Florida, under contract to the local sponsor. The rigorously structured and time-consuming IEPR review process centers upon the consistency of the Corps’ planning/decision documents with federal guidelines and practical considerations of cost-estimating, engineering, constructability, and environmental impacts – with particular focus upon the NED Plan formulation, B/C analysis, and cost-estimate elements of the project. As such, Mr. Creed and Dr. Bodge have specific knowledge and
Cape Fear Inlet Sand Management Plan Implementation

Moffatt & Nichol has served as the coastal engineering technical advisor to the communities of Oak Island and Caswell Beach since 2008 for the implementation of the Cape Fear Inlet Sand Management Plan, which was developed as part of the Wilmington Harbor deepening project and allows for the beneficial use of beach-compatible dredged material on beaches at Oak Island and Bald Head Island. Since the deepening and realignment of the channel at the Cape Fear River mouth in 2001, the U.S. Army Corps of Engineers (USACE) has been conducting maintenance dredging, placing dredged material on adjacent beaches, and monitoring the physical processes at the inlet and adjacent beaches using wave gages and on-shore and near-shore bathymetric surveys.

M&N has completed independent technical review of the ongoing monitoring performed by the USACE in support of the Cape Fear Inlet Sand Management Plan. Additionally, Moffatt & Nichol has provided independent assessment of the Draft Re-Evaluation Report Sand Management Plan and served as the technical representative for the communities of Oak Island and Caswell Beach in communication with the USACE and Town of Bald Head Island.

Cat Island Chain Restoration

Baird & Associates was contracted by the Detroit District USACE to provide design development engineering for the restoration of the Cat Island Chain in Green Bay. The three key objectives of this restoration plan were to restore terrestrial habitat associated with the islands; to provide capacity for placement of clean dredge spoils of Green Bay Federal Navigation Channel dredging activities; to create the conditions for re-establishment of understanding of the IEPR process – from the perspectives of both the independent reviewers and the Corps of Engineers. Many aspects of each of these projects, for which OAI has been responsible, are similar to those which will be required for Segment III.

Refer to pages 18 to 28 for greater detail
Refer to pages 22 to 28 for project descriptions
### EVALUATION CRITERIA - PROJECT SPECIFIC CRITERIA

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emergent and submerged aquatic vegetation southwest of the Cat Island Chain.

**Martin County Shore Protection Project**

CSA conducted a baseline pre-construction survey in 2010, an immediate post-construction survey in 2013, and 3 annual post-construction surveys from 2014 to 2016 to characterize, monitor, and map nearshore hardbottom habitats offshore Martin County, Florida in relation to beach nourishment associated with the Martin County Shore Protection Project. Surveys were conducted in accordance with a biological monitoring plan approved by Florida Department of Environmental Protection (FDEP). Twelve permanent, cross-shore monitoring transects were established from the project’s equilibrium-toe-of-fill (ETOF).

Refer to pages 92-99 for greater details.

1. **Ability of Firm and Professional Personnel:**
   
d. Describe the Prime Vendor’s experience in designing and permitting beach renourishment project(s) with hardbottom resources in close proximity to the project footprint.

**Points Value: 10**

Coastal Systems has successfully implemented numerous beach-dune system management and restoration projects within South Florida and internationally. The firm has managed all aspects of these projects, from long-range planning and conceptual design through funding and permitting, full engineering and construction management. The firm focuses on providing comprehensive, innovative solutions, using interim strategies to mitigate critical erosion areas, while longer-term solutions are evaluated, permitted and constructed.

The firm’s solid environmental assessment and permitting talents have been used to assist public sector clients in designing beach management projects that meet their needs while avoiding and minimizing impacts to marine and other environmental resources. Our outstanding capability in predicting what project design approach and associated impacts will be acceptable to regulatory agencies reduces design costs and permit processing duration.

**Town of Jupiter Island, FL**

GBA has provided coastal planning, engineering, and consulting services for the Town of Jupiter Island’s beach restoration program since 1976. We have designed multiple nourishment projects involving the placement of over 17 million CY of sand at an unadjusted cost of $75 million. The Town of Jupiter Island has nearshore hardbottom located immediately offshore of the beach fill template, as well as in the vicinity of the offshore borrow area. Over the years, GBA has provided all the necessary services to plan, design, permit, construct, and monitor all aspects of this project, including biological monitoring during and after construction. We have successfully designed and managed these projects with no adverse impacts to the hardbottom communities.

The northern third of the Town’s 6.1 mile project area is characterized by the presence of Olsen Associates, Inc. (OAI) provides professional coastal engineering design and permitting services to clients throughout Florida and the Caribbean where hardbottom resources are often within close proximity or influence of the project. Where these projects occur, protection of hardbottom areas, particularly from dredging impacts, beach fill adjustment and turbidity generated during the construction process is central to the design, permitting, implementation, and biological monitoring of the beach nourishment project. In almost all cases, project design requires identification of the balance between sufficient sand to protect upland infrastructure and avoiding/minimizing burial of adjacent hardbottom areas with project sand. The design must also consider the grain size characteristics of the beach fill sand. Sand that is too fine and/or contains a large amount of fine materials that can be transported from the beach and deposited on adjacent hardbottom...
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<th>Olsen Associates, Inc. 2618 Herschel Street Jacksonville, FL 32204</th>
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<td>Recent experience with innovative approaches includes the following projects:</td>
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<td>• City of Hollywood</td>
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<td>• Hillsboro Inlet Channel Improvements</td>
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<td>• Hallandale Beach Nourishment</td>
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<td>• Hillsboro/Deerfield Beach Renourishment</td>
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<td>• Village of Biscayne Beach Management</td>
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<td>• Palm Beach Island Pilot Beach Management Agreement</td>
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<td>• 32nd Street Breakwaters, Miami, FL</td>
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<td>• Port Everglades Sand Backpassing Study</td>
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<td>Refer to pages 65-66 for full project descriptions</td>
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<td>nearshore hardbottom. During the design process, GBA used several methods to design the fill template to avoid adverse impacts to nearshore hardbottom communities.</td>
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<td>Aquatic resources also exist offshore, near the borrow sites. GBA used hydrographic surveys and side scan surveys to identify areas of potential hardbottom resources near the borrow sites. Diver investigations were used to verify these resources and buffer zones were established to avoid potential impacts. Limitations were also placed on construction methods to avoid placement of pipelines, anchors, or spuds in areas of hardbottom. During construction, pipelines were monitored continuously to prevent migration into sensitive areas and to identify leaks that could result in hardbottom burial.</td>
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<td>Martin County Coastal Engineering Services</td>
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<td>GBA has provided inlet related coastal engineering, surveying, and inspection services to Martin County since 2001. Projects have included excavation of a sediment impoundment basin for improved dredging efficiency, several maintenance dredging events, jetty improvements, and multiple studies and investigations. Nearshore hardbottom, located in the vicinity of the beach placement areas, was avoided through development and modeling of construction templates and validated through biological resource monitoring surveys. In support of these projects, GBA has provided annual beach profile and inlet surveys to evaluate the littoral sediment budget and monitor shoaling rates, assisted the County in federal project design and coordination with the USACE, obtained state permits and water quality certifications, obtained easements for pipeline corridors, and provided construction inspection and nearshore hardbottom monitoring services for beach nourishment projects in the Hobe Sound National Wildlife Refuge, as well as resources can result in unintended and unacceptable impacts to hardbottom.</td>
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<td>For projects near hardbottom areas, project planning and engineering must include (1) development and description of the project plan that is intended to direct avoid or minimize impacts to hardbottom areas; (2) prediction of anticipated unavoidable impacts; and (3) formulation of mitigation and monitoring strategies that provide the regulatory agencies with reasonable assurance of no net impacts to the coastal system and/or hardbottom areas near the beach fill and borrow areas.</td>
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<td>• OAI and our team’s principal environmental sub-consultant, Coastal Eco-Group, Inc. have more than 20 years of proven design and permitting experience related to beach nourishment projects adjacent to hardbottom resources.</td>
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<td>• OAI engineers work closely with the environmental experts during the design and permitting of these projects to seek solutions to avoid and minimize project impacts while still meeting the basic project goals.</td>
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<td>• OAI has successfully incorporated project design improvements that have controlled project related impacts to hardbottom resources.</td>
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<td>The most significant projects for which OAI has been responsible (Engineer of Record) for the design and permitting of beach nourishment projects adjacent to hardbottom areas include the following:</td>
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<td>• Broward County, FL Federal Shore Protection Project (Segment III)</td>
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<td>• Broward County, FL Federal Shore Protection Project (Segment II)</td>
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<td>• Port Everglades Sand Bypass Project (Broward County, FL)</td>
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<td>• Palm Beach County Federal Shore Protection Project (Ocean Ridge)</td>
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<td>placement areas within the Town of Jupiter Island.</td>
<td><strong>Town of Hillsboro Beach Nourishment Project</strong> Moffatt &amp; Nichol is providing physical and biological monitoring services for the Town of Hillsborough Beach's 2015 beach nourishment project in accordance with the regulatory permits. Monitoring services include coordinating tilling prior to marine turtle nesting season. Physical monitoring includes comprehensive beach profiles along with shoreline erosion/accretion evaluations and volume comparisons. Engineering reports are compiled summarizing the performance of the beach nourishment project on an annual basis. M&amp;N is managing the biological monitoring required for the project, including nearshore hardbottom mapping along with transects in accordance with the approved biological monitoring plan.</td>
<td><strong>Hillsboro/Deerfield Beach Nourishment Project</strong> CSA conducted pre-construction, weekly mid-construction, monthly post construction, and three annual post construction biological monitoring surveys of benthic hardbottom and reef habitats offshore Hillsboro and Deerfield Beach, Florida in relation to a beach nourishment project. The biological monitoring plan consisted of quantitative and qualitative habitat assessments of nearshore hardbottom in order to determine potential impacts from migration of beach fill onto nearshore hardbottom communities or movement of sand from the borrow areas onto adjacent reefs.</td>
<td>Refer to pages 99 to 103 for greater detail.</td>
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<td>• Palm Beach County, FL (Jupiter Carlin/Juno Beach) • Brevard County, FL (Federal Project): Mid-Reach &amp; South Beaches Dune Restoration • Brevard County, FL (Federal Project): Mid-Reach Mitigation Design and EIS • Sailfish Point-Bathtub Beach Park, FL Beach Restoration Refer to pages 30 to 34 for full project descriptions</td>
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### 2. Project Approach: Max Total – 37 Points

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**Coastal Systems** is familiar with the short and long-term issues that the County must address relative to stabilizing the beach system and improving it for purposes of upland property protection and recreation. We have the technical capability to produce independent analysis of regional and local beach trends or to make recommendations to the Broward County regarding local implications of broader shoreline studies being conducted by the County, State, or other research agencies. We would also recommend simultaneously taking a proactive approach to coordinate with Broward County and the State of Florida, as appropriate, to expedite implementation of needed sand bypassing at Port Everglades, the next regional beach nourishment project with consideration given to upland and non-domestic sand sources, and further evaluation of expanding structural or other innovative hot spot stabilization solutions at John U. Lloyd Beach State Park. Inlet management is a key toward long-term beach maintenance ad Coastal Systems has been an active part of the inlet management strategies developed for and implemented by Hillsboro Inlet District. Successful incorporation of sand bypassing in this coastal cell represents an important supplemental sand source for the long-term management of Broward’s Segment III shoreline.

