

**PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS**

AGENDA ITEM SUMMARY

Meeting Date:	July 8, 2025	(X) Consent	() Regular
		() Workshop	() Public Hearing
Department:	<u>Environmental Resources Management</u>		

I. EXECUTIVE BRIEF

Motion and Title: Staff recommends motion to approve: Consultant Services Authorization No. 0090-15 (CSA) to Contract (R2023-0090) (Contract) approved on January 24, 2023 with Foth Infrastructure & Environment, LLC (Foth) in the amount of \$450,501.30 for data collection and engineering services in support of the search for offshore sand resources suitable for the North County Comprehensive Shore Protection Project (NCCSPP).

Summary: The Board of County Commissioners (BCC) approved the Contract with Foth, a Jacksonville company, on January 24, 2023. The CSA authorizes Foth to conduct a comprehensive investigation for suitable offshore borrow area development and permitting, which will provide beach-quality sand to support NCCSPP beach nourishment over the next 10-15 years. The proposed investigation includes regulatory coordination, scientific diving for endangered species protection, collection of sediment cores using an offshore vibratory coring vessel, laboratory analysis of collected sediments, and engineering reporting. Costs will be paid from the Beach Improvement Fund. This project was presented to the Goal Setting Committee on April 6, 2022 and the Committee established an Affirmative Procurement Initiative of 20% mandatory Small Business Enterprise (SBE) subcontracting goal and an SBE evaluation preference for Prime Bidders. Foth committed to an overall 48% SBE participation in the Contract. The SBE proposed participation for this CSA is 24.2%. To date, the overall participation achieved on this Contract is 56.8%. This work is expected to be covered by a state funded cost share grant that is currently under review. **The cost to the County is \$450,501.30.**
District 1 (YBH)

Background and Justification: The existing NCCSPP offshore borrow area is nearing depletion, requiring Palm Beach County to search for alternative sand sources. This proposed investigation collects and analyzes new data to build upon the prior desktop-level investigation (CSA No. 0090-05), which was limited to existing data. The primary goal of the proposed work is to determine which areas should be pursued for offshore sand borrow source(s), and which areas should be eliminated due to unsuitable sand quality or presence of nearby critical habitat.

Attachment:
1. CSA No. 0090-15 with Exhibits A - C

Recommended by:	<i>mm</i> <i>ybh</i> <i>Michael Stelfox</i>	<i>6/4/25</i>
	Department Director	Date
Approved by:	<i>PaO</i>	<i>6/17/25</i>
	Deputy County Administrator	Date

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2025	2026	2027	2028	2029
Capital Expenditures	<u>\$450,502</u>	_____	_____	_____	_____
Operating Costs	_____	_____	_____	_____	_____
External Revenues	_____	_____	_____	_____	_____
Program Income (County)	_____	_____	_____	_____	_____
In-Kind Match (County)	_____	_____	_____	_____	_____
NET FISCAL IMPACT	<u>\$450,502</u>	_____	_____	_____	_____
No. ADDITIONAL FTE POSITIONS (Cumulative)	_____	_____	_____	_____	_____
Is Item Included in Current Budget?	Yes <u>X</u>	No _____			
Does this item include the use of federal funds?	Yes _____	No <u>X</u>			
Does this item include the use of state funds?	Yes <u>X</u>	No _____			

Budget Account No.:

Fund 3652 Department 381 Unit M045

Object 3120 Program E045 Reporting Category _____

Task S045 Sub Task CJUC Task Order 008

B. Recommended Sources of Funds/Summary of Fiscal Impact:

Beach Improvement Fund

C. Department Fiscal Review:

King

III. REVIEW COMMENTS

A. OFMB Fiscal and /or Contract Dev. and Control Comments:

ASD/FA 6/5/25
OFMB DAB/SA 6/4

Brundage 6/9/25
Contract Development and Control
Reviewed again 6/16/25

B. Legal Sufficiency:

MPH 6/17/25
Assistant County Attorney

C. Other Department Review:

Department Director

CONSULTANT SERVICES AUTHORIZATION

CSA #: 0090-15 CONSULTANT: Foth Infrastructure & Environment, LLC

ACCOUNT: 3652-381-M045-3120-E045-S045-CJUC-008 CONTRACT: R2023-0090;
R2025-0036

[Fiscal approval of Budget Availability: SKing 6/12/25]
Shirley King

PROJECT MANAGER: Hailey Wilson PHONE: 561-233-2465

CONTRACT MANAGER: Juan Cueto PHONE: 561-233-2431

PROJECT NAME: NCCSPP Sand Search – Phase 2

LOCATION/DISTRICT #: North County Coastline and Atlantic Ocean / District 1

TASK DESCRIPTION (use additional pages if necessary): The Consultant shall provide professional services for borrow area sand search investigation for the North County Comprehensive Shore Protection Project (NCCSPP), as described in the attached Foth proposal dated May 9, 2025 (Exhibit B). OEBO Schedules 1 and 2 (Exhibit A) and the Contract History (Exhibit C) are attached hereto and made part of this CSA. Execution of portions of Task 1 will require separate written Notice to Proceed from the County.

DELIVERABLES: See Foth's proposal dated 5/9/2025 (Exhibit B).

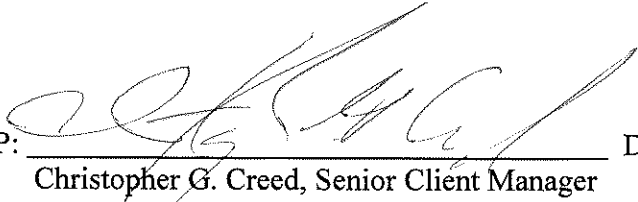
CSA TYPE: FIXED PRICE DUE DATE: September 30, 2026

TOTAL AMOUNT: \$450,501.30

TOTAL SBE PARTICIPATION: \$109,129.00

This Contract, including all Schedules, Forms, and attachments, is subject to the County Emergency Ordinance 2025-014, approved by the BCC on June 3, 2025. As a result, the M/WBE participation will not be enforced.


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CONSULTANT REP:  DATE: 5/9/25
Christopher G. Creed, Senior Client Manager

APPROVED AS TO TERMS AND CONDITIONS:

ERM DIRECTOR:  DATE: 6/3/25
Deborah Drum

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

ASSISTANT COUNTY ATTORNEY:  DATE: 6/17/25
Yelizaveta B. Herman

ATTEST: JOSEPH ABRUZZO
CLERK & COMPTROLLER: _____ DATE: _____
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS: _____ DATE: _____
Maria G. Marino, Mayor

OEBO SCHEDULE 1

SOLICITATION/PROJECT/BID NAME: NCCSPP Sand Search – Phase 2 SOLICITATION/PROJECT/BID NO.: CSA No. 0090-15
SOLICITATION OPENING/SUBMITTAL DATE: n/a COUNTY DEPARTMENT: Environmental Resources Management

Section A PLEASE LIST THE DOLLAR AMOUNT OR PERCENTAGE OF WORK TO BE COMPLETED BY THE PRIME CONTRACTOR/CONSULTANT* ON THE PROJECT:
NAME OF PRIME RESPONDENT/BIDDER: Foth Infrastructure & Environment, LLC ADDRESS: 2618 Herschel Street, Jacksonville, FL 32204
CONTACT PERSON: Steven C. Howard, P.E. PHONE NO.: 904-387-6114 E-MAIL: Steve.Howard@foth.com
PRIME'S DOLLAR AMOUNT OR PERCENTAGE OF WORK: \$122,867.30
*SMWBE Prime's must include their percentage or dollar amount in the Total Participation line under section B.

Non-SBE ☒ MBE ☐ WBE ☐ SBE ☐

Section B PLEASE LIST THE DOLLAR AMOUNT OR PERCENTAGE OF WORK TO BE COMPLETED BY ALL SUBCONTRACTORS/SUBCONSULTANTS ON THE PROJECT BELOW:

Subcontractor/Sub consultant Name	(Check all Applicable Categories)				DOLLAR AMOUNT OR PERCENTAGE OF WORK					
	Non-SBE	MBE Minority Business	WBE Women Business	SBE Small Business	Black	Hispanic	Women	Caucasian	Asian	Other
1. Coastal Eco-Group, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			\$57,954.00			
2. Athena Technologies, Inc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				\$218,505.00		
3. Terraquatic, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				\$51,175.00		
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

(Please use additional sheets if necessary)

Total \$57,954.00 \$269,680.00

Total Bid/Offer Price \$450,501.30 Total Certified S/M/WBE Participation \$109,129.00

I hereby certify that the above information is accurate to the best of my knowledge: CHRISTOPHER B. LARRED Signature Title

- Note:
- 1. The amount listed on this form for a Subcontractor/sub consultant must be supported by price or percentage listed on the properly executed Schedule 2 or attached signed proposal.
 - 2. Only those firms certified by Palm Beach County at the time of solicitation due date are eligible to meet the established OEBO Affirmative Procurement Initiative (API). Please check the applicable box and list the dollar amount or percentage under the appropriate demographic category.
 - 3. Modification of this form is not permitted and will be rejected upon submittal.