Coastal Systems would continue to work with Broward County and their beach management partners, such as City of Dania Beach, City of Hollywood, Hallandale Beach, the State of Florida and potentially other nearby coastal municipalities and the Hillsboro Inlet District, to refine a long-term beach management design, permitting, and funding strategy for the County. This plan may have several adjacent elements to those noted above, such as emergency protocols for effective beach restoration response following coastal storms and other erosive events, dune and beach access.

**Effective management of a skilled, professional team is key to the success of any project. Our management goal is to ensure that each element of work is completed within the mutually established schedule and budgetary constraints without compromising the quality of service the County expects. GBA has assembled a team led by a technically knowledgeable and experienced local project manager to direct and control project deliverables, quality, cost, and schedules. This team will work within an established framework of proven management systems for coordination, oversight, and accountability. All team members are committed to and understand this management goal.**

As Project Manager, Penny Cutt will ensure that all project activities and tasks are completed in a timely and efficient manner. Constant communication between the GBA Team and County staff is vital to the success of the project. Ms. Cutt will be responsible for assigning tasks to the appropriate individuals and monitoring the progress of all task assignments through recurring team meetings. She will regularly communicate the progress of all task assignments to the County, keeping staff informed of the project status, and will meet at designated intervals with County representatives to discuss all aspects of project development including data collection, schedule, permitting progress, challenges and solutions, schedule, budget, and other matters pertaining to the project. All meetings will be documented and minutes will be prepared to summarize topics, resolutions, and actions. Minutes will be distributed to all of the major project participants.

Ms. Cutt understands that the County’s goal for the project is to provide cost effective shore protection within Segment III, while protecting ecologically sensitive nearshore resources. As a former regulator for federal, state, and county partners, such as City of Dania Beach, City of Hollywood, Hallandale Beach, the State of Florida and potentially other nearby coastal municipalities and the Hillsboro Inlet District, to refine a long-term beach management design, permitting, and funding strategy for the County.

**In general, the Project scope is intended to formulate, permit and implement a plan (1) to restore the Broward County Segment III Federal Shore Protection Project; (2) to consider incorporation of potential project efficiencies such as coastal structures, dunes, and strategic retreat to reduce long-term project costs; (3) to establish a long-term maintenance strategy for the Segment III Project shoreline, and (4) to seek a time extension to the existing Federal authorization for the Segment III project. Central to any project plan or action will be the implementation of actions and strategies that will qualify as elements of the Federal project and thereby qualify for Federal reimbursement under the existing and possibly future Federal project authorizations. An additional goal of the Project will be to seek supplemental sources of funding for desired project improvements that may not qualify for Federal funding under the project’s Federal authorization. For example, incorporation of dunes along all areas of the Segment III shoreline may not qualify for inclusion in the Federal project. If so, it may be prudent to pursue other possible funding opportunities, such as the designation of the Segment III shoreline, along with any associated resiliency features such as dunes, as an Adaptation Action Area as defined by the State of Florida’s Community Planning Act (CPA) of 2011. This Act provides funding opportunities to coastal communities in Florida that seek to implement coastal resiliency actions. The incorporation of dunes along the developed ocean shoreline of Segment III, which is vulnerable to sea level rise, is a widely acknowledged as a coastal resiliency action.**

The overall project approach for Olsen Associates, Inc. (OAI) will be to develop a plan to restore the Federal beach template that was permitted and constructed in 2005-06 along both the Dr. Von D. Mizell- Eula Johnson (DVDEMJ) State Park and
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| 2618 Herschel Street  
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- maintenance and enhancement, recreational programming for improved public enjoyment, safety, and natural resource protection, and managed retreat strategies. Additional sand sources, including upland mined sand, will be explored to assist in readiness for storm recovery efforts. New biological monitoring data being collected semiannually by Broward County will be folded into permitting efforts to expedite, streamline, and reduce the cost of monitoring by Broward County. Mr. R. Harvey Sasso and Ms. Danielle Irwin would take the lead on this project in directing the appropriate field investigations, engineering and environmental/permitting staff. This task would be ongoing to some degree through the duration of the contract.

- Coastal Systems is prepared to offer complete agency-required site surveys, including topographic, bathymetric, and biological surveys/monitoring, and process permit applications for a beach nourishment project at Segment III. We can provide the additional project assessments and alternatives analysis that may be required to update the 2005 General Re-evaluation Report (GRR). Coastal Systems has staff ready to assist in providing Broward County with final construction plans, bidding assistance, construction management, construction administration, physical/biological monitoring services and permit compliance assistance. Mr. R. Harvey Sasso and Ms. Danielle Irwin would take the lead on this project in directing participation of the appropriate field investigations, engineering and environmental/permitting staff. Mr. Andres Perez will provide engineering design services. Mr. Aaron Boehning will provide surveying services with additional support, Ms. Sandra Rahman will provide GIS mapping services, Ms. Christie Barrett, Mr. Hartman and Ms. Scheuermann will provide permitting assistance and biological surveying services, and Mr. Lester Sanchez will provide CAD design (with governments, she has extensive knowledge and an in-depth understanding of the environmental regulatory processes. GBA’s senior staff have participated in the development of over a dozen Feasibility Reports, Limited Reevaluation Reports and General Reevaluation Reports for projects coast to coast. We have supported the negotiation of nearly a dozen Project Cooperation Agreements/Project Participation Agreements and GBA Team members have supported various organizations in providing language for legislation in various Water Resources Development Act bills for new and proposed amendments on behalf of our clients. This knowledge and experience will be applied to the Segment III Shore Protection project to ensure the authorizations and regulatory process progress smoothly and efficiently. We pride ourselves in our ability to present complex technical information to the public in support of coastal engineering projects, and regularly participate in workshops and scoping meetings to obtain input from the people affected by and benefitting from the projects we are working on. We can provide the County with support during public workshops and in maintaining an up to date project website to inform interested parties of project progress.

- Project oversight and quality assurance will be provided by Clay Bryant, the Quality Control/Quality Assurance Officer dedicated to the project. GBA has an established quality management process that involves the project manager, designated QA/QC engineer, and task leads to provide ongoing oversight and a thorough review of all tasks and deliverables to ensure that all work is performed on time and correctly the first time. Quality assurance and control plans will be developed and strictly followed for each and every task order under this contract and will be coordinated with the County and the GBA Team during task development and approval to ensure a streamlined, efficient process.

- We are working on the 2006-07 Segment III Shore Protection Project in Dania/Hollywood/Hallandale shorelines. The goal of this approach will be to:
  - reestablish the proven protective beach dimensions along Segment III project shoreline,
  - avoid additional impacts to nearshore hardbottom habitat beyond those permitted and mitigated as a result of the 2005-06 Segment III project,
  - minimize the time required for coordination and approval of the Federal planning document (GRR or LRR), the Project Partnership Agreement (PPA), and project permits, and
  - maximize cost-sharing opportunities from all available sources.

- OAI will seek to implement an approach to project planning and approval that closely follows the approach that was ultimately implemented for the 2016 Segment II Beach Nourishment Project. This will include application of lessons learned from the Segment II permitting process, particularly with respect to managing delays during the Federal document review and approval process and permit review by resource agencies such as the National Marine Fisheries Service (NMFS). In an effort to avoid or at least minimize such delays, OAI will seek to advance an efficient, cost-effective project plan that satisfies the basic project scope and performance requirements and minimizes or completely avoids project related impacts to adjacent nearshore hardbottoms.

- Based upon our experience with the Broward County Segment II and III projects, the permitting process and the Federal planning and document approval process have the most significant impacts on the project implementation schedule. In coordination with Broward County and the USACE Jacksonville District, OAI will seek to use a Limited Reevaluation Report (LRR) and Environmental Assessment (EA) as the planning and NEPA
support from CAD department) and construction administration services.

Refer to pages 69 – 73 for greater details

The GBA Team includes personnel from M&N, Baird, and CSA. Together, we have the technical expertise, equipment, and staff to address all aspects of the Broward County Segment III Shore Protection Project. The GBA Team has extensive experience providing similar coastal engineering, surveying, and biological monitoring services within Broward County, throughout Florida, and around the world. Several GBA Team members worked on shore protection projects within Broward County, including the Hollywood and Hallandale Beach projects within the Segment III Project footprint.

Refer to pages 104 to 105 for greater details.

documents for the Segment III project. The time required to develop and gain approval of these documents is far less than the alternative of a General Reevaluation Report (GRR) and Environmental Impact Statement (EIS) set of documents, which might be required if significant changes in scope are proposed. Limiting the scope of the large project actions, such as the initial restoration, to the general scope of the 2005-06 project, and developing a project plan that does not expand the project impacts beyond those previously permitted and mitigated for should greatly simplify and expedite the Federal planning and permitting process. Major changes to the project plan can trigger more comprehensive planning and permitting actions that will prolong the ultimate project timeline and delay project construction.

Team Approach: OAI will implement a team approach for all tasks required to meet the ultimate goals of Broward County. OAI will lead the overall project consultant team, assign in-house staff as required for particular engineering tasks, and rely on the appropriate, qualified, independent sub-consultants on the team to lead and pursue tasks best suited to their qualifications and experience. This approach has been utilized by OAI for years on dozens of projects and allows OAI to work with the most qualified personnel in the State for their particular areas of expertise. Furthermore, teaming with these qualified yet independent groups and individuals brings a broader array of project experiences to the team and provides a necessary level of objectivity and professional separation within the consultant team.

More specifically, OAI will oversee all aspects of project activities and will be responsible for all appropriate deliverables. Project management will be conducted by Christopher G. Creed, P.E of OAI. As Project Manager, Mr. Creed will be readily accessible to Broward County as the primary point of contact, and is
knowledgeable of every aspect of the project. Mr. Creed’s experience in the County on such projects allows him to always be fully and constantly aware of the inter-relationship between project elements and to understand how each element affects the other tasks, time line, and project budget. Mr. Creed and OAI in-house staff will be principally responsible for contract administration, client liaison, planning, physical data collection, sand source identification and development, design, Federal project and document formulation, processing and approvals, permitting (serving as permit agent), development of plans and specification, bidding assistance, construction oversight, and post-project physical monitoring. Senior staff at OAI will contribute to technical review and quality control of deliverables.

Physical data, such as topographic and hydrographic survey data and geotechnical data, will be collected by professionals associated with Morgan and Eklund, Inc., Keith & Associates, Inc., Down-to-Earth (D2E) Geotechnical Consulting, American Vibracore Services (AVS), and Sonographics, Inc. Each of these consultants has particular expertise related to the type of physical data to be collected. Their engagement and use for particular tasks will be determined by the Project Manager through consultation with Broward County staff. OAI will ultimately be responsible for the quality and use of the physical data collected for the purposes of sand source development and project plan formulation among other potential tasks.

Coastal Eco-Group, Inc. (CEG), particularly Principal Scientist and President, Ms. Cheryl Miller, MS, a principal team member and lead environmental consultant, will work directly with OAI for permitting strategy development. CEG will likewise lead all environmental data collection, NEPA document preparation, regulatory agency coordination, permit review
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## 2. Project Approach:

**b) Describe, in detail, how the Prime Vendor and its subconsultants will handle each significant phase of the Project.**

**Points Value:** 10

**Phase I: Engineering, Design, and Permitting**

Coastal Systems will review available background data, including the expired Florida Department of Environmental Protection (FDEP) Joint Coastal Permit (JCP), the U.S. Army Corps of Engineers (Corps) Individual Permit (IP), and the 2004 GRR to confirm all required data and information is obtained to expedite review of the permits applications and Corps Project Partnership Agreement. Coastal Systems will review and analyze the recent pre-construction survey data to evaluate current beach conditions. Changes in beach width, beach slope, and/or recent storm activity may necessitate recommendations for modifications to Project implementation including sand placement logistics and/or schedule.

Pre-application discussions with the regulatory and approval, and construction-period and post-construction environmental monitoring. CEG will be supported by personnel from NOVA Southeastern University and The Chappell Group. Coastal Eco-Group, Inc. will work closely with OAI and Mr. Creed throughout the entire project. Ms. Miller and Mr. Creed will also be supported on an as needed basis by Mr. Henschel Vinyard, Esq., past Secretary of the Florida Department of Environmental Protection, for permit strategy development and the more complex permit negotiations if the need arises for his expertise. As an independent consultant, CEG and Ms. Miller will bring to bear a separate and distinct set of skills and experiences to aid the County in the prompt achievement of their project goals. This independence will likewise provide benefit to the County for construction-period and post-construction monitoring as well as overall permit compliance matters.

Refer to pages 35 to 38 for greater detail

**Phase I: Engineering, Design, and Permitting**

To ensure project success, the GBA Team will maintain continual coordination with Broward County, starting with a kick-off meeting to outline the scope of work for the initial phase. While a general plan of approach will be developed for the kick-off meeting to spur discussion, a more detailed plan of approach will be submitted after the kick-off meeting with County staff. The Team will utilize this information to prepare a project timeline that includes deliverable dates for key elements of the project for review and approval by County staff. The project progress, GBA and the County will develop decision points, or off-ramps, to either continue executing the plan, change course, or halt efforts should external variables warrant (such as changes in Federal funding availability). The combined engineering and environmental permitting approach to this field studies/engineering/cost estimates: OAI will be responsible for scoping field studies and performing QA/QC on subconsultant deliverables. Information from these field studies will be integrated in the design.
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| | agencies and the resource agencies will be conducted to facilitate early discussions about the project design, baseline, sand source, impact minimization, and monitoring guidelines. Coastal Systems will prepare, submit and process through the agencies, all required permit applications. The level of effort required for the Project permit processing phase will be affected by many external variables such as general concerns regarding beach renourishment, public comments/objections, commenting agency Requests for Additional Information (RAI) and Endangered Species Act (ESA) consultation requirements. Coastal Systems may assist in drafting documents for agency staff and coordinate meetings to expedite the permitting process. Several key environmental issues will need to be resolved during the permit evaluation process. These include, but are not limited to, potential direct and indirect impacts to nearshore hardbottom, consultation under the Essential Fish Habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act, and consultation on endangered species including sea turtles, corals, small tooth sawfish, and manatees, especially those species that have been listed since the original project construction. Coastal Systems will maintain clear communication with the County regarding permitting progress and the permitting agencies to expedite permit processing. | project is essential to streamline and optimize the project timeline, as previous permitting/design for the Segment II & III projects required over 10 years of permitting, resulting in numerous redesigns and excessive soft costs. Initiating the project with an optimized strategy will save time and costs. Within this Phase, GBA will perform the following:  
- Field Studies: Additional field investigations such as hydrographic and topographic surveys, geotechnical investigations, and biological surveys are conducted in support of this criteria based upon specific project needs. Spatial analysis tools but not limited to GIS will be utilized to organize and import data for optimization of historical data.  
- Hydrographic and Topographic Surveys  
- Geotechnical Investigations and Sediment Sourcing: The GBA Team has the expertise, equipment, and track record to perform an offshore sand investigation. If a potential sand source is located based on this analysis, GBA will collect geophysical data including bathymetry, side scan sonar, seismic data, and magnetometer data, using in-house staff and equipment.  
- Biological Resource Surveys: CSA will map the nearshore edge of hardbottom within the Segment III project from Port Everglades south into Miami-Dade County. This will provide the baseline for modeling the ETOF, as well as the downdrift control hardbottom limits. CSA will also perform baseline biological monitoring prior to construction of the project.  
- Conceptual Design and Engineering: The next step is design and permitting. Broward County’s primary challenge is balancing the placement of sand while avoiding the coverage of nearshore environmental resources (hardbottom). Our design approach is to use a combination of coastal engineering tools, engineering, and cost estimate analysis. All field data collection, design, and engineering will be scoped and conducted in a manner that is consistent with what will ultimately be required in the Federal planning documents (GRR or LRR), NEPA documents (EA or EIS), and permit applications and documentation. Environmental field studies will be led by Coastal-Eco Group with support from Nova and The Chappell Group, as required. Physical field studies required to document beach and nearshore conditions will be conducted by Morgan & Eklund, Inc. Upland surveys that may be required to support Federal planning and engineering analyses will be led by Keith and Associates. Sand source investigation will be led by OAI and D2E Geotechnical Consulting Inc. (D2E), with support from American Vibracore Services (AVS) and Sonographics as required. The involvement of AVS and Sonographics will likely only be necessary for any investigations of offshore sand sources. Upland sand sources studies, data collection and analyses will be handled exclusively by OAI and D2E.  
- Design, engineering, and cost estimate analyses will be pursued in a manner that is consistent with Federal planning guidelines since the results of these analyses will ultimately be incorporated into the Federal planning document. OAI will seek to confirm the appropriateness of the 2005-06 project design and evaluate reasonable modifications to that design should it be expected that modifications will result in long-term project performance improvements and costs savings to the overall project. Cost estimates will be based upon resultant design conditions and sand sources that are identified and/or confirmed to be the most feasible and cost-effective for the Project.  
- Permitting: OAI and Coastal Eco-Group, Inc. will share responsibilities to seek State and |
construction monitoring. As a small boutique firm, we can ensure that the Professional Engineer responsible for the plans will be involved throughout the document preparation process to allow for continuous Quality Assurance/Quality Control (QA/QC). Coastal Systems will assemble all required construction documents (plans and specifications) to ensure that the selected Contractor has the information required to complete the Project on time and on budget, with minimal Requests for Additional Information (RAIs) and Change Orders. Project specifications are prepared by the engineers at Coastal Systems and extensively reviewed by senior engineers. Our firm does not prepare “boiler plate” documents that are meshed together from other projects. Coastal Systems’ documents are customized for site specific projects and only applicable data/requirements are incorporated. Coastal Systems has compiled and prepared beach nourishment specifications for both hydraulic dredging projects and truck haul beach nourishment projects in Florida and the Caribbean. The Segment III Shore Protection Project specifications will be prepared in the Construction Specification Institute (CSI) format for ease of incorporation in the County’s “up-front” construction documents, including the general conditions of the construction contract.

**Bidding Assistance:** The selection of a qualified contractor is vital to successful implementation of any marine works project. Coastal Systems will assist the County in evaluating bids and recommending award of a construction contract. Coastal Systems will assemble the supporting bid package and review the “up-front” documents. The package will include Project scope, bid forms, and bidder requirements. Coastal Systems has organized and managed selection committees to review bid packages that include qualifications/experience in addition to the means/methods proposed by the contractor. Including analytical and numerical modeling, to assess the potential for nearshore hardbottom impacts that would result from various fill templates.

- **Sediment Budgets:** The GBA Team will evaluate the application of sediment budgets further and create a net longshore transport rate based on volumetric changes through time. We would use each monument as a node in this analysis. This longshore transport curve would then be compared to the numerically modeled longshore transport to better understand how the offshore bathymetric features impact the wave climate at the shoreline. This additional step, beyond looking just at shoreline change or volumetric change on a profile by profile basis, better explains sediment transport through the system.

- **Design Profiles:** While the design fill criteria has been set through the 2004 General Reevaluation Report, the USACE may require that it be periodically updated due to significant changes to the upland infrastructure. This is combined with an economic analysis through a program called Beach-FX. Developing this analysis is a substantial undertaking and we recommend that Broward County strenuously object to performing this work should the USACE state that it is required. Regardless, the GBA Team is fully capable of performing this analysis if required.

- **Profile Equilibration**
- **Numerical Modeling**
- **Coastal Structures:** Once the physical and biological data is compiled, a sediment budget is developed, and the preliminary fill template is designed, we will use empirical methods to determine whether extending the groin field at the VMJ State Park is warranted and prepare a cost benefit analysis for any recommended structural solutions. If it appears that coastal structures would be beneficial and Federal permits for the Project. This joint approach will benefit from the engineering expertise of OAI and the environmental expertise of Coastal Eco-Group. This collaborative effort will seek to develop an efficient permitting strategy. This will include pre-coordination with all State and Federal agencies, collaboration with resource agency staff during pre-application field data collection, the development of comprehensive and clear NEPA documents, and the formulation of clear and concise applications that will allow efficient review of information submitted.

It is expected that the most efficient approach to acquiring the project permits will include a request for approval of a project design that is not substantially different from the 2005-06 project. A project that does not propose impacts beyond those permitted and mitigated for previously will likewise facilitate a more efficient permit review and approval process. OAI will only proposed major modifications to the 2005-06 footprint that can be demonstrated to have a net benefit to Broward County. The balance between permitting a major modification and the anticipated additional time to acquire the permits will be part of the decision making process for finalizing the project scope.

**Identify Sediment Source(s):** OAI will lead the investigation of both known and potential new sand sources that can be considered for the Segment III project. OAI will be supported for field data collection, studies, and laboratory analyses by D2E Geotechnical Consulting, Inc., American Vibracore Services (AVS), and Sonographics, Inc.

Presently, known sand sources include limited sources offshore of northern Broward County in previously delineated borrow areas. There are also four upland commercial sand mines that contain sand that has been previously...
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This selection process is based on scoring that combines both the qualifications and the bid price. Coastal Systems is a strong proponent of this method of procurement to avoid the “low bid” process, which often results in unqualified contractors who do not perform sufficiently.

Coastal Systems is continuously monitoring the unit prices and trends in the marine and dredging construction industry. This knowledge is vital to preparing an Opinion of Probable Construction Cost (OPCC) that is both current and accurate. Coastal Systems will prepare an OPCC for the Project based on the construction documents and current market conditions.

**Notice to Proceed**: Coastal Systems will complete the application for and obtain the FDEP NTP to accomplish this work. The existing JCP includes specific conditions that must be met prior to NTP issuance. Coastal Systems has experience coordinating the required documentation with the selected contractor and the environmental permitting agencies. These documents will include, but not be limited to, final construction plans and specifications, turbidity monitoring plan, environmental protection plan, and storm contingency plan.

**Pre-construction Meeting**: Coastal Systems will schedule and coordinate the pre-construction meeting with the environmental permitting agencies, the County, and the contractor. An engineer and an environmental permitting specialist from Coastal Systems will attend the meeting. The FDEP JCP and Corps IP permit conditions will be reviewed, as well as all Project specific plans that must be adhered to, and submittals that are required. Meeting minutes will be prepared and distributed to the Project team.

**Submittal Review and Processing**: The specifications outline the construction submittal cost effective, then we will incorporate the proposed structural solution into the numerical coastal model.

- **Cost Estimates**
- **State and Federal Permitting**: Once key project elements have been developed, pre-application meetings will be scheduled with the FDEP and USACE. Participation from the FWC will be requested at the FDEP meeting and participation from NMFS Habitat Conservation Division (HCD), NMFS Protected Resources Division (PRD), and FWS will be requested at the USACE meeting. The goal of these meetings will be to ensure that all identified concerns are addressed to the extent practicable in the initial application packages. GBA will develop a comprehensive Joint Coastal Permit (JCP) application package for the Segment III Shore Protection Project. The application packages will be submitted to the FDEP and USACE and the permitting paths will run in parallel. Submittal of comprehensive application packages will minimize agency requests for additional information. When responses are submitted to RAIs, meetings will be requested with the agencies to walk staff through the responses to ensure a clear understanding of the submitted information.
  - **Federal Design Documents**
  - **Project Participation Agreement**: The GBA Team will provide technical and procedural support the County with respect to obtaining a Project Participation Agreement (PPA). We anticipate responding to questions and comments on environmental compliance, economic and social considerations, and public involvement. The County will provide supporting documentation demonstrating financial capability to provide the County portion of the project cost. This includes a statement of financial capability and financing plan.

permitted for use for the Broward Segment II shoreline.