This Contract, including all Schedules, Forms, and attachments, is subject to the County Emergency Ordinance 2025-014, approved by the BCC on June 3, 2025. As a result, the M/WBE participation will not be enforced.

A completed Schedule 2 is a binding document between the Prime Contractor/consultant and a Subcontractor/subconsultant (for any tier) and should be treated as such. The Schedule 2 shall contain bolded language indicating that by signing the Schedule 2, both parties recognize this Schedule as a binding document. All Subcontractors/subconsultants, including any tiered Subcontractors/subconsultants, must properly execute this document. Each properly executed Schedule 2 must be submitted with the bid/proposal.

SOLICITATION/PROJECT NUMBER: CSA No. 0090-15
SOLICITATION/PROJECT NAME: NCCSPP Sand Search – Phase 2

Prime Contractor: Foth Infrastructure & Environment, LLC Subcontractor: Coastal Eco-Group, Inc.

(Check box(s) that apply)

☒ SBE ☒ WBE ☐ MBE ☐ M/WBE ☐ Non-S/M/WBE Date of Palm Beach County Certification (if applicable): 5/9/24-5/8/27

The undersigned affirms they are the following (select one from each column if applicable):

Column 1

Column 2

Column 3

☐ Male ☒ Female

☐ African-American/Black ☐ Asian American ☒ Caucasian American

☐ Supplier

☐ Hispanic American ☐ Native American

S/M/WBE PARTICIPATION – S/M/WBE Primes must document all work to be performed by their own work force on this form. Failure to submit a properly executed Schedule 2 for any S/M/WBE participation may result in that participation not being counted. Specify in detail, the scope of work to be performed or items supplied with the dollar amount and/or percentage for each work item. S/M/WBE credit will only be given for the areas in which the S/M/WBE is certified. A detailed proposal may be attached to a properly executed Schedule 2.

Line Item	Item Description	Unit Price	Quantity/ Units	Contingencies/ Allowances	Total Price/Percentage
	Biological Monitoring Services				\$57,954.00

The undersigned Subcontractor/subconsultant is prepared to self-perform the above-described work in conjunction with the aforementioned project at the following total price or percentage: \$57,954.00

If the undersigned intends to subcontract any portion of this work to another Subcontractor/subconsultant, please list the business name and the amount below accompanied by a separate properly executed Schedule 2.

N/A

Name of 2nd/3rd tier Subcontractor/subconsultant

Price or Percentage: _____

Foth Infrastructure & Environment, LLC

Print Name of Prime

By: _____

Authorized Signature

CHRISTOPHER G. CREED

Print Name

Sr. Client Team Leader

Title

Date: 12 May 25

Coastal Eco-Group, Inc.

Print Name of Subcontractor/subconsultant

By: _____

Authorized Signature

Cheryl Miller

Print Name

President

Title

Date: May 9, 2025

This Contract, including all Schedules, Forms, and attachments, is subject to the County Emergency Ordinance 2025-014, approved by the BCC on June 3, 2025. As a result, the M/WBE participation will not be enforced.

Revised 09/17/2019

A completed Schedule 2 is a binding document between the Prime Contractor/consultant and a Subcontractor/subconsultant (for any tier) and should be treated as such. The Schedule 2 shall contain bolded language indicating that by signing the Schedule 2, both parties recognize this Schedule as a binding document. All Subcontractors/subconsultants, including any tiered Subcontractors/subconsultants, must properly execute this document. Each properly executed Schedule 2 must be submitted with the bid/proposal.

SOLICITATION/PROJECT NUMBER: CSA No. 0090-15
SOLICITATION/PROJECT NAME: NCCSPP Sand Search – Phase 2

Prime Contractor: Foth Infrastructure & Environment, LLC Subcontractor: Athena Technologies, Inc.

(Check box(s) that apply)
☐ SBE ☐ WBE ☐ MBE ☐ M/WBE ☒ Non-S/M/WBE Date of Palm Beach County Certification (if applicable): n/a

The undersigned affirms they are the following (select one from each column if applicable):

Column 1	Column 2	Column 3
<input checked="" type="checkbox"/> Male <input type="checkbox"/> Female	<input type="checkbox"/> African-American/Black <input type="checkbox"/> Asian American <input checked="" type="checkbox"/> Caucasian American	<input type="checkbox"/> Supplier
	<input type="checkbox"/> Hispanic American <input type="checkbox"/> Native American	

S/M/WBE PARTICIPATION – S/M/WBE Primes must document all work to be performed by their own work force on this form. Failure to submit a properly executed Schedule 2 for any S/M/WBE participation may result in that participation not being counted. Specify in detail, the scope of work to be performed or items supplied with the dollar amount and/or percentage for each work item. S/M/WBE credit will only be given for the areas in which the S/M/WBE is certified. A detailed proposal may be attached to a properly executed Schedule 2.

Line Item	Item Description	Unit Price	Quantity/ Units	Contingencies/ Allowances	Total Price/Percentage
	Vibracoring Services				\$218,505.00

The undersigned Subcontractor/subconsultant is prepared to self-perform the above-described work in conjunction with the aforementioned project at the following total price or percentage: \$218,505.00

If the undersigned intends to subcontract any portion of this work to another Subcontractor/subconsultant, please list the business name and the amount below accompanied by a separate properly executed Schedule 2.

NA
Name of 2nd/3rd tier Subcontractor/subconsultant

Price or Percentage: NA

Foth Infrastructure & Environment, LLC

Print Name of Prime

By: [Signature]
Authorized Signature

CHRISTOPHER G. CREED
Print Name

Sr. Client Team Lead
Title

Date: 12 May 2025

Athena Technologies, Inc.

Print Name of Subcontractor/subconsultant

By: [Signature]
Authorized Signature

J. Adam Freeze
Print Name

Vice President
Title

Date: May 12, 2025

This Contract, including all Schedules, Forms, and attachments, is subject to the County Emergency Ordinance 2025-014, approved by the BCC on June 3, 2025. As a result, the M/WBE participation will not be enforced. Revised 09/17/2019

OEBO LETTER OF INTENT – SCHEDULE 2

Exhibit A
(p. 4 of 4)

A completed Schedule 2 is a binding document between the Prime Contractor/consultant and a Subcontractor/subconsultant (for any tier) and should be treated as such. The Schedule 2 shall contain bolded language indicating that by signing the Schedule 2, both parties recognize this Schedule as a binding document. All Subcontractors/subconsultants, including any tiered Subcontractors/subconsultants, must properly execute this document. Each properly executed Schedule 2 must be submitted with the bid/proposal.

SOLICITATION/PROJECT NUMBER: **CSA No. 0090-15**
SOLICITATION/PROJECT NAME: **NCCSPP Sand Search – Phase 2**

Prime Contractor: **Foth Infrastructure & Environment, LLC** Subcontractor: **Terraquatic, Inc.**

(Check box(s) that apply)

☒ SBE ☐ WBE ☐ MBE ☐ M/WBE ☐ Non-S/M/WBE Date of Palm Beach County Certification (if applicable): **7/20/23-7/19/26**

The undersigned affirms they are the following (select one from each column if applicable):

Column 1

Column 2

Column 3

☒ Male ☐ Female

☐ African-American/Black ☐ Asian American ☒ Caucasian American

☐ Supplier

☐ Hispanic American ☐ Native American

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Line Item	Item Description	Unit Price	Quantity/ Units	Contingencies/ Allowances	Total Price/Percentage
	Professional Surveying Services				\$51,175.00

The undersigned Subcontractor/subconsultant is prepared to self-perform the above-described work in conjunction with the aforementioned project at the following total price or percentage: **\$51,175.00**

If the undersigned intends to subcontract any portion of this work to another Subcontractor/subconsultant, please list the business name and the amount below accompanied by a separate properly executed Schedule 2.

Name of 2nd/3rd tier Subcontractor/subconsultant

Price or Percentage:

Foth Infrastructure & Environment, LLC

Print Name of Prime

By:

Authorized Signature

CHRISTOPHER G. CREECH

Print Name

Sr. Client Team Leader

Title

Date:

12 May 2025

Terraquatic, Inc.

Print Name of Subcontractor/subconsultant

By:

Authorized Signature

Joshua Lee, PSM

Print Name

President

Title

Date:

May 12, 2025

This Contract, including all Schedules, Forms, and attachments, is subject to the County Emergency Ordinance 2025-014, approved by the BCC on June 3, 2025. As a result, the M/WBE participation will not be enforced.

Revised 09/17/2019

Foth Infrastructure & Environment, LLC
2618 Herschel Street
Jacksonville, FL 32204
(904) 387-6114
foth.com

May 9, 2025

Reubin Bishop
Palm Beach County Department of Environmental Resources Management
2300 North Jog Road, 4th Floor
West Palm Beach, FL 33411-2743
(561) 681-3813

Re: Annual Coastal Engineering Contract
Consultant Services Agreement (CSA) 0090-14
NCCSPP Sand Search, Phase II

Dear Reubin;

At the request of Palm Beach County, Foth Infrastructure & Environment, LLC | Olsen Associates, Inc. (Foth | Olsen) is pleased to present the following proposal for Consultant Services Authorization (CSA) 0090-14 to be completed under our existing annual services contract. This proposal details data collection and engineering services in support of the search for offshore sand resources suitable for the North County Comprehensive Shore Protection Project (NCCSPP). Identification of alternative sand sources for the NCCSPP is needed as the presently developed sand sources are nearing depletion. This proposed reconnaissance-level investigation collects and analyzes new data, to build upon the prior desktop-level investigation (CSA 0090-05), which was limited to existing data. If promising sand resources are identified through this task, the next step would be a design-level investigation suitable for borrow area development and permitting. The proposed reconnaissance-level investigation includes regulatory coordination, field work, laboratory analysis of collected sediments, and engineering reporting. CSA 0090-14 includes four tasks as follows:

Task 1: Regulatory Compliance
Task 2: Vibracore Collection
Task 3: Remote Data Collection
Task 4: Data Analysis & Reporting

The primary goal of the proposed work is to determine which areas should be pursued for offshore sand borrow source(s), and which areas should be eliminated. The scope of services described herein is intended to be relatively exhaustive in terms of geographic range and provide reasonable assurance that areas which are viable in terms of the following metrics have been investigated: (a) sufficiently distant from reef habitat, (b) sufficiently large area for borrow area development, (c) likely to contain beach-compatible material based upon existing data, (d) lie in area(s) politically and geographically amenable for potential development by Palm Beach County, (e) likely to be permittable, (f) contain sufficient sand thickness for excavation, (g) are located near the NCCSPP project shoreline, and (h) are in water depths that are accessible by the current

dredge fleet. The secondary goals include determining the viability of expanding the current Singer Island borrow area and characterizing the sediment remaining in the current NCCSPP borrow area.

Under CSA 0090-05, Foth | Olsen completed a comprehensive desktop study of the existing geotechnical data offshore of southern Martin and northern Palm Beach counties under a separate Consultant Services Agreement. The study ultimately identified several large areas where the presently proposed collection of additional prospect-level data is warranted, as follows.

The first survey area includes the existing Singer Island borrow area and a large area of seafloor immediately north thereof. This area was selected to quantify the remaining volume of material in the Singer Island borrow area and provide updated bathymetric data north of the permitted limits for potential investigation as a future borrow source. The second survey area lies between the existing NCCSPP borrow area and "Borrow Area B" located in, and extensively utilized by, Martin County. This area is: (1) of sufficient size for a potential borrow area, (2) poorly defined in terms of bed stratigraphy in the available data, (3) located in close proximity to the NCCSPP, and (4) relatively unexplored geologically as there are few cores in the available data records. The third survey area is located in the nearshore waters southwest of the existing NCCSPP borrow area. This area was selected as it is in very close proximity to the NCCSPP project and is relatively unexplored in terms of existing geotechnical and geophysical data. The total area of all three sites is 4,427 acres.

Upon completion of the tasks proposed herein, the resulting data sets and engineering report are expected to provide the County with an actionable idea of the remaining sand resources potentially available in the north county and provide a recommended path forward. This scope of work does not include development and permitting of a specific borrow area.

Task 1: Regulatory Compliance (Lump Sum)

It is anticipated that authorization of the collection of Vibracores offshore of Palm Beach County will occur under Federal authorization granted by Nationwide Permit Number 6 (NWP 6). Because the study area offshore of northern Palm Beach County is within the range of federally listed species and designated and proposed critical habitat for listed species, use of NWP 6 requires submission of a pre-construction notification (PCN) to federal regulators prior to initiation of work. Foth | Olsen will prepare and submit all requisite forms, drawings, narratives, etc. associated with the PCN for NWP 6. Foth | Olsen will consult with USACE regulatory personnel and seek concurrence or authorization to initiate collection of Vibracores under NWP 6.

Specific resources which may need to be addressed in the PCN include, but may not be limited to, potential effects to proposed critical habitat for green sea turtles (*Chelonia mydas*) and queen conch (*Aliger gigas*). Queen conch was listed as Threatened under the Endangered Species Act in February 2024. Because the queen conch is a recent listing and is not currently covered under the National Marine Fisheries Service (NMFS) South Atlantic Region Biological Opinion (SARBO), focused communication with federal regulators will be essential to minimize both time and resources required for work authorization under NWP 6.

Based upon previously completed queen conch surveys conducted by Coastal Eco-Group (CEG, a qualified subconsultant to Foth | Olsen under this proposal), unconsolidated sediments and water depths characterizing the sand search areas are not likely to be utilized by Queen Conch.

Therefore, with the assistance of CEG, we intend to initially pursue a no effect determination for the proposed Vibracore collection.

Should the National Marine Fisheries Service (NMFS) determine a need for additional field surveys for queen conch, CEG has outlined a minimum level of fieldwork required to characterize the area(s) where Vibracores are to be collected. As detailed in Task 2 of the attached proposal, CEG will document the habitat by completing reconnaissance surveys on a random 25% of the proposed Vibracore locations (8 of 30) and extrapolate these data to the larger search areas thereby minimizing the number of dives required prior to Vibracore collection. Initiation of this survey shall require a notice to proceed.

Should this approach not be acceptable to NMFS or should the limited number of dives document conditions requiring additional consideration, dives are likely to be required on all Vibracore sites prior to sampling. Task 3 of the attached proposal from CEG includes allowance to conduct field surveys at every Vibracore location. Initiation of this survey shall require a notice to proceed. Because Conch are mobile animals, the timing of these dives relative to coring efforts will be based upon the coring production rate and will be determined via consultation with Athena. Fieldwork required in addition to that detailed in the attached scope of services from CEG is not included herein and will be considered additional work – note that Task 4 of the CEG proposal includes additional allowance for surveys at the two (2) additional contingency core locations and/or two additional field days for limited alterations to the survey scope based on Athena's production rates. That is, should Athena's production outpace CEG's ability to survey the proposed core locations, CEG may need to expand the area surveyed at each location to increase the time during which conch may migrate into the survey area¹. Any required field work beyond that described in the CEG proposal would be considered additional work beyond the scope of this proposal. The attached proposal from CEG offers additional details on the pre-Vibracore survey(s).

This proposal includes allowance for up to two formal responses for additional information from federal regulatory agencies. CEG will be assisting Foth | Olsen in this effort on an as-needed basis.

Foth | Olsen is confident that the proposed Vibracore collection is eligible for authorization under NWP 6, however this proposal does not include assurance that work will ultimately be authorized under NWP 6 by federal regulators – nor can we grant assurances as to a timeline for any approval/denial. Should regulatory agencies determine this work is not eligible for authorization under NWP 6, additional work would be required that is not included in this proposal.

Deliverables: Foth | Olsen shall provide the County with a digital copy of all correspondence with the agencies and provide regular updates (verbal and/or email) regarding project progress and status. Foth | Olsen shall deliver digital letter report(s) detailing the findings of any required fieldwork efforts within 45 days of completion of the fieldwork. This proposal allows for completion of two such reports in consideration of the possibility of multiple field deployments.

¹ The speed at which Queen Conch can move (i.e., feet per day) is documented and will be used in conjunction with the radius surveyed about a core location to quantify the number of days following a survey the core location can be reasonably considered free of conch. Should a longer time be required, the survey radius will need to be increased.

Task 2: Vibracore Collection (Lump Sum)

Through a qualified subconsultant, Foth | Olsen will collect 30 Vibracore samples from the seabed offshore of Palm Beach County and characterize the sediments contained therein via laboratory and engineering analysis. The locations of these Vibracores have been pre-selected in coordination with Palm Beach County staff input, as detailed in the deliverables submitted for completed Task Order 1543-19, Task 8 and attached herein. This proposal provides for the collection of two additional (contingency) cores, the locations of which are TBD. Foth | Olsen will have an engineer on board the vessel, as practicable, to observe the Vibracore collection and make preliminary evaluations of sampled sediments while onboard. The purpose of these Vibracores is three-fold:

- 1) Characterize the material adjacent to the limits of the existing Singer Island borrow area for possible expansion.
- 2) Characterize the material remaining in the un-dredged portions of the NCCSPP borrow area. These data will be used to optimize the remaining sediments and develop a plan for future excavation and responsible use of the sand resource.
- 3) Determine the general viability of two additional areas (or portions thereof) for further exploration and development as a borrow area(s). The overall area to be selectively sampled via Vibracores extends offshore of northern Palm Beach County and into south Martin County in State waters of depths ranging between 40 and 70 feet. The Vibracore locations were purposefully selected to provide an initial characterization of areas which are both sufficiently large for development and are located at least 1,000 feet away from known reef resources. This effort is intended to be reasonably exhaustive in scope and preliminarily quantify the presence or absence of potentially developable beach-compatible sand near the NCCSPP.

Athena Technologies, Inc. (Athena) will perform all fieldwork related to Vibracore collection, log and photograph each of the cores, collect and perform laboratory analyses of sediment samples collected from each core. A detailed cost proposal and scope of work from Athena is attached. Foth | Olsen is responsible for limited management of the data collection effort including specifying the location of each Vibracore, providing direction regarding the collection of sediment samples from each core (i.e., locations of discrete samples, where composite samples should be collected, etc.), and providing quality control oversight of the deliverables. This proposal includes allowance for up to seven days of on-vessel observation of Vibracore operations by Foth | Olsen engineering staff.