It is assumed that these same sand sources will be acceptable for use in Segment III. To explore new and potentially more cost-effective sand sources, OAI will consider improvements in sand processing and dredging technologies that may now allow access to sand sources (offshore and upland) that have previously been eliminated from consideration because of concerns related to the amount of rock rubble and other unsuitable materials the sand sources. The new technologies may offer opportunities to process these sands and remove unsuitable materials in a cost-effective manner prior to placement on the Segment III beach. Only sand that is considered to be appropriate for beach use and hardbottom protection will be considered.

**GRR/LRR**: OAI will be responsible for preparing the Federal planning document that will be used to support Federal cost-sharing for the Segment III project. There are two types of documents that could be required for the Segment III project. These are (1) a General Reevaluation Report (GRR), or (2) a Limited Reevaluation Report (LRR). The GRR is commonly used when there have been or there are expected to be large changes to the project scope and/or project economic conditions. The LRR is typically used to update and confirm conditions for a project that has previously been constructed and known to meet performance objectives. Minor changes to the project scope can be evaluated in the LRR. Ultimately guidance from the USACE Jacksonville District will dictate which of these documents will be required. OAI believes that the most efficient approach will be to review project conditions through a LRR. This report is used to simply update the economic and cost analyses for the currently authorized Federal project. OAI will work with the County and the
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requirements including but not limited to, an operations plan, quality control plan, environmental protection plan, and other technical documents. Coastal Systems will review the submittals provided by the selected contractor for conformance with the construction plans and technical specifications, as well as the permit requirements.

Permit Compliance: All permit compliance items will be compiled in an excel spreadsheet and added to a Outlook project calendar with reminders so that Coastal Systems routinely uses to track permit compliance items and reports. This method of tracking has allowed Coastal Systems to stay on top of permit requirement, surveys, reports and submittals. Pre-construction surveys will be conducted, analyzed and submitted to the agencies, as required, as well as any other permit specific conditions prior to DEP Notice to Proceed (NTP) issuance. Coastal Systems will then complete the application for and obtain the NTP to begin construction of the Project. Coastal Systems will schedule and coordinate the pre-construction meeting with the environmental permitting agencies, the County, and the contractor. An engineer and an environmental permitting specialist from Coastal Systems will attend the meeting. The DEP JCP and USCOE IP permit conditions will be reviewed, as will all Project specific plans that must be adhered to, and submittals that are required. Pre-construction meeting minutes will be prepared and distributed to the Project team. Coastal Systems will notify the County of upcoming compliance items prior to their permit associated deadlines and will review deliverables associated with the project for compliance with all issued permits.

**Phase III: Construction Services**

*Beach Sand Quality Control Monitoring:* Coastal Systems will perform ongoing visual inspections of the sediment placed on the

Refer to pages 106 – 114 for greater detail on Phase I services described above.

**Phase II: Pre-Construction Services**

GBA will take the lead on securing Notices to Proceed from the FDEP and the USACE in preparation for construction of the Segment III project. The pre-construction biological monitoring will be conducted by CSA and the pre-construction physical monitoring will be conducted by GBA. These services will be completed the summer prior to commencement of construction, as required by project permits. Refer to page 114.

**Phase III: Construction Services**

Oversight during construction will be a critical element to ensure that the contractor is following all requirements included in the plans, specifications, and permits. Given our local presence in Broward County, we can relieve the County of the burden of daily visits to the site. We will have an on-site representative to document construction progress and ensure that the sediment meets the exacting quality requirements. As both prime and engineer of record, GBA will provide resident project representative services during construction.

GBA will prepare, lead, and document the pre-construction conference and either weekly or bi-weekly site meetings with the Contractor. During these meetings, we will discuss progress to date and identify any challenges that may arise so that they can be addressed in a timely fashion.

GBA will collect and analyze sediment samples and ensure that all sediment meets the Sediment Quality Assurance/Quality Control (QA/QC) Plan that will be part of the permit conditions. The Contractor is often charged with water quality monitoring. We will ensure

USACE Jacksonville District to pursue the most efficient path to Project approval.

OAI will also evaluate the possibility of using the approved 2004 GRR as the planning document to support a new Project Participation Agreement (PPA). Although the chance of success is low, OAI will recommend this as a means to avoid the expense of a new planning document and potentially expedite the construction of the next renourishment of the Segment III project.

**PPA:** For the Segment III project, OAI will assist Broward County staff during the formulation, review and approval of the Project Participation Agreement (PPA). OAI experience with PPA assistance for Broward County and other Florida communities with Federal shore protection projects suggest that the process requires an overall understanding of the scope, economic, and cost-sharing arrangement of the Federal project. This information will be described in the planning document (GRR or LRR) that will be prepared by OAI. As such, OAI will be the most familiar with the technical details included in the final document. In some instances during the negotiation of the PPA there is a need for interpretation of technical information in the planning document. There may also be a need for updates of information, particularly cost-sharing information, through what can sometimes be a very lengthy negotiation period. OAI will work closely with Broward staff to support Broward County as well as the USACE Jacksonville District to complete the PPA process as quickly as possible.

**Phase II: Pre-Construction Services**

OAI as the Engineer of Record will manage and be familiar with all aspects of the pre-construction services required for the Segment III project. For Pre-Construction Surveys OAI will scope and manage required physical data.
beach to evaluate compliance with the sediment specifications for the Project. Where necessary, quantitative testing will be conducted in compliance with the sediment quality control/quality assurance plan. Andersen Andre Consulting Engineers will conduct geotechnical engineering services and assist with this task.

**Truck Ticket Volume Checks:** Approximately two (2) times per week, Coastal Systems will perform a comparative analysis of the survey data and production reports provided by the contractor to monitor the fill production reports. Coastal Systems will complete the volume calculations to verify the volumes reported by the contractor and to monitor the production schedule.

**Resident Project Representative:** Coastal Systems will staff the Project with an on-site Resident Project Representative (RPR). The RPR will observe construction operations multiple times daily and will communicate with the truck crews. The RPR will prepare and distribute daily reports documenting Project progress and issues. Photographs will be included in the daily reports.

**Site Visits:** An engineer from Coastal Systems will visit the site two or three (2-3) times per week to supplement the RPR services. Field Observation Reports will be prepared and distributed documenting each engineer site visit.

**Progress Meetings:** Coastal Systems will coordinate and attend weekly progress meetings with the Contractor and the County. Construction progress will be reviewed and construction issues will be addressed. Coastal Systems will prepare and distribute meeting minutes.

**Review and Processing of Payment Applications:** Coastal Systems will review and that the water quality monitoring plan is being followed. GBA is also capable of performing this work should either the permitting agencies or Broward County elect to not have the Contractor perform this work.

If an offshore source of sand is used for all or a portion of construction, CSA will provide biological monitoring during dredging operations, as well as endangered species monitoring services. GBA will review the logs containing the location of the cutterhead or drag arms on a daily basis to ensure that the Contractor is remaining with the borrow area. GBA will respond to all requests for interpretation, change orders and general correspondence from the Contractor. Refer to page 115

**Phase IV: Post-Construction Services**

Once construction is complete, GBA will provide record drawings within a project close-out report. This report will summarize any changes to the project from the initial permit and will be submitted to the County. It will also provide a summary of the project bid cost, final cost, volume placed, relevant correspondence, survey data, and other pertinent details. The project close-out report is intended to serve as the pre-eminent document for future reference on project construction.

Permit compliance will be managed by Penny Cutt, as project manager, who will coordinate the postconstruction monitoring efforts of all team members. Post construction compliance will be a joint effort, with GBA conducting physical monitoring surveys and reporting, and CSA conducting biological monitoring surveys and reporting.

Should the Federal Government want additional data beyond the data provided in the project close-out report, GBA will coordinate collection such as beach profile surveys, hydrographic surveys, and geotechnical data collection and analyses. Beach and hydrographic survey will be conducted by Morgan and Eklund, Inc. with support by Keith and Associates, Inc. as appropriate.

Geotechnical data collection will be scoped and managed as a collaborative effort between OAI and D2E Geotechnical Consulting. Laboratory analyses and sediment QA/QC will be performed by D2E Geotechnical Consulting.

For nearshore environmental monitoring, OAI will defer exclusively to Coastal Eco-Group, Inc. to lead environmental data collection and coordination of the results of environmental surveys with the agencies. Coastal Eco-group will be support by Nova.

For the Segment III project, OAI and D2E Geotechnical Consulting, Inc. will assist Broward County to verify the suitability of known upland sand sources for use along the Segment III shoreline. OAI and the geotechnical team will likewise review other potentially available upland mines that may be closer to Broward County which will result in reduced cost for use of upland mines.

OAI and D2E will also review the suitability of known but limited remaining sources offshore of the County. If desired by Broward County staff, OAI will explore other potential offshore sand sources, including sources offshore of Broward County that might be improved with recent advances in dredging and material processing technology, and aragonite sources along the western edge of the Bahamas, among others. OAI has decades of experience working in the Bahamas and has led past efforts by Broward County to evaluate the possible use of aragonite as a sand source for the Segment II and III beaches.
### EVALUATION CRITERIA - PROJECT SPECIFIC CRITERIA

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<th>Coastal Systems will review the daily field, turbidity, and endangered species monitoring reports provided by the contractor. These reports will be reviewed on a weekly basis for conformance with the plans, specifications, and environmental permits and will be submitted to the regulatory agencies in accordance with permit requirements.</th>
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<td><strong>Field Reports:</strong> Coastal Systems will review the daily field, turbidity, and endangered species monitoring reports provided by the contractor. These reports will be reviewed on a weekly basis for conformance with the plans, specifications, and environmental permits and will be submitted to the regulatory agencies in accordance with permit requirements.</td>
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<td><strong>Phase IV: Post-Construction Services</strong></td>
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<td><strong>As-Built Survey Review:</strong> At the completion of the Project, Coastal Systems will review the as-built surveys provided by the contractor's surveyor. These surveys will include the final payment volumes and cross section plots.</td>
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<td><strong>Construction Close-out Documentation:</strong> Coastal Systems will compile the construction close-out documentation required for the environmental permits. This will include the as-built surveys, reporting, and other documentation outlined in the environmental permits. A final certification for Project completion will be issued.</td>
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<td><strong>Permit Compliance Monitoring Activities:</strong> Coastal Systems has reviewed the biological and physical monitoring plans which were approved as part of the JCP permit. Coastal Systems is capable of performing the immediate post-construction physical and biological monitoring to meet the environmental permit conditions, should the County include these tasks in the scope of services. Coastal Systems can also analyze and summarize the collected data in annual process payment applications in accordance with the construction documents. The applications will be reviewed and compared to the truck ticket production reports and the established schedule of values. The applications will be signed and submitted to the County in a timely manner for payment processing.</td>
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<td>With them to provide that data. Refer to page 115</td>
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<td>Through extensive recent experience in Broward and elsewhere in Florida, OAI is familiar with most, if not all of the responsible and qualified contractors that will be suitable for construction of the Segment III project. These include members of the U.S. dredge industry as well as contractors who specialize in the construction of beach and dune projects using upland sand mines. OAI will assist the County in identifying the most suitable potential bidders and seek to formulate project conditions that will facilitate broad bidding interest in the project from the dredging and construction communities.</td>
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<td>OAI will prepare design plans and technical specifications to be integrated into Broward County procurement documents. The plans and specifications will reflect the ultimate permitted conditions of the project. Team members Coastal Eco-Group, D2E Geotechnical Consulting, and The Chappell Group will participate in the review of the documents to ensure compliance with permit conditions, geotechnical requirements of the sand sources, and the approach for monitoring and protecting environmental resources and water quality during the construction phase or phases of the project.</td>
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<td>OAI will prepare for and assist Broward County staff with the pre-bid meeting. OAI will present the technical aspects of the project scope and design to potential bidders and answer appropriate questions during the meeting. OAI will likewise assist the Broward County procurement team with additional technical questions submitted to the County during the bid period. Upon receipt of bid, OAI will review, as appropriate, all bids and make a recommendation to the County regarding the responsiveness of all the bids and bidders, from a technical and qualifications standpoint.</td>
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### Phase III: Construction Services
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| monitoring reports submitted to the environmental regulatory agencies.  
*Federal Audit Consultation*: Coastal Systems will assist the County during the Federal Audit of the Segment III project for determining final cost sharing. Coastal Systems will document expenditures, determine cost sharing percentages, and coordinate with the US Army Corps of Engineers. |  
*Construction Observations/Contract Administration*: For the Segment III project, OAI will again team with D2E Geotechnical Consulting to conduct project construction observation and assist the County with contract administration. OAI, specifically Mr. Christopher G. Creed, P.E., will serve as the Engineer of Record and chief liaison for administration matters between the County and the Contractor. D2E Geotechnical Consulting, Inc. will lead and conduct all field observation and sediment QA/QC during construction from their Ft. Lauderdale office. OAI will assist the County with construction contract administration, support and coordination. OAI will be in daily communication with the Contractor and Broward County staff during the execution of the construction contract. OAI will monitor all aspects of the progress of the work, including compliance observations from the field representatives and water quality monitors. OAI will be responsible for reviewing and confirming constructed conditions, monitoring compliance with the construction contract, reviewing data submittals and pay requests from the construction contractor, and reviewing final construction conditions, among other responsibilities. OAI will coordinate continually with Broward County staff to keep staff up to date on the progress of the work and compliance of the contractor with contract conditions.  
*Permit Compliance*: For the Segment III project, OAI’s team including OAI, Coastal Eco-Group, D2E Geotechnical Consulting, and The Chappell Group will monitor construction, environmental, and water quality conditions throughout the entire construction process for all phases of the project. |
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The corporate and professional independence of each of our sub-consultants from OAI will provide an independent assessment of project conditions and compliance measures. Each of our sub-consultants will have the authority to notify appropriate regulatory and/or resources agencies of any non-compliance issues, without the influence or advance review of OAI.

Such independence will be beneficial during the review of project permits, development of monitoring plans, and execution of project compliance activities.

**Sediment QA/QC:** D2E will conduct sediment QA/QC during the execution of all construction contractors. For upland sourced projects, this will include site visits to sand mine(s), inspection of each truck load of material that is delivered to the site, random qualitative testing of sand delivered, and selective laboratory testing of sand samples for quantitative confirmation of compliance with project permits. D2E will continually consult with OAI regarding the quality of sand deliveries to the site and submit all sediment testing reports to OAI and the County for compliance record keeping.

D2E will also review sediment QA/QC procedures to be implemented by the Contractor and monitoring contractor compliance with approved procedures.

For dredging projects, D2E representatives will continually monitor, sample, and test the material delivered to the beach by dredge. D2E will be responsible for reporting any noncompliance issue to the Contractor, Broward County, and OAI.

**Pre-Construction Conference:** OAI, Coastal Eco-Group, D2E, and The Chappell Group will all participate in the pre-construction conference with the selected project contractor. The purpose of this extensive participation during this essential and critical conference will...
be to make sure the project contractor clearly understands the scope of work, any community or site restrictions that will be required, the environmental permit conditions and protections, and the scope of the sediment QA/QC and environmental permit compliance monitoring that will occur during the project.

**Phase IV: Post-Construction Services**

*Post-Construction Monitoring:* OAI will manage all permit-required post-project monitoring, including contract management with all subconsultants, and will perform all engineering analyses. OAI will direct the collection of physical data by subconsultants. Beach and offshore topographic and hydrographic surveys will be led by Morgan and Eklund, Inc. of Deerfield Beach, FL. As necessary, Keith and Associates will support the collection of data in upland areas.

Environmental data collection, project compliance, and reporting will be led independently by Coastal Eco-Group as is now required by FDEP. Coastal Eco-Group, with support of Nova and The Chappell Group, will collect field data, perform compliance analyses, submit biological data directly to FDEP and the USACE (with copies to the County and OAI), and submit final compliance results to FDEP and USACE.

*Post-Construction Reporting:* For each construction event, OAI will prepare a post-project engineering report that documents the construction process, details, and constructed conditions of the project. This documentation report will be the basis for all physical monitoring activities following project completion. The report will also be submitted to the USACE and FDEP, as part of the project Certification of Completion process, to verify that constructed conditions comply with the requirements of the project permits as well as the Federal planning documents such as the
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**GRR or LRR, depending upon what documents is ultimately required for the Segment III project. Qualification for reimbursement from the Federal government will be based upon compliance of constructed conditions with the approved GRR or LRR.**

**Federal Audit Consultation:** OAI will assist Broward County and serve as the technical expert during the USACE audit of constructed conditions and compliance with the approved Federal planning documents. Based upon past experience, OAI may also be required to update the project's Federal cost-sharing analysis and confirm the amount of reimbursement for which Broward County is ultimately eligible.

Refer to pages 39 to 50 for greater detail

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**2. Project Approach:**

c) **Describe the Prime Vendor’s approach to permitting and compliance with regulatory agencies having jurisdiction over the Project.**

**Points Value: 10**

Coastal Systems has a dedicated staff that regularly processes environmental resources and coastal construction permits each year through federal, state and local regulatory agencies. This team specializes in coastal/waterfront permitting projects, but consulting services are also provided to developers, attorneys, and architects. Development and existing facility improvement feasibility studies are regularly provided to address regulatory concerns prior to submitting applications.

Coastal Systems has working relationships with representatives of the necessary agencies to expedite the environmental resource permit process. In addition, the marine biologists at Coastal Systems have extensive experience with planning, negotiating, and designing mitigation for impacts to marine resources. Mitigation can include underwater artificial reefs, and seagrass planting/restoration.

Our project managers and technical staff are well versed in the regulations and procedures required by the Corps, as well as federal.

The environmental regulatory agency staff are tasked with enforcing their agency’s rules, while working with applicants to arrive at a permittable project. In southeast Florida, where protecting upland infrastructure is paramount, the nearshore ecological resources must also be protected. As consultants, it is our job to provide the regulatory agencies with the information they need to verify and document a project’s compliance with the guiding regulations so that agency staff can recommend issuance of a permit. After collection of current baseline physical and biological data and preliminary design of the Segment III Shore Protection Project, GBA will meet with Broward County staff to confirm preliminary project design.

**Florida Department of Environmental Protection:** GBA will initiate the FDEP permitting process through a pre-application meeting with the Division of Water Resource Management, specifically staff from the Beaches Inlets and Ports Program (BIP) and the Engineering, Hydrology & Geology Program (EHG). Representatives from the

OAI will serve as the Permit Agent and Engineer-of-Record for the ultimate project plan to be permitted and constructed. OAI will seek long-term permits (i.e., 15 years) that will include initial restoration and future maintenance and management activities such as localized hot spot sand placement on a recurring and as-needed basis.

Though consultation with Broward County, OAI will seek to balance the benefits of including major project improvements in the initial permit application against the risk of elements that are potentially difficult to permit and could delay authorization for the much need initial renourishment.

OAI will be responsible for direct coordination of the permit application and responses to questions from all regulatory (FDEP and USACE) and resource protection agencies (FWC, USFWS, NMFS, and EPA). OAI will also be the liaison for communications between these agencies, Broward County, and the environmental consulting team. Early engagement with the regulatory agencies is...
commenting agencies including NMFS, FWS, U. S. Coast Guard, and the U.S. Environmental Protection Agency (EPA). Our firm has tremendous experience negotiating with the FDEP Coastal Protection and Engineering Program, the FDEP Beach Management Funding Assistance Program, FDEP Division of State Lands, South Florida Water Management District and FWC. Communicating project goals to regulatory agencies, project stakeholders, and local interest groups requires a concerted effort on behalf of the project sponsor and the consultant team.

Open communication in the early stages of project design and development is essential to enable the project team to effectively address any site specific issues prior to project design and permitting. The project design can be altered, in some cases, to facilitate project implementation and avoid project opposition. If Notices of Intent to Issue are published, and local interest groups and/or stakeholders oppose the project, project schedule delays can occur, resulting in additional costs.

Refer to pages 74 – 77 for greater details

FWC will also be encouraged to attend to provide important input pertaining to marine sea turtles and nearshore hardbottom resources. Key GBA Team members will attend this meeting, along with Broward County representative(s).

The feedback compiled during the pre-application meeting will be incorporated into continued project design to include project modeling, fill template design, biological monitoring plans, and sediment QA/QC plans. As part of the complete permit application package, GBA will prepare a detailed cover letter describing the proposed project and requesting a 15-year permit duration. A complete JCP application, executed by Broward County, will be submitted. To support the JCP application, current topographic and bathymetric survey drawings; complete permit drawings including plan views, cross sections, details of construction, and existing structures; a proposed construction schedule; geotechnical data for the proposed sand source(s); a fill material compatibility assessment; a detailed biological assessment of the ecological resources; a threatened and endangered species assessment; an analysis of the expected effects the project will have on the coastal ecosystem; a biological monitoring plan to assess direct and secondary impacts from the project; and an alternative analysis will be prepared and submitted. The permit application fee will be requested from Broward County after FDEP confirms the amount.

Upon issuance of project permits, the GBA project manager will prepare a detailed permit compliance spreadsheet itemizing all items required to be prepared and submitted prior to commencement of construction, during construction, and post construction. This spreadsheet will identify the deliverable, the person responsible for preparing the documentation, where the deliverable must be submitted, and when the documentation is critical to streamlining the permitting process. Joint pre-application meetings with State and Federal agency staff will be pursued to improve communication and address all hardbottom resource issues in the early phase of the application process.

The environmental consulting team will be led by Coastal Eco-Group, Inc. (CEG), under direction of Principal Scientist and President, Ms. Cheryl Miller. CEG, a principal team member and lead environmental consultant, will conduct, direct, and be principally responsible for environmental data collection, permitting strategy development, NEPA document preparation, hardbottom impact assessment and mitigation and monitoring plan development, coordination, review and approval, and construct and post-construction environmental monitoring. Coastal Eco-Group, Inc. will be supported by NOVA and The Chappell Group for environmental field data collection and surveys. Specifically, NOVA will be responsible for documentation of nearshore coral communities along the project shoreline and Federally listed coral species surveys of the nearshore area adjacent to the project fill limits. The latter has never been conducted along the Segment III shoreline and will be central to Federal agency approvals for the upcoming project. There were no Federally listed coral species under the Endangered Species Act at the time of permit issuance for the 2006 Segment III project. In most instances, NOVA will work under the direct supervision and collaboratively with CEG. Staff from The Chappell Group may support CEG field activities, if necessary, and under the direct supervision of FDEP-approved CEG biologists, and will also provide water quality plan development and turbidity monitoring services during the project construction periods.