Deliverables: Foth | Olsen shall deliver field notes (as available), a Vibracore report, boring logs, core photographs and laboratory data to Palm Beach County upon completion by Athena. It is assumed that the final disposition of the cores will be coordinated directly between Athena and the County.

Task 3: Hydrographic and Side Scan Sonar Surveys (Lump Sum)

Through a qualified subcontractor, Foth | Olsen will complete hydrographic and side scan sonar surveys of three investigative areas offshore of Palm Beach County. The areas to be surveyed are indicated in the scope of work and cost proposal from Terraquatic, Inc. which is attached herein. All survey work shall be completed by Terraquatic, Inc. Foth | Olsen will be responsible for completing quality control checks of the data and deliverables.

The bathymetric survey will be conducted using a multi-beam sonar system combined with RTK GPS and motion sensor units providing 100% coverage of the seafloor within the study areas. The side scan sonar survey will be conducted concurrent with the hydrographic survey using a towfish with high (1600 khz) and low (600 khz) frequencies. The intent of the side scan sonar survey is to identify and visualize any hard bottom resources or other perturbations in the seafloor within the survey limits.

Deliverables: Foth | Olsen will submit draft deliverables from Terraquatic upon receipt for County review. This includes XYZ data, survey report, digitally certified maps, and CAD drawings. Foth | Olsen will oversee and coordinate any changes required by the County and resubmit final digital deliverables upon receipt.

Task 4: Data Analysis & Reporting (Lump Sum)

Foth | Olsen will aggregate and analyze the hydrographic, side scan, and geotechnical data collected under this contract. The analysis will incorporate existing data, as necessary. A summary report will be prepared and will, at a minimum:

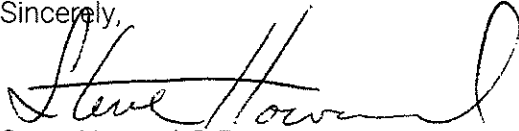
- Provide a professional opinion regarding the potential suitability of all areas investigated.
- Include identification of target area(s) for potential development as a future offshore borrow source(s), as supported by the data.
 - Make recommendations for design-level data collection to support permitting.
 - Quantify the potential volume of beach-compatible sediment in the study area(s).
 - Consider the possibility of employing modern screening techniques to improve beach fill quality.
- Quantify the volume of material remaining above the permitted limits of the Singer Island Borrow Area.
 - Discuss the potential for altering the limits (horizontal and vertical) of the existing Singer Borrow Area to maximize the usable volume. This effort will include consideration of modern screening technologies to utilize material which may have been previously non-beach compatible.
- Quantify the volume and suitability of sediments north of the existing Singer Borrow Area.
- Optimize the remaining sediments within the permitted NCCSPP Borrow Area.
 - Define future dredge limits to consider the remaining sediments and new data collected.
 - Quantify the remaining sediments in terms of quantity and quality.
 - Estimate volume of shell which could be produced by screening.
 - These efforts will include the partially dredged sub-area "A" (the northernmost subdivision of the NCCSPP borrow area) assuming successful cable removal is tenable. The existing cable in sub-area A is presently being investigated under a different task order (CSA 0090-11) with Palm Beach County.
 - Investigate and discuss the potential for expansion of the existing borrow area limits based on available data.

Deliverables: Foth | Olsen will submit a draft report in electronic format to the County for review within 120 days after all field data has been collected and deliverables approved by the County. A final report will be submitted to the County in electronic format within 20 days of receiving any comments on the draft document.

Fee: The fee to complete Tasks 1 through 4 outlined above is \$450,501.30. Of that amount, \$327,634.00 is allotted to subconsultants. SBE participation accounts for \$109,129.00 (or 24.2%) of the total proposal amount.

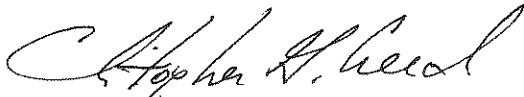
Thank you for the opportunity to continue servicing the needs of the north Palm Beach County beaches. Please do not hesitate to reach out with any questions regarding this proposal.

Sincerely,

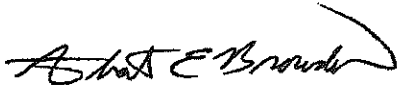


Steve Howard, P.E.
Lead Coastal Engineer

Authorizing Signatures:



Christopher Creed, PE
Senior Coastal Engineer & Client Team Leader



Albert Browder, PE, PhD
Senior Coastal Engineer & Client Team Leader

cc: File

Enclosure(s)

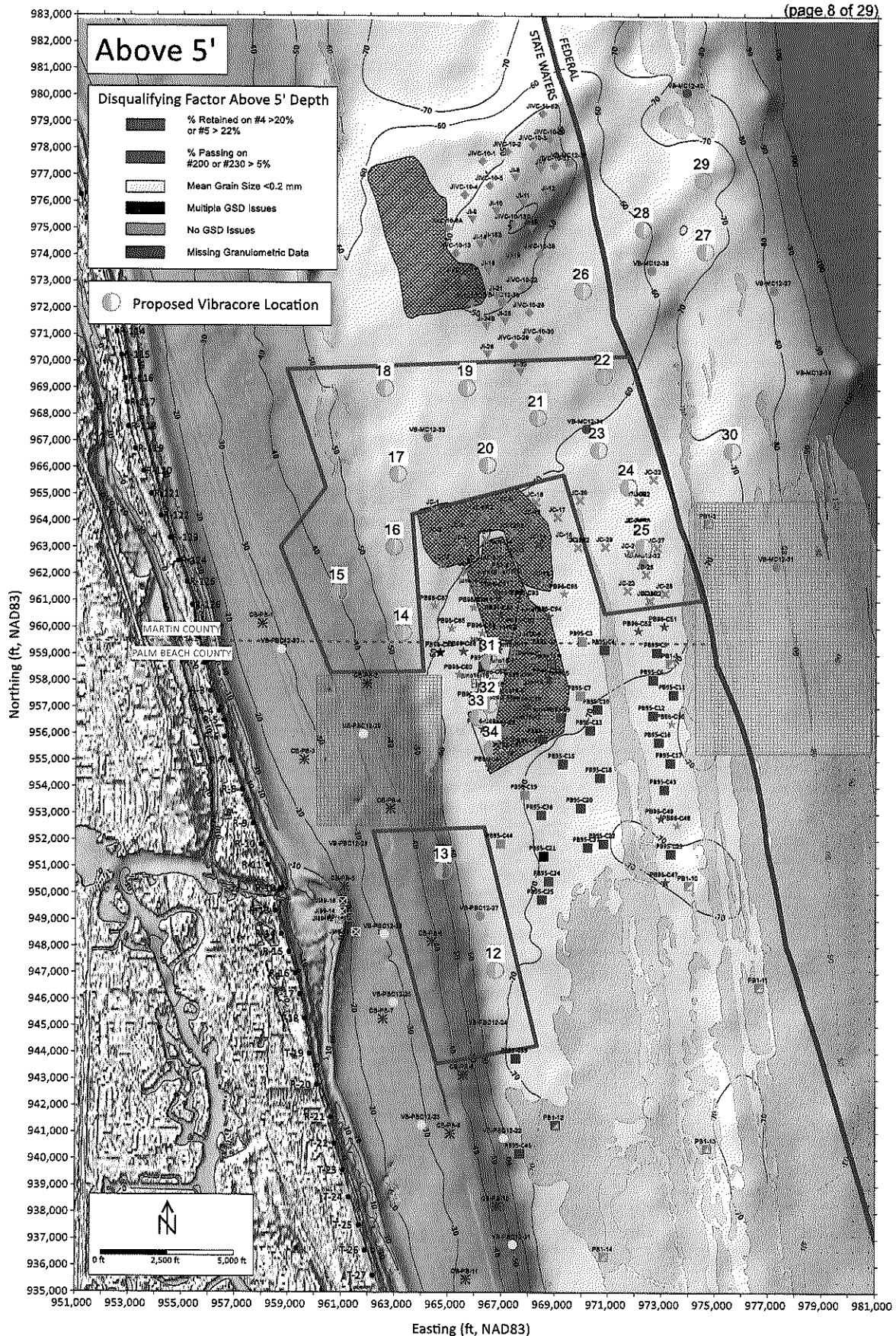
Cost Details
Proposed Vibracore locations
Coastal Eco-Group Proposal
Athena Proposal
Terraquatic Proposal

Palm Beach County, Florida
ANNUAL COASTAL ENGINEERING CONTRACT
CSA 0090-14

CSA 0090-14: NCCSPP Sand Search

DIRECT LABOR								OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
LABOR CATEGORY	Engineer / Scientist VI	Engineer / Scientist V	Engineer / Scientist IV	Engineer / Scientist III	Technician IV	Assistant II	COST	SERVICE	COST	
Rate (\$/hr)	\$ 242.35	\$ 178.58	\$ 122.76	\$ 107.85	\$ 93.47	\$ 98.66				
Task 1: Regulatory Compliance (LS)	16.00	80.00			32.00	16.00	\$ 22,733.60	Coastal Eco-Group	\$ 57,954.00	\$ 80,687.60
Task 2: Vibracore Collection (LS)	8.00	40.00	8.00	156.00		16.00	\$ 28,467.24	Athena**	\$ 218,505.00	\$ 246,972.24
Task 3: Hydrographic and Side Scan Surveys (LS)	2.00	8.00		8.00		16.00	\$ 4,354.70	Terraquatic	\$ 51,175.00	\$ 55,529.70
Task 4: Data Analysis and Reporting (LS)	40.00	100.00	140.00	160.00	40.00	16.00	\$ 67,311.76			\$ 67,311.76
TOTALS	66.00	228.00	148.00	324.00	72.00	64.00	\$ 122,867.30		\$ 327,634.00	\$ 450,501.30

** Fee includes allowance of collection, sampling, etc.
2 contingency Vibracores at the pricing shown in
Athena's proposal.



VIBRACORE LEGEND			POLYGON LEGEND	
✱ 1979 USACE GDM	★ 1996 Palm Beach	◆ 2010 JVC	▨ Previously Excavated Borrow Area	▤ Designated Artificial Reef Area (PBC ERM)
✱ 1989 Jupiter Inlet	✕ 2000 JC	▲ 2012 Singer Island	□ Previously Identified Potential Borrow Area	▦ FWCC Reef
■ 1990 COF Cores	✚ 2004/2005 Singer Island	● 2012 Sand Study		□ Potential Borrow Area
■ 1995 Palm Beach	▼ 2010 Jupiter Island	⊞ 2016 Juno		



VIBRACORE LEGEND			POLYGON LEGEND	
✱ 1979 USACE GDM	★ 1996 Palm Beach	◆ 2010 JVC	▨ Previously Excavated Borrow Area	▤ Designated Artificial Reef Area (PBC ERM)
⊠ 1989 Jupiter Inlet	✕ 2000 JC	▲ 2012 Singer Island	□ Previously Identified Potential Borrow Area	▦ FWCC Reef
▣ 1990 COF Cores	⊕ 2004/2005 Singer Island	● 2012 Sand Study		□ Proposed 2024 Survey Limits
■ 1995 Palm Beach	▼ 2010 Jupiter Island	▩ 2016 Juno		



March 27th, 2025

Steven C. Howard, P.E., BC.CE
Lead Coastal Engineer
Foth | Olsen
2618 Herschel St.
Jacksonville, FL 32204

RE: *Cost Proposal for Vibracore Collection and Geotechnical Reporting*
NCCSPP Sand Search
Martin County and Palm Beach County, Florida
Revision 3

Dear Mr. Howard,

This letter is intended to serve as a technical cost proposal for the abovementioned project. This proposal has been prepared based on information sent to Athena Technologies, Inc. (Athena) by Foth | Olsen in August, 2024, and subsequent communication between the two firms. This proposal has been revised to reflect changes to the scope of work, as requested by Foth | Olsen in December of 2024, and to add a contingency for the collection of 2 additional vibracore samples at Foth | Olsen's discretion. This proposal supersedes proposals provided by Athena on December 20th, 2024, and January 8th, 2025.

It is our understanding that you will require the collection of 30 vibracores for a geotechnical evaluation of proposed borrow areas located offshore of Martin County and Palm Beach County, Florida. The vibracores are to be advanced to a depth of 20 feet below sediment surface (BSS). Based on information provided by Foth | Olsen, water depths are expected to range from 30 feet to 70 feet. We understand that you will also require geotechnical reporting, which will include core logging, core photography, and laboratory analyses of sub-samples from the vibracores. Furthermore, we understand that 2 additional vibracore samples may be collected, if deemed necessary by Foth | Olsen.

Athena's 77-foot research vessel, *MV Thunderforce*, will be utilized as the vibracore sampling platform for this effort. *Thunderforce* is equipped with all required U.S. Coast Guard (USCG) safety gear and will be operated by a USCG certified 100-Ton Master Captain. The Captain will be accompanied by four to five additional crew members. Athena will utilize a Trimble Differential Global Positioning System (sub-meter accurate) interfaced with HYPACK for horizontal positioning, and a CEE-ECHO dual frequency fathometer verified by lead line for gathering water depths. A Trimble R12i Global Satellite Navigation System (GNSS) interfaced with the Trimble RTX correction network (accurate to +/-5cm) will be utilized to determine water level and sediment surface elevations.



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McClellanville, South Carolina 29458
O:(843) 887-3800
www.athenatechnologies.com

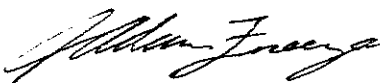
During vibracore operations, *Thunderforce* will be maneuvered to the desired sample location using coordinates provided by Foth | Olsen. An Alpine-style pneumatic vibracore system will then be utilized to collect the vibracore sample. It consists of an air-driven vibratory hammer assembly; an H-beam which acts as the vertical guide for the vibrator; a set of four steel support pads and legs which hold the system upright on the sea floor; a steel sample barrel; a cutting edge; a core catcher; a clear, 3.625-inch, polycarbonate core liner; and a penetrometer which records time and depth of penetration of the sample barrel into the sea floor. An air hose array provides compressed air from the compressor on deck to drive the vibracore. The sampler will be lowered to the sediment surface using a crane attached to an A-Frame on the deck of *Thunderforce*, and the vibracore machine is then turned on and the sample barrel is allowed to penetrate until it reaches the required target depth, or encounters refusal. The sampler will then be retrieved via the crane and A-frame. Once the sampler is on deck, the liner will be removed, cut into five-foot lengths, capped, labelled, and measured. Athena will collect penetration data at each sample location to verify vibracore refusal, if encountered.

If vibracore recovery is less than 80%, or if refusal is met and the material at the base of the core is not limestone, carbonate-cemented clastic sediments, or indurated silt/clay, then Athena will make one additional vibracore attempt, or one jetting attempt, to reach the required penetration depth and/or increase recovery.

Our proposed costs for the Base Scope of Work are outlined in **Table 1**, and pricing to collect and analyze the 2 contingency vibracores has been outlined in **Table 2**. We are estimating 2 to 3 field days to complete vibracore collection. The per core rate includes all labor, per diem, equipment and vessel rental, penetrometer logs, and consumables. This proposal assumes Athena's current insurance coverage will be sufficient for Foth | Olsen. An example Certificate of Insurance is attached. Furthermore, if waivers of subrogation are required, Athena will charge \$400.00 per entity requesting the waiver. The costs in this proposal are valid until September 27th, 2025, and are subject to change if the scope of work is modified prior to mobilization.

Thank you for your consideration. We sincerely appreciate the opportunity to provide a cost estimate for this project and please let us know if you have any questions or comments.

Respectfully,



J. Adam Freeze
Vice President / Geologist



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TABLE 1 – BASE SCOPE OF WORK				
Item	Unit	Amount	Qty	Total
Project Management and Coordination	Lump Sum	\$1,500.00	1	\$1,500.00
Mobilization/Demobilization	Lump Sum	\$74,425.00	1	\$74,425.00
20-Foot Vibracore and Penetration Report	Per Core	\$2,975.00	30	\$89,250.00
Trimble R12i Rental and RTX Access	Lump Sum	\$1,500.00	1	\$1,500.00
Stand-By or Weather Days ^[1]	Per Day	\$4,150.00	1	\$4,150.00
Vibracore Processing, Logging, Photomosaic Production, and Archiving	Per Core	\$400.00	30	\$12,000.00
Wooden Vibracore Storage Boxes	Per Box	\$125.00	30	\$3,750.00
Grain Size Analysis with Visual Percent Shell (ASTM D6913 Method & Terry & Chilingar Method) ^[2]	Per Sample	\$85.00	120	\$10,200.00
Carbonate Content Analysis (Twenhofyl and Tyler Method) ^[3]	Per Sample	\$125.00	30	\$3,750.00
Sample Shipping	Lump Sum	\$300.00	1	\$300.00
Geotechnical Data Reporting	Lump Sum	\$5,000.00	1	\$5,000.00
Vibracore Delivery to Palm Beach County	Lump Sum	\$4,750.00	1	\$4,750.00
ESTIMATED TOTAL FOR BASE SCOPE OF WORK =			\$210,575.00	
NOTES				
[1] Only billed if used and agreed upon between Athena and Foth Olsen.				
[2] Assumes 4 samples per core (3 discrete and 1 composite). If additional samples are requested by Foth Olsen, the same per sample rate will apply.				
[3] Assumes 1 composite sample per core.				