Compliance: Coastal Eco-Group, Inc. and The Chappell Group will work closely with OAI
|------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------|

submitted. Separate tabs will be prepared for each year post construction to ensure that no items are overlooked. Additionally, all deliverables will be calendared in advance to ensure proper scheduling of field surveys and allocation of time for data processing and report preparation. Planning ahead and allocating sufficient staff time is critical to ensuring compliance with all permit conditions.

U.S. Army Corps of Engineers: Prior to submittal of an application to the USACE, a pre-application meeting will be scheduled. The NMFS PRD, NMFS HCD, FWS, and EPA will be invited to participate in the pre-application meeting to provide valuable input into the development of the proposed project. The meeting will be led by GBA with active representation to Broward County and the State and Federal regulatory and resource agencies for environmental permitting and compliance matters. This corporate, contractual, and professional relationship will comply with FDEP guidance for independence between the design professional and biological professional responsible for hardbottom monitoring and permit compliance. Our independent team approach will benefit Broward County during post-construction monitoring and permit compliance review as well as for State cost-sharing grant agreements which also require independence between design and environmental consultants.

Refer to pages 115 to 119 for greater detail

| 2. Project Approach: | Beach management projects represent a significant capital expense and are vital to providing storm protection and economic benefits to coastal communities. Coastal Systems has provided specialized, strategic coastal engineering consulting services for a variety of beach management initiatives throughout Florida and the Caribbean and has the experience to deliver such projects on time and on budget. Construction in the coastal/marine environment is unique and can be challenging requiring special construction techniques and the use of floating equipment. Coastal Systems’ staff has extensive experience with coastal engineering design, environmental permitting, and marine construction. Coastal Systems was the engineer-of-record for the City of Hollywood Truck Haul Beach Renourishment Project and can provide the full range of services required for this Project including beach design, bidding assistance, environmental permit compliance, and construction administration. | The Broward County Segment III shoreline extends 8.1 miles from the Port Everglades south jetty to the Miami-Dade County Line. The shoreline is characterized by park areas with dunes and no upland infrastructure, to narrow beaches backed by high-rise condominiums protected by seawalls and narrow beaches.

As expected, the width of the beach has been variable over time. Portions of the Segment III shoreline have benefited from previous beach nourishment projects. The north end of VMJ State park was nourished in 1976/77, 1989, 2005/06 and 2013. The south side of VMJ State Park has never had direct sand placement. The 1991 and 2005/06 projects were the larger projects extending from the Miami-Dade County line to R-101 (north end of Hollywood) (1991) and R-100 with a taper to R-98 in Dania (2005/06). Smaller projects were constructed in 2001 (2,000 feet in south Hollywood) and 2012 (4,000 feet in south Hollywood). | Olsen Associates, Inc. (OAI), and particularly the proposed OAI project manager, Christopher G. Creed, P.E., is intimately familiar with the Segment III shoreline and has an exceptional understating of the shoreline itself and the challenges the Broward County faces with the continued management of the upland, beaches and adjacent nearshore hardbottom resources there along.

Mr. Creed has worked with Broward County for the better part of the past 20 years on projects and topics related to the Segment III shoreline. Much of his experience with Segment III is described in numerous study reports that have been prepared by Mr. Creed and OAI staff. Refer to page 87 for list of reports

In addition to these engineering studies, OAI has conducted analyses and authored five physical monitoring reports (2006-2011) that detail annual beach conditions along the Segment III shoreline. These reports were submitted. Separate tabs will be prepared for each year post construction to ensure that no items are overlooked. Additionally, all deliverables will be calendared in advance to ensure proper scheduling of field surveys and allocation of time for data processing and report preparation. Planning ahead and allocating sufficient staff time is critical to ensuring compliance with all permit conditions. |

Refer to pages 115 to 119 for greater detail

Points Value: 5
Broward County is internationally renowned for its beaches. This draws visitors, "snow-birds" and residents from all over the world and makes Broward County’s beaches critical to the economy. Broward County has a 5% Tourist Development Tax (TDT) that is charged on any accommodation rented for less than 6 months. Broward County raised $61.8M through this tax in 2016, much of which is attributed to visitors drawn to the beaches. Beyond the TDT, Friends of Florida State Parks estimate that the VMJ State Park contributed over $35.2M to the economy, supporting 564 jobs and 18 staff. With slightly easier access because of their locations and more dense parking, it is a fair assumption that Dania Beach Ocean Park and Hollywood North Beach Park contribute an equal or higher value per equivalent length of shoreline. Thus, these parks likely contribute an additional $11M in economic benefits. While not officially listed as a park, the beach section between Franklin Street and Forrest Street provides extensive public parking and beach access and, again assuming a comparative value to VMJ State Park based on shoreline length, could contribute upwards of $12M to the economy. Thus, the net recreational benefit of the beaches in Segment III may exceed $58M annually! Without a beach or a significantly reduced beach width, these economic benefits will decrease.

Recreational benefits and tourism derived taxes are not the sole economic benefits due to a healthy beach system. Beaches also provide protection to upland infrastructure.

Another economic benefit of the Segment III beaches is the increase in property value due to a robust and healthy beach system in front of private property. It is difficult to differentiate between the value of the beach and a waterfront property with no beach, but

Refer to page 78

completed to comply with project permits associated with the 2005-06 Segment III shore protection project.

Through the involvement of Mr. Creed and the OAI engineering staff with these tasks required to complete these studies and the long-standing relationship with Broward County, OAI has a comprehensive understanding of the physical, economic, political, and environmental conditions along the Segment III shoreline.

Refer to page 53
### 2. Project Approach:

**e) Describe the methodology proposed for budget control and the steps the Prime Vendor will take to complete the Project within the Project budget.**

**Points Value: 2**

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The County will be an important client for Coastal Systems and the assigned project will be a top priority. Coastal Systems will complete specific project planning, engineering analyses, design, cost and alternative analyses, and construction administration tasks identified by the County on time schedules mutually agreed to between the County and Coastal Systems. Several tasks can be run concurrently, depending on the County’s master implementation schedule and funding structure. Coastal Systems and its sub-consultant have sufficient staff resources to dedicate to this contract.

Consulting fees are negotiated at the beginning of the project for the services anticipated, but additional services may need to be negotiated to address changes in scope. Coastal Systems strives to utilize available data from other agencies, including the County, to minimize costs. Coastal Systems also maintains regular communication with the regulatory agencies requiring the additional studies to ensure the waterfront property is typically double the value of other property and the largest premiums are generally found in Florida (Zillow).

Another economic driver of Broward’s economy is fishing and diving, which rely on the offshore reef structure. As such, any beach nourishment efforts must consider potential impacts to the reef system. While larger nourishment projects are more cost efficient, as they divide the mobilization cost by a larger volume and generally obtaining a lower unit cost per cubic yard, the previously developed beach fill template limits the volume of sediment that can be placed. These templates were developed to minimize impacts to the reef, but should be reassessed based on current conditions.

Refer to pages 119 to 121 for greater detail.

The approach for budget control will benefit from the following:

- OAI’s and sub-consultants’ familiarity with the Broward County Segment III shoreline;
- OAI key sub-consultants responsible for field data collection being located in Broward County;
- OAI key team member Coastal Eco-group (CEG) having worked on nearshore hardbottom monitoring programs along the Segment III shoreline since completion of the 2005-06 Segment III project;
- OAI’s familiarity with the Broward County Federal Shore Protection Project and the USACE Planning Process;
- OAI’s experience with successfully completing the planning, permitting, and implementation of the Broward County Segment II project; and
- OAI and team’s experience with implementation of adaptive management and monitoring protocols for projects with hardbottom resources, which have
### EVALUATION CRITERIA - PROJECT SPECIFIC CRITERIA

| Coastal Systems International, Inc.  
464 South Dixie Highway  
Coral Gables, FL 33146 | Gahagan & Bryant, Inc.  
7501 NW 4th Street, Suite 208  
Plantation, FL 33317 | Olsen Associates, Inc.  
2618 Herschel Street  
Jacksonville, FL 32204 |

| services are necessary and to refine/optimize the scope for efficiency and to reduce costs. We are also able to respond quickly and effectively when emergency or other short-notice projects/tasks arise unexpectedly. We have a proven track record for managing multiple projects and committing necessary resources to meet our clients’ goals. Refer to page 78 | analyzing all historical data. We realize that field investigations can be expensive and time consuming and for that reason, we take a value added, phased approach to field data collection. By first evaluating all available existing data, we can minimize redundant or unnecessary data collection. Additional field investigations such as hydrographic and topographic surveys, geotechnical investigations, and biological surveys are then conducted based upon specific project needs. Generally, planning and engineering is only a small portion of the overall project costs. We have a long history of reducing project costs through innovative design that allows the client to get the product they desire, while making the construction work simpler and more cost effective for the contractor. Refer to pages 121 to 123 for greater details | resulted in more robust ecological data and cost-savings to the Client. OAI will use this experience to develop clear and targeted scopes of work for OAI and our subconsultants in the interest of pursuing efficient tasks and producing useful products within proposed budgets. OAI will seek to mirror, to the maximum extent possible, lessons learned during work for the Segment II and III beach projects and Port Everglades sand bypass project to develop the overall Project approach and strategy. Likewise, OAI will identify the sub-consultants who are most suited and cost-efficient for the tasks assigned. OAI will also consult with the sub-consultant team in the development of strategies and efficient scopes of work. Our key environmental sub-consultant, Coastal Eco-Group Inc., has implemented adaptive management and monitoring protocols for beach nourishment and the Port Everglades sand bypass project, which have resulted in more robust ecological data and cost-effective and ecologically appropriate monitoring and mitigation strategies. Biological monitoring protocols that do not provide useful data will be eliminated from the County’s program. Refer to pages 54-55 for greater details. |

### 3. Past Performance: Max Total – 23 Points

**a) **Describe the Prime Vendor’s experience on jobs of similar scope and nature to the Project. If any of these jobs exceeded the original award amount or time for completion, provide an explanation of the circumstances that lead to these results. These projects can also be referenced on the Vendor Reference Verification Form. Points Value: 15

For over twenty years, Coastal Systems has provided both its public and private sector clients with comprehensive consulting services required for successful implementation of coastal and waterfront projects. This experience includes conducting field investigations, applying state-of-the-art coastal engineering numerical models, preparation of strategic planning and management documents, environmental impact analysis, environmental permitting, site planning and engineering design, and construction management for highly complex and unique projects.

The GBA Team has extensive experience working on beach nourishment projects similar in scope and ecological sensitivity to the Broward County Shore Protection Project. Many of these projects are located in southeast Florida and others are located throughout the U.S. and the world.

The following present projects that GBA, the prime vendor, has worked on around the Country. These projects are all similar in nature to the Broward County Segment III Shore Protection Project. GBA has never exceeded an original award amount or agreed upon time for completion without a client requested

Since 1982, Olsen Associates, Inc. (OAI) has developed an extensive and detailed level of experience as the professional coastal engineers consulting to the local sponsors of more than a dozen Federally-authorized shore protection and navigation projects, and many more large, locally funded, non-Federal beach restoration projects. OAI’s work with many of the noted Federal projects has included multiple planning and construction events within the overall implementation of the authorized project. The four OAI principals have long been associated with the firm -- between 23 and 35 years -- and each continue to be the project managers for all of the firm’s
EVALUATION CRITERIA - PROJECT SPECIFIC CRITERIA

Coastal Systems International, Inc. 464 South Dixie Highway Coral Gables, FL 33146

Gahagan & Bryant, Inc. 7501 NW 4th Street, Suite 208 Plantation, FL 33317

Olsen Associates, Inc. 2618 Herschel Street Jacksonville, FL 32204

Refer to pages 81-100 for full list of projects
Refer to pages 106-108 for Vendor Reference Verification Forms

change in scope. We are very proud of our ability to come in under budget and ahead of schedule for the majority of projects we work on. Page 123

Refer to pages 124 to 134 for full list of projects
Refer to pages 156 to 160 for Vendor Reference Verification Forms

3. Past Performance:

b) Describe the Prime Vendor’s past experience working with governmental agencies and relevant regulatory agencies such as the Florida Department of Environmental Protection (FDEP), U.S. Army Corps of Engineers (USACE), National Marine Fisheries Service, Florida Fish and Wildlife Conservation Commission and U.S. Fish and Wildlife Service (FWS).

Coastal Systems has extensive experience in obtaining Joint Coastal Permits (JCP) from the DEP. This consolidated process facilitates state and federal approval for projects which require a combination of permits including coastal construction, environmental resource and wetland resource permits, and sovereign submerged land authorizations. JCP applications are submitted to the DEP Office of Beaches and to the firm for review of engineering feasibility and potential environmental impacts of projects proposed below the mean high water line in the coastal zone.

Coastal Systems’ project managers work closely with local governments, coastal engineers, and DEP staff to identify and resolve areas of concern so as to efficiently secure permits for a variety of structures and activities including:

- Dredging and maintenance of inlets and navigational channels
- Beach restoration and renourishment
- Construction of beach erosion control structures such as groins and breakwaters

Coastal Systems’ key to success in obtaining JCP approval for large-scale coastal projects includes a winning combination of a knowledgeable staff with a wide range of expertise, long-running relationships with regulatory agencies, and a commitment to

Penny Cutt, GBA’s Project Manager for this contract, is a former regulator at the federal, state, and county levels. She has managed the permitting for hundreds of private and public sector projects throughout the region and as an environmental consultant. She has maintained relationships with agency staff at FDEP, FWC, USACE, NMFS, and FWS through the years, and understands the regulations that they must abide by. While at the USACE as the Team Leader for the Palm Beach Gardens Regulatory Field Office she managed the regulatory review and decision making for hundreds of Section 10 and Section 404 permits in St. Lucie, Martin, Palm Beach, Broward, Miami-Dade and Monroe Counties. Ms. Cutt has conducted the review and decision making for beach nourishment projects throughout this region. Since that time, she has been using her expertise to assist public and private sector clients implement coastal projects in southeast Florida.

GBA has been permitting beach nourishment projects in Florida for over 40 years. During this time we have addressed regulatory and commenting agency concerns regarding potential impacts to nearshore hardbottom and effects to listed species, and we have assisted these agencies in demonstrating that our proposed projects meet the criteria for permit issuance. With contacts throughout the

Over the course of dozens of Federal and non-Federal beach nourishment and coastal structures projects, all of which require State and Federal permits for completion, the professional staff of Olsen Associates, Inc. (OAI) has developed a strong reputation for the successful permitting of challenging projects throughout the Southeast U.S. On almost every coastal project in Florida, OAI Project Managers works with Florida Department of Environmental Protection (FDEP), U.S. Army Corps of Engineers (USACE), National Marine Fisheries Service, Florida Fish and Wildlife Conservation Commission (FWC) and U.S. Fish and Wildlife Service (FWS). Christopher G. Creed, P.E., the designated project manager for this proposal also has experience working with the South Florida Water Management District and Broward County on regulatory matters for some projects. Those relationships have been developed in large part through the consistent submittal of thorough, well-designed and well-supported engineering analyses and designs that attempt to fully describe each project and all the associated project elements, environmental constraints, and legal requirements. Summaries of several of these projects are provided in Item 3a.

OAI, and in particular Mr. Creed, also has direct experience working with the USACE Jacksonville District (Civil Works) during the preparation of Federal planning documents.
produce environmentally sound projects that enhance valuable coastal areas. Refer to pages 9-10

hierarchies of the state and federal regulatory and commenting agencies, we routinely expedite the permitting process associated with technically challenging consultation processes. We maintain active contact with the Beaches, Inlets, and Ports (BIP) Program staff in Tallahassee and USACE staff in both Palm Beach Gardens and Jacksonville and will work to streamline the permitting process for Segment III. By designing our projects to be consistent with Regional Biological Opinions to the extent practicable, and incorporating adequate buffers adjacent to borrow areas and the project ETOF, we have facilitated straightforward consultations with FWS and NMFS PRD pursuant to the ESA and NMFS HCD pursuant to the Magnuson-Stevens Fishery Management and Conservation Act for numerous projects around the country.

GBA has a successful track record for securing permits from the FDEP and the USACE. We have also worked directly for the USACE through numerous IDIQ contracts and IDC contracts throughout the history of the firm. GBA has worked through the permitting process for beach nourishment and dredging projects throughout Florida and on the Atlantic, Gulf and Pacific coasts. As demonstrated herein, we have a firm grasp of the coordination efforts needed to prepare an Environmental Assessment and coordinate terms and conditions with state and federal resource agencies, as well as local special interest groups. By working closely with the agencies and encouraging frequent communication during the permitting process, GBA can facilitate the timely acquisition of FDEP JCPs and Environmental Resource Permits (ERPs), as well as USACE Individual permits and any necessary modifications during the permit duration.

Refer to pages 135 to 137 for greater details such as General Design Memorandums (GDM), General Reevaluation Reports (GRR), and Limited Reevaluation Reports (LRR).

To complete the analyses and reports themselves, OAI staff works closely with the USACE Jacksonville District staff. Coordination with many divisions within the Jacksonville District is often required including Project Management, Project Planning, Engineering, Cost Engineering, Office of Counsel, and Real Estate. OAI's proximity to the Jacksonville District facilitates efficient coordination with staff at the District.

OAI likewise has had numerous opportunities to work directly for several governmental agencies at a coastal engineering consultant to the agencies, most notably the Florida Department of Environmental Protection (FDEP) Coral Reef Conservation Program and the FDEP Florida Park Service to implement successful projects. The following project examples typify the firm's experience in this regard (Refer to pages 63 to 65)

Refer to pages 62 to 65 for greater detail
### 3. Past Performance:

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**c) Provide examples of both time sensitive and budget constrained projects completed in the past, and describe what methods were used to meet time and budget requirements in successful previous projects of the same nature.**

**Points Value: 3**

Refer to pages 81-100 for projects of past performance

Gahagan & Bryant Associates, Inc. has an excellent track record in completing its projects on time or ahead of schedule. With so many surveying, and engineering resources at our disposal, GBA can respond to time sensitive projects.

Refer to pages 138 to 139 for list of budget/time constrained projects completed in past

GBA’s computerized cost estimating system was designed by in-house engineers specifically for marine construction projects. This precise estimating procedure allows GBA to analyze costs for various coastal construction techniques and to develop the most economical method available. This system also facilitates analysis of multiple construction techniques to develop the optimum method and design. Cost estimates can also be provided in USACE MCACES format.

As former marine contractors, many members of the GBA family have an intimate knowledge of marine construction techniques and costs. As mentioned, GBA analyzes various construction methods and designs to develop the most economical system. This unmatched, thorough analysis and cost estimating allows clients to completely understand every cost of every project and to choose designs that are optimal for their situation while saving them money. GBA’s approach to the cost estimating process is as follows:

- Define any assumptions to be used as a basis for the estimate
- Determine quantities to be excavated, transported, and placed
- Analyze the material to determine characteristics affecting production
- Select the appropriate equipment to perform the work

Olsen Associates, Inc. (OAI) prides itself on developing project goals and objectives, and subsequently project scopes for both consultant tasks and construction work that meet the desired timelines and budgets of its Clients. In that regard, OAI works from the outset to clearly define the tasks and goals of the work in order to establish realistic and achievable results for the timeline and financial limits provided.

- OAI has successfully worked with local municipalities to complete many fast-track post-disaster recovery projects, including numerous post-storm response situations and assistance with the immediate response to the 2010 Deepwater Horizon oil spill in NW Florida and Alabama. In these instances, OAI’s project knowledge & familiarity and pre-preparation have allowed its Clients to rapidly apply response plans, obtain emergency permits or waivers, and promptly enact emergency measures for immediate protection and fast-track permanent repairs.
- On several occasions, OAI projects under construction have been impacted by storms, requiring immediate engineering attention to respond to storm damages, redesign project templates, and keep the project on schedule with respect to dredge equipment availability, dredging contract deadlines and authorized environmental windows for construction.
- Recent examples include the firm’s responses to impacts from Hurricane Matthew to the 2016 Duval County Federal Shore Protection Project and the 2016 Hilton Head Island Beach Renourishment. In both instances, OAI immediately evaluated staff resources, work load, and pending deadlines for ongoing work. Following a comprehensive staff resource review, OAI successfully assisted communities with rapid changes to budgets and scopes to quickly design,
### Evaluation Criteria - Project Specific Criteria

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<td>Gahagan &amp; Bryant, Inc.</td>
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<tr>
<td>Olsen Associates, Inc.</td>
<td>2618 Herschel Street, Jacksonville, FL 32204</td>
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1. Determine production rates of the equipment selected, considering all the factors affecting equipment performance.
2. Determine the time required to do the work by application of production rates to the quantities involved.
3. Estimate the monthly operating, ownership, and labor costs to perform the work.

Refer to pages 138-139

### Workload of Firm: Max Total – 5 Points

For the Prime Vendor only, list all completed and active projects that the Prime Vendor has managed within the past five years. In addition, list all anticipated projects that Prime Vendor will be working on in the next five years. Projected projects will be defined as a project(s) that the Prime Vendor has been awarded a contract but the Notice to Proceed or work authorization has not been issued. Identify any projects that the Prime Vendor worked on concurrently. Describe the Prime Vendor’s approach in managing these projects; were there or will there be any challenges for any of the listed projects? If so, describe how the Prime Vendor dealt with, or will deal with, the listed project’s challenges.

Refer to pages 110-122 for work completed over past five years
Refer to pages 123 to 124 for five year projection of work.

Coastal Systems has carefully reviewed the workload projections for the firm, and the firm strives to balance resource allocation with the business development to maintain a high level of personalized client service. Workload projections are completed on a monthly basis with a 6-month outlook, and we have confirmed sufficient capacity to support this contract including emergency response and additional services that may be required. Refer to page 110

Refer to pages 141-142 for work completed over past five years and projection of future work

With over 80 engineers, scientists, surveyors, geologists, and support personnel, GBA has sufficient personnel and equipment to successfully execute multiple task orders for numerous projects simultaneously. We have effectively demonstrated this capability for clients including, but not limited to federal and state agencies, port authorities, and many private contractors and clients. When additional expertise or resources are needed to meet a project’s goals, GBA routinely augments the local office personnel with staff from other offices. In addition to the identified personnel in Plantation, FL and Tampa, FL, GBA will involve professionals from our Houston, TX; Wilmington, NC; and Baltimore, MD offices as necessary to meet the technical requirements and schedule needs of the Segment III Shore Protection Project. Additionally, our subconsultants will augment GBA’s staff as described herein to meet task order requirements. The total GBA Team includes

Refer to pages 73-74 for work completed over past five years and projection of future work

Olsen Associates, Inc., (OAI) and its team of qualified subconsultants are presently prepared to assist Broward County with the Segment III project and to execute assignments in a timely fashion and within budgets.