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TABLE 2 – CONTINGENCY VIBRACORES				
Item	Unit	Amount	Qty	Total
20-Foot Vibracore and Penetration Report ^[1]	Per Core	\$2,975.00	2	\$5,950.00
Vibracore Processing, Logging, Photomosaic Production, and Archiving	Per Core	\$400.00	2	\$800.00
Wooden Vibracore Storage Boxes	Per Box	\$125.00	2	\$250.00
Grain Size Analysis with Visual Percent Shell (ASTM D6913 Method & Terry & Chilingar Method) ^[2]	Per Sample	\$85.00	8	\$680.00
Carbonate Content Analysis (Twenhofyl and Tyler Method) ^[3]	Per Sample	\$125.00	2	\$250.00
Sample Shipping ^[4]	Lump Sum	\$0.00	1	\$0.00
Geotechnical Data Reporting ^[4]	Lump Sum	\$0.00	1	\$0.00
Vibracore Delivery to Palm Beach County ^[4]	Lump Sum	\$0.00	1	\$0.00
ESTIMATED TOTAL FOR CONTINGENCY VIBRACORES =			\$7,930.00	
NOTES				
[1] Assumes that the vibracores will be collected during the mobilization/demobilization for the base scope of work outlined in Table 1.				
[2] Assumes 4 samples per core (3 discrete and 1 composite). If additional samples are requested by Foth Olsen, the same per sample rate will apply.				
[3] Assumes 1 composite sample per core.				
[4] No charge; included in fees for base scope of work (Table 1).				



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ATTACHMENT A

EXAMPLE COI



1293 Graham Farm Road, PO Box 68
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THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Anderson Insurance Associates, Inc.
3491 Shelby Ray Court
Charleston, SC 29414

INSURED

Athena Technologies, Inc.
PO Box 68
Mc Clellanville, SC 29458

CONTACT NAME: Karla Hartin
PHONE (A/C, No, Ext): (843) 725-4931 131
E-MAIL ADDRESS: khartin@aiaasc.com

FAX (A/C, No):

INSURER(S) AFFORDING COVERAGE
INSURER A : Scottsdale Insurance Co. NAIC # 41297
INSURER B : Auto-Owners Insurance 18988
INSURER C : National Casualty Company 11991
INSURER D : Water Quality Insurance Syndicate
INSURER E :
INSURER F :

COVERAGES				CERTIFICATE NUMBER:		REVISION NUMBER:				
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.										
INSR LTR	TYPE OF INSURANCE			ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/>	COMMERCIAL GENERAL LIABILITY				VRS0007445	6/1/2024	6/1/2025	EACH OCCURRENCE	\$ 5,000,000
		<input type="checkbox"/> CLAIMS-MADE	<input type="checkbox"/> OCCUR	DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 100,000					
				MED EXP (Any one person)	\$ 5,000					
				PERSONAL & ADV INJURY	\$ 5,000,000					
				GENERAL AGGREGATE	\$ 5,000,000					
	GEN'L AGGREGATE LIMIT APPLIES PER:									
	<input type="checkbox"/> POLICY	<input checked="" type="checkbox"/> PRO-JECT	<input type="checkbox"/> LOC						PRODUCTS - COMP/OP AGG	\$ 5,000,000
	OTHER:								Pollution	\$ 5,000,000
B	<input type="checkbox"/>	AUTOMOBILE LIABILITY				5234344500	6/1/2024	6/1/2025	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
		ANY AUTO OWNED AUTOS ONLY	<input checked="" type="checkbox"/> SCHEDULED AUTOS	BODILY INJURY (Per person)	\$					
		<input checked="" type="checkbox"/> HIRED AUTOS ONLY	<input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY	BODILY INJURY (Per accident)	\$					
				PROPERTY DAMAGE (Per accident)	\$					
					\$					
A	<input checked="" type="checkbox"/>	UMBRELLA LIAB	<input checked="" type="checkbox"/> OCCUR			VES0004571	6/1/2024	6/1/2025	EACH OCCURRENCE	\$ 5,000,000
		EXCESS LIAB	<input type="checkbox"/> CLAIMS-MADE	AGGREGATE	\$ 5,000,000					
		DED		RETENTION \$	\$					
C	<input type="checkbox"/>	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				WCC332960A	6/1/2024	6/1/2025	<input checked="" type="checkbox"/> PER STATUTE	<input type="checkbox"/> OTH-ER
		ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	Y / N		E.L. EACH ACCIDENT				\$ 1,000,000	
			<input checked="" type="checkbox"/> N	N / A	E.L. DISEASE - EA EMPLOYEE				\$ 1,000,000	
		If yes, describe under DESCRIPTION OF OPERATIONS below			E.L. DISEASE - POLICY LIMIT				\$ 1,000,000	
D	<input type="checkbox"/>	Watercraft Pollution				58-82897	6/1/2024	6/1/2025	Per Vessel Schedule	1,000,000
A	<input type="checkbox"/>	Prof Liability				VRS0007445	6/1/2024	6/1/2025	Ea Claim & Aggregate	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Foth | Olsen
2618 Herschel Street
Jacksonville, FL 32204

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Karla Hartin

Terraquatic, Inc.
1220 Tangelo Terrace Unit A-12
Delray Beach, FL 33444



Exhibit B
(page 16 of 29)

September 9, 2024

Evan Heeg
Foth Olsen
2618 Herschel St.
Jacksonville, FL 32204

RE: Professional Surveying and Mapping Proposal
Bathymetric Survey
Multi-Beam Sonar – Full Coverage
Side Scan Sonar
Palm Beach County – Offshore (3 Locations)
TA24-1969 Revised January 2, 2025

Dear Mr. Heeg,

In accordance with your request, Terraquatic Inc. is pleased to provide the following proposal for professional services pertaining to the above referenced project for the purpose of a “Sand Search”. The scope of work shall encompass performing an automated bathymetric survey (depths) and a side scan sonar survey within the areas defined in the below exhibit. The bathymetric survey will be conducted using a multi-beam sonar system combined with RTK GPS and motion sensor units providing full coverage of the seafloor within the area defined in the below exhibit. The side scan sonar survey will be conducted by using a towfish with high (1600 khz) and low (600 khz) frequencies with the intentions of identifying any hard bottom found within the survey limits as shown below.

Final deliverables shall consist of digitally certified (PDF) charts, survey report, xyz files, and digital CAD files (.dwg format) referenced to the North American Vertical datum of 1988.

All survey operations will be conducted under the direct responsible charge of a Florida Licensed Professional Surveyor and Mapper and will be in accordance with the “Standards of Practice” set forth in Florida Statue 472, Administrative Code 5J17.

Costs: (Cost Breakdown shown below)

North Area #1 – North Half #1 (Apx. 2,490 Acres)

The fees for the above-described bathymetric survey shall be a lump sum fee of \$14,650.00 ls.
The fees for the above-described side scan survey shall be a lump sum fee of \$10,700.00 ls.

North Area #2 – North Half #2 (Apx. 795 Acres)

The fees for the above-described bathymetric survey shall be a lump sum fee of \$5,365.00 ls.
The fees for the above-described side scan survey shall be a lump sum fee of \$5,025.00 ls.

South Area – (Apx. 1,442 Acres)

The fees for the above-described bathymetric survey shall be a lump sum fee of \$8,210.00 ls
The fees for the above-described side scan survey shall be a lump sum fee of \$7,225.00 ls.

Terraquatic, Inc.
1220 Tangelo Terrace Unit A-12
Delray Beach, FL 33444

If you have any questions or require any additional information, please do not hesitate to contact us directly. We appreciate the opportunity to provide you with this proposal and look forward to potentially working with you. If you agree to the terms of this agreement, please execute below, and return a copy to us for our records.

Sincerely,



Joshua Lee, PSM
Terraquatic, Inc.

Accepted this _____ day of _____, 2024

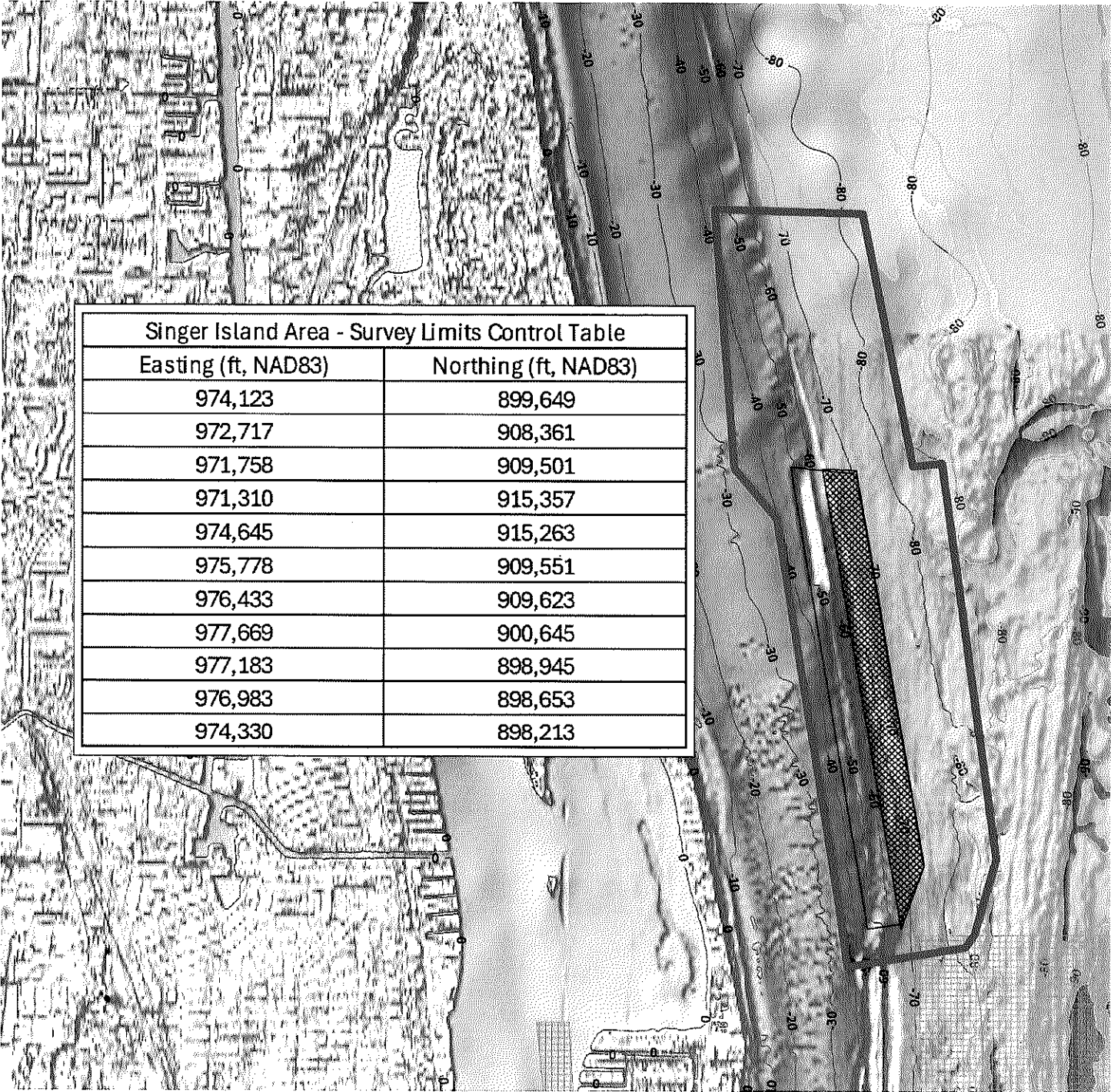
Authorized Representative

Please Print Name

EXHIBIT
APPROXIMATE SURVEY LIMITS
North Areas



South Area



Cost Breakdown

North Area #1 – Bathymetric Survey

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2 Person GPS Crew	6	\$175.00	Crew Hour	\$1,050.00
3 Person Hydrographic Crew	40	\$270.00	Crew Hour	\$10,800.00
Computer / Processing CAD	15	\$100.00	Per Hour	\$1,500.00
Project Manager	4	\$150.00	Per Hour	\$600.00
Professional Surveyor & Mapper	4	\$175.00	Per Hour	\$700.00
Total Cost:				\$14,650.00

North Area #1 – Side Scan Survey

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2 Person GPS Crew	6	\$175.00	Crew Hour	\$1,050.00
3 Person Hydrographic Crew	25	\$270.00	Crew Hour	\$6,750.00
Computer / Processing CAD	16	\$100.00	Per Hour	\$1,600.00
Project Manager	4	\$150.00	Per Hour	\$600.00
Professional Surveyor & Mapper	4	\$175.00	Per Hour	\$700.00
Total Cost:				\$10,700.00

North Area #2 – Bathymetric Survey

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2 Person GPS Crew	4	\$175.00	Crew Hour	\$700.00
3 Person Hydrographic Crew	12	\$270.00	Crew Hour	\$3,240.00
Computer / Processing CAD	6	\$100.00	Per Hour	\$600.00
Project Manager	2	\$150.00	Per Hour	\$300.00
Professional Surveyor & Mapper	3	\$175.00	Per Hour	\$525.00
Total Cost:				\$5,365.00

North Area #2 – Side Scan Survey

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2 Person GPS Crew	4	\$175.00	Crew Hour	\$700.00
3 Person Hydrographic Crew	10	\$270.00	Crew Hour	\$2,700.00
Computer / Processing CAD	8	\$100.00	Per Hour	\$800.00
Project Manager	2	\$150.00	Per Hour	\$300.00
Professional Surveyor & Mapper	3	\$175.00	Per Hour	\$525.00
Total Cost:				\$5,025.00

South Area – Bathymetric Survey

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2 Person GPS Crew	6	\$175.00	Crew Hour	\$1,050.00
3 Person Hydrographic Crew	18	\$270.00	Crew Hour	\$4,860.00
Computer / Processing CAD	10	\$100.00	Per Hour	\$1,000.00
Project Manager	4	\$150.00	Per Hour	\$600.00
Professional Surveyor & Mapper	4	\$175.00	Per Hour	\$700.00
Total Cost:				\$8,210.00

South Area – Side Scan Survey

Crew / Services	Estimated Hours	Regular Hourly Rate	Unit	Total Cost
2 Person GPS Crew	5	\$175.00	Crew Hour	\$875.00
3 Person Hydrographic Crew	15	\$270.00	Crew Hour	\$4,050.00
Computer / Processing CAD	10	\$100.00	Per Hour	\$1,000.00
Project Manager	4	\$150.00	Per Hour	\$600.00
Professional Surveyor & Mapper	4	\$175.00	Per Hour	\$700.00
Total Cost:				\$7,225.00



March 28, 2025

Mr. Steve Howard, P.E.
Foth | Olsen
2618 Herschel St.
Jacksonville, FL 32204

RE: Cost Proposal for Environmental Permitting Support and Field Surveys- North Palm Beach County Comprehensive Beach Nourishment Project- Offshore Sand Search

Dear Steve:

Coastal Eco-Group, Inc. (CEG) is pleased to present this cost proposal to assist Foth|Olsen with permitting and collection of vibracores in northern Palm Beach County and the south end of Martin County in support of the North Palm Beach County Comprehensive Shore Protection Project. It is anticipated that federal authorization for collection of vibracores will occur under Nationwide Permit Number 6 (NWP 6). Because the study area is within the range of federally listed species and designated or proposed critical habitat for listed species, use of NWP 6 requires submission of a pre-construction notification (PCN) to the U.S. Army Corps of Engineers (USACE) prior to initiation of work. Specific resources to be addressed in the PCN include assessment of potential effects to proposed critical habitat for the green sea turtle (*Chelonia mydas*) and Queen Conch (*Aliger gigas*). A minimum distance of 1,000 ft will be maintained from adjacent reef resources during all coring activities to avoid potential impacts to listed stony corals and reef habitats which serve as critical habitat for the stony coral, *Orbicella faveolata*, neritic critical habitat for the loggerhead sea turtle (*Caretta caretta*), and proposed critical habitat for the green sea turtle (*C. mydas*). The Queen Conch was listed as Threatened under the Endangered Species Act (ESA) in February 2024 with an effective date of March 15, 2024. The proposed work area is located within the range of Queen Conch in Florida.

Marine scientists with CEG have conducted several surveys for Queen Conch in southeast Florida during the past eight months and performed the first project-related relocation of queen conch in the state of Florida in July 2024. Three surveys of offshore borrow areas have been conducted: two offshore of south Martin County (one for the Town of Jupiter Island and the second for Martin County) and one offshore of the Town of Palm Beach for the Phipps Park Beach Nourishment Project. Water depths in the offshore borrow areas were 40 to 60 ft in Martin County and 20 to 30 ft in the Town of Palm Beach. Surveys were conducted with towed divers and diver swim transects, and underwater visibility was very good (30 to 60 ft in Martin County and 75 to 100 ft in Town of Palm Beach), allowing for complete visual coverage of the sand bottom during all three surveys. All three borrow

areas are more than 1,000 ft from adjacent reef habitats. Divers found juvenile and sub-adult Queen Conch on nearshore hardbottom habitats adjacent to the beach fill sites during these surveys. No Queen Conch were observed in the offshore sand borrow areas during all three surveys.

Because there is no exposed hardbottom or rubble within or less than 1,000 ft from the borrow areas, it is highly unlikely that these offshore sand habitats provide suitable foraging habitat or refuge for Queen Conch due to limited food availability. The Martin County borrow areas, which were surveyed in July 2024 and January/February 2025, are about 2,500 ft. north of the northernmost vibracores for the proposed project. Based on the results of these surveys, Queen Conch are not expected to utilize the unconsolidated sand habitat in water depths of 40 to 70 ft at the sample sites. A no effect recommendation for the proposed vibracore collection is supported by the results of these surveys.

If the recommended determination by the USACE is may affect, not likely to adversely affect Queen Conch, the project size qualifies the project for informal expedited consultation pursuant to the latest National Marine Fisheries Service (NMFS) Queen Conch Survey, Construction Conditions, Relocation and Reporting Guidelines dated December 2024. This qualification is also based on 10 or fewer queen conch present within the direct work area and surrounding buffer at each core location. The “legs” of the vibracore rig contact the seafloor and form a plus sign which is 18 feet across; width is conservatively assumed to be about 1 ft (see **Photo 1** below). The legs are fabricated from steel tubing; only a fraction of the leg area (i.e. “feet”) contact the seafloor. Even with the conservative assumption that each leg area represents solid contact on the seafloor, the total area of contact for each core would be less than 36 ft² (3.34 m²), and the total area for 30 cores is less than 1,080 ft² (100 m²). If two contingency cores are collected, the overall total area increases to about 107 m², which is well below the 1,000 m² footprint required by NMFS guidelines for expedited information consultation.