With our extensive experience in working with Broward County, the Federal Shore Protection Project process, and the typical permitting and project design process required for project like Segment III, we fully appreciate the implications of the County’s needs for both the timely prosecution of the contracted work and the willingness of the Consultant to meet budget requirements.

Our current and projected workload and Project Management and staff commitments are sufficiently balanced such that OAI can and will complete tasks assigned by Broward County under this contract in a timely and efficient manner.

Refer to page 66 to 68 for full description of budget/time constrained projects completed in past.

Refer to pages 67-68 for full description of budget/time constrained projects completed in past.
hundreds of qualified individuals that can be called upon as necessary to serve the needs of the County.

The projected workload of the GBA Team is such that it can commit whatever resources are needed to meet even the most demanding County schedule requirements. Weekly progress meetings will be held to evaluate the progress made, challenges encountered, and strategy to completion throughout the Segment III project duration. Additionally, GBA managers have weekly conference calls to discuss concurrent work being performed to facilitate allocation of resources effectively between projects and offices. A review of the projects and resumes included herein illustrate the successful interoffice collaboration of GBA personnel and our subconsultants.

GBA commits the professionals designated as key staff to this contract as available to work on this project for the duration of this contract. The GBA Team has sufficient personnel and expertise to ensure that the Segment III Shore Protection Project receives our full attention throughout all phases of work, and that our commitments allow us the capacity to respond to the County’s needs when critical situations arise, while meeting our aggressive QA/QC standards for all work products. Refer to page 140

Almost every project includes unique challenges to be understood, evaluated, and overcome during its life. With our diverse background in coastal engineering, GBA has encountered a plethora of challenges on projects including physical constraints, biological and environmental restrictions, funding limitations, political concerns, and public education and outreach needs during design, permitting, and construction.

Refer to pages 143 to 144 for project challenges and solutions

The professional staff of OAI is known for its prompt and comprehensive response to all of its Clients. The firm does not seek nor accept new assignments unless confident that staff resources and schedules are sufficient to complete an assignment with the same high degree of attention and detail that it affords all of its projects.

The completed-projects/workload information provided herein includes continuing high-level services provided to Broward County. OAI has successfully provided similar beach management, permitting, and construction services to Broward County over the past 20 years, continually delivering the highest degree of responsiveness and care in its work for the County, while performing comparable tasks for other clients.

The key personnel for this project, and supporting staff described in this RFP response, are and will be available to conduct the work for Broward County upon execution of an agreement.

Throughout its 35 years of coastal engineering consulting practice, OAI has demonstrated an ability to successfully prosecute multiple, large concurrent projects and contracts with its staff and organizational approach. The professional staff of OAI is known for its prompt and comprehensive response to all of its clients. In responding to this RFP, OAI warrants that it can and will prosecute required tasks described in the Scope of Services in a timely and competent manner, given its current and probable future workload.

The firm’s projected work load is comparable to its workload over the previous 5 years (and before). During that time, the firm has performed coastal engineering services for Broward County which are essentially identical to those that are described in the present RFP:
and, in so doing, OAI responded promptly to all requests and requirements of Broward County in regard to the Broward County Federal Shore Protection Project, Segments II and III, the Port Everglades Sand Bypass Project, and the preparation of the Segment III Beach Management Investigation. Moreover, in accomplishing this work, OAI has taken the lead in identifying, anticipating, and completing all planning and engineering tasks required on the part of the Local Sponsor (Broward County) to ensure that the project’s beach renourishment and permit compliance are successfully completed prior to or by requisite schedules – including USACE planning documents (GRR and LRR), PPA, permits, construction documents, monitoring reports, State grant applications & funding, FDEP progress reports, and construction oversight, and QA/QC compliance reporting.

**Approach and Challenges:** OAI typically implements a team approach for all tasks lead by an in-house Project Manager to successfully complete large and complex projects such as the Segment III project in Broward County. Many of the projects are projects of similar scale and scope, requiring contributions from numerous team members. In all these cases, OAI leads the overall project consultant team, assigning in-house staff as required for particular engineering tasks, and relies on the appropriate, qualified, independent sub-consultants on the team to lead and pursue tasks best suited to their qualifications and experience. This approach has been successfully utilized by OAI for years on dozens of simultaneous large-scale projects. The approach also allows OAI to work with the most-qualified personnel in the State for their particular areas of expertise. Furthermore, teaming with these qualified yet independent groups and individuals brings a broader array of project experiences to the team and provides a necessary level of objectivity and
Challenges of various forms arise in many beach restoration projects, given the dynamic nature of the project sites and the ever-changing regulatory and funding environments in which they must operate. OAI strives to anticipate upcoming challenges and problems with its tasks and projects in order to be prepared to address them and keep their clients apprised of matters that may adversely affect their project’s schedules and budgets. As discussed in Section 3c, disasters such as storms and oil spills can immediately alter plans and schedules. Many of the projects have experienced such impacts. In several instances, changes in regulatory policy occur over the course of planning, permitting, and construction of project elements. These changes can frequently lead to delays if not anticipated, planned for, and actively managed. In some instances, decisions made (or not timely made) by regulatory agencies create unavoidable problems and challenges.

A recent example of this relates to the new threatened species listing of the Rufa Red Knot shorebird and the establishment of Critical Habitat designations in numerous areas around the state (both in-water and terrestrial sites). On Longboat Key, permitting for the 2016 multi-phase renourishment project was in progress before and after the listing. OAI and Coastal Eco-Group anticipated the upcoming listings and prepared Biological Assessment data and projects narratives in advance to accommodate the new listings before they were announced. Our team likewise actively pressed the regulatory agencies (USACE, USFWS, and NMFS) before and after the listings to plan and accommodate the new designations. The effort was only partially successful, in that the sister agencies, especially the NMFS, did not develop clear guidance for several month regarding the handling of the new consultations. Ultimately
the recommendation provided by Coastal Eco-
Group was adopted and the project permits
were issued, leading to the successful
construction of the project.

Changes in funding policies and practices at
the local, State, and Federal levels can lead to
significant challenges for all projects. OAI
maintains close observation and
communications with policy makers and
regulators regarding funding for not only the
firm’s projects, but also the beach communities
as a whole. OAI has served on numerous
working groups and blue-ribbon panels to
review the State Beach Management Funding
Assistance Program (BMFAP), and actively
participates in the Florida Shore and
Beach Preservation Association, which
promotes funding for beach projects around the
State.

Refer to pages 70 to 74 for greater detail

| EVALUATION CRITERIA -  |
|  | 464 South Dixie Highway  | 7501 NW 4th Street, Suite 208  | 2618 Herschel Street  |
|  | Coral Gables, FL 33146  | Plantation, FL 33317  | Jacksonville, FL 32204  |

| VENDOR QUESTIONNAIRE FORM |
| EVALUATION CRITERIA - PROJECT SPECIFIC CRITERIA | Coastal Systems International, Inc.  
464 South Dixie Highway  
Coral Gables, FL 33146 | Gahagan & Bryant, Inc.  
7501 NW 4th Street, Suite 208  
Plantation, FL 33317 | Olsen Associates, Inc.  
2618 Herschel Street  
Jacksonville, FL 32204 |
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>2. Federal Employer I.D. Number.</td>
<td>65-0543399</td>
<td>112555488</td>
<td>59-2223174</td>
</tr>
<tr>
<td>3. Dun &amp; Bradstreet Number. (If applicable).</td>
<td>835411604</td>
<td>080679996</td>
<td>13-238-0650</td>
</tr>
<tr>
<td>4. Doing business as / Fictitious Name (If applicable).</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
| 6. Principal place of business. | 464 South Dixie Highway  
Coral Gables, FL 33146 | 3802 W Bay to Bay Blvd, Ste B22  
Tampa, FL 33629 | 2618 Herschel Street  
Jacksonville, FL 32204 |
| 7. Office Location for this project. | 464 South Dixie Highway  
Coral Gables, FL 33146 | 7501 NW 4th St, Ste 208  
Plantation, FL 33317 | 2618 Herschel Street  
Jacksonville, FL 32204 |
| 8. Telephone/Fax Number: | 305-661-3655 (tel)  
305-661-1914 (fax) | 954-248-2831 (tel)  
813-831-4216 (fax) | 904-387-6114 (tel)  
904-384-7368 (fax) |
| 9. Type of Business | Corporation (Florida) | Corporation (DE) | Corporation (Florida) |
| 10. List Florida Registration Number. | P94000075733 | P23592 | F83179 |
| EVALUATION CRITERIA - PROJECT SPECIFIC CRITERIA | Coastal Systems International, Inc.  
464 South Dixie Highway  
Coral Gables, FL 33146 | Gahagan & Bryant, Inc.  
7501 NW 4th Street, Suite 208  
Plantation, FL 33317 | Olsen Associates, Inc.  
2618 Herschel Street  
Jacksonville, FL 32204 |
|---|---|---|---|
| 11. Name and title of each principal owner. | R. Harvey Sasso, President  
Grady Bryant, President  
William Gahagan, CEO  
Vernon Bryant, Secretary/Treasurer  
Clay Bryant, Vice President  
Paul Seaboldt, Vice President  
Kevin Kremkau, Vice President | Erik J. Olsen, P.E.  
Dr. Kevin R. Bodge, P.E.  
Christopher G. Creed, P.E.  
Dr. Albert E. Browder, P.E. | |
| 12. Authorized contacts for your firm. | Andres Perez, P.E., Engineer Dept. Head  
aperez@coastalsystemsint.com  
305-661-3655  
Danielle H. Irwin, Director  
dirwin@coastalsystemsint.com  
850-765-4520 | Kevin M. Kremkau, Vice President  
kmkremkau@gba-inc.com  
813-831-4408  
Penny L. Cutt, Senior Associate  
picutt@gba-inc.com  
954-248-2831 | Christopher G. Creed, P.E., Vice-President  
ccreed@olsen-associates.com  
904-387-6114 ext. 312  
Dr. Albert E. Browder, P.E., Vice-President  
abrowder@olsen-associates.com  
904-387-6114 ext. 315 |
| 13. Has your company ever failed to complete any work awarded to you? If so, where and why? | No | No | No |
| 14. Is your firm or any of its principals or officers currently principals or officers of another organization? If yes, specify details in an attached written response. | Yes, R. Harvey Sasso  
Coastal Systems Development, Inc., Bimini Shipping, LLC, Island Cargo Systems Marketplace, LLC | No | No |
<table>
<thead>
<tr>
<th>EVALUATION CRITERIA - PROJECT SPECIFIC CRITERIA</th>
<th>Coastal Systems International, Inc. 464 South Dixie Highway Coral Gables, FL 33146</th>
<th>Gahagan &amp; Bryant, Inc. 7501 NW 4th Street, Suite 208 Plantation, FL 33317</th>
<th>Olsen Associates, Inc. 2618 Herschel Street Jacksonville, FL 32204</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. Have any voluntary or involuntary bankruptcy petitions been filed by or against your firm, its parent or subsidiaries or predecessor organizations during the last three years? If yes, specify details in an attached written response.</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>16. Has your firm, its principals, officers or predecessor organization(s) been debarred or suspended by any government entity within the last three years? If yes, specify details in an attached written response</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>17. Has your firm’s surety ever intervened to assist in the completion of a contract or have Performance and / or Payment Bond claims been made to your firm or its predecessor’s sureties during the past three (3) years? If yes, specify details in an attached written response, including contact information for owner and surety.</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>18. Has your firm ever failed to complete any work awarded to you, services and / or delivery of products during the past (3) years? If yes, specify details in an attached written response</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>19. Has your firm ever been terminated from a contract within the last three years? If yes, specify details in an attached written response</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>20. Living Wage solicitations only:</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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