Photo 1. Photography of proposed vibracore rig. Note the central core and circular feet on the legs (Source: Athena Technologies Inc.)

Detailed task descriptions and associated deliverables are provided below. A breakdown of the costs for each task is provided in the attached spreadsheets.

Task 1- Permitting Support, Meetings and Agency Coordination

CEG shall provide support to Foth|Olsen during permitting of the proposed vibracore activity. These activities include planning, coordination, and participation in meetings with the federal and state resource and regulatory agencies. CEG will participate in teleconferences with agency staff and the County and/or one (1) in-person meeting in Palm Beach County.

Deliverable. Where applicable, CEG shall provide limited preparation for progress meetings including preparation of meeting topics and presentation materials. Deliverables shall include meeting notes and email records. Electronic copies of the deliverables shall be provided to the County upon request.

Task 1 Not To Exceed Total (Time and Materials): \$3,032

Task 2- Reconnaissance Survey to Verify Absence of Queen Conch (Authorization Required)

Based upon preliminary communication with NMFS staff, a field survey of the work area may be required to confirm the presence or absence of Queen Conch at the vibracore locations and surrounding buffers. **Task 2** provides for a field survey of approximately 25% of vibracore samples (8) during permitting to provide assurance that Queen Conch are not found in the unconsolidated sand habitat. A team of two qualified scientific divers will conduct radial surveys which extend 60 m around the eight (8) sample locations. Divers will swim several concentric circles determined by underwater visibility at the time of the survey to ensure complete visual coverage of each core survey area. Queen Conch move a maximum distance of about 12 m/day; therefore, the 60-m radius covers a 5-day period. This task assumes completion in a single field day.

Deliverable.
A Draft field observation report with still photos and GIS maps will be prepared and submitted to the County in PDF format for review and comment. CEG will address all comments on the draft and submit a Final report (PDF), GIS shape files, and digital copies of all still photos and high-definition video.

Task 2 Lump Sum Total: \$9,399

Task 3- Immediate Pre-construction Survey of 30 Core Locations (Authorization Required)

Task 3 would apply in lieu of Task 2 if NMFS requires all 30 vibracore locations to be surveyed for the presence of Queen Conch. It is recommended that this survey be conducted in conjunction with the vibracore activity to avoid the need for relocation if Queen Conch are found. Under this scenario, CEG divers would not need to touch and/or relocate Queen Conch; therefore, no Special Activities License (SAL) from the Florida Fish and Wildlife Commission would be required. The Contractor will be instructed to adjust the location of the vibracore at the time of collection to provide a 25-ft buffer distance to Queen Conch. The coring activity represents a temporary disturbance to unconsolidated sand habitat limited to the period of core collection.

CEG shall coordinate with Foth | Olsen and the Contractor to schedule field surveys of the vibracores planned to be completed during the initial 5-day work period. As described above, a team of two divers

will conduct radial surveys which extend 60 m around each vibracore location to cover a 5-day movement period. Divers will swim several concentric circles determined by underwater visibility at the time of the survey to ensure complete visual coverage of each core survey area. The surveys will continue at 5-day intervals for a maximum total of five (5) field days to complete the survey of 30 vibracore locations.

Deliverable.

A Draft field observation report with still photos and GIS maps will be prepared and submitted to the County in PDF format for review and comment. CEG will address all comments on the draft and submit a Final report (PDF), GIS shape files, and digital copies of all still photos and high-definition video.

Task 3 Lump Sum Total: \$35,613

Task 4- Contingency Task (Authorization Required)

This task is to provide additional field survey services on an as-needed basis with a maximum effort of two field days. This task covers survey of two contingency vibracore locations (32 total) and/or expanding the individual core survey areas if the Contractor's production exceeds the estimated production based on 5-day periods. Tasks under this line item will be Not to Exceed and will require the associated back-up documentation.

Contingency Task 4 Not To Exceed Total (Time and Materials): \$9,910

Thank you for the opportunity to provide this scope of services and cost estimate. Please let me know if you have any questions. We look forward to working with you on this project.

Sincerely,

Cheryl L. Miller

Cheryl L. Miller
President, Coastal Eco-Group Inc.

Palm Beach County, FL							
North County Comprehensive Shore Protection Project- Offshore Sand Search Vibracore Permitting							March 28, 2025
Permitting Support, Meetings and Coordination- Task 1							
DESCRIPTION	2025	Meetings & Coordination with County, NMFS & USACE		Permitting Support		TOTAL	
		Units	\$	Units	\$	Units	\$
Coastal Eco-Group							
Labor Classification							
Principal Scientist	\$132.00	8	\$1,056.00	8	\$1,056.00	16	\$2,112.00
Senior Scientist	\$115.00		\$0.00	8	\$920.00	8	\$920.00
TOTAL		8	\$1,056.00	16	\$1,976.00	24	\$3,032.00

Palm Beach County, FL							
North County Comprehensive Shore Protection Project- Offshore Sand Search Vibrat						March 28, 2025	
Initial Reconnaissance Survey- Survey of 8 vibracores with 60-m radius- Task 2							
DESCRIPTION	2025	Queen Conch Dives- 8 Vibracores		Maps and Summary Report		TOTAL	
		Units	\$	Units	\$	Units	\$
Coastal Eco-Group							
Labor Classification							
Principal Scientist	\$132.00	-		4	528.00	4	\$528.00
Senior Scientist	\$115.00	26	\$2,990.00	4	460.00	30	\$3,450.00
Staff Scientist	\$100.00	28	\$2,800.00	8	800.00	36	\$3,600.00
Boat Captain	\$68.00	12	\$816.00	-	-	12	\$816.00
Equipment							
Survey Vessel	\$650.00	1	\$650.00	-	-	1	\$650.00
Trimble Mapping System	\$50.00	1	\$50.00	-	-	1	\$50.00
Field Expendables	\$25.00	1	\$25.00	-	-	1	\$25.00
Dive Equipment	\$25.00	4	\$100.00	-	-	4	\$100.00
SCUBA Nitrox Tanks Fills	\$15.00	12	\$180.00	-	-	12	\$180.00
CEG Labor Subtotal		66	\$6,606.00	16	\$1,788.00	82	\$8,394.00
TOTAL			\$7,611.00		\$1,788.00		\$9,399.00

Palm Beach County, FL							
North County Comprehensive Shore Protection Project- Offshore Sand Search Vibracores						March 28, 2025	
Immediate Pre-construction Survey- 30 Vibracores with 60-m radius- Task 3							
DESCRIPTION	2025	Queen Conch Dives- 30 Vibracores		Maps and Summary Report		TOTAL	
		Units	\$	Units	\$	Units	\$
Coastal Eco-Group							
Labor Classification							
Principal Scientist	\$132.00	-	-	4	528.00	4	\$528.00
Senior Scientist	\$115.00	110	\$12,650.00	8	920.00	118	\$13,570.00
Staff Scientist	\$100.00	110	\$11,000.00	16	1,600.00	126	\$12,600.00
Boat Captain	\$68.00	55	\$3,740.00	-	-	55	\$3,740.00
Equipment							
Survey Vessel	\$650.00	5	\$3,250.00	-	-	5	\$3,250.00
Trimble Mapping System	\$50.00	5	\$250.00	-	-	5	\$250.00
Underwater Still Camera	\$30.00	5	\$150.00	-	-	5	\$150.00
Field Expendables	\$25.00	5	\$125.00	-	-	5	\$125.00
Dive Equipment	\$25.00	20	\$500.00	-	-	20	\$500.00
SCUBA Nitrox Tanks Fills	\$15.00	60	\$900.00	-	-	60	\$900.00
CEG Labor Subtotal		275	\$27,390.00	28	\$3,048.00	303	\$30,438.00
TOTAL			\$32,565.00		\$3,048.00		\$35,613.00

Palm Beach County, FL							
North County Comprehensive Shore Protection Project- Offshore Sand Search Vibracores					March 28, 2025		
Maximum of Two (2) Contingency Field Days- Task 4							
DESCRIPTION	2025	Two (2) Field Days Queen Conch Dives		Maps and Summary Report		TOTAL	
		Units	\$	Units	\$	Units	\$
Coastal Eco-Group							
Labor Classification							
Principal Scientist	\$132.00	-	-	2	264.00	2	\$264.00
Senior Scientist	\$115.00	28	\$2,990.00	2	230.00	28	\$3,220.00
Staff Scientist	\$100.00	28	\$2,800.00	8	800.00	36	\$3,600.00
Boat Captain	\$68.00	12	\$816.00	-	-	12	\$816.00
Equipment							
Survey Vessel	\$650.00	2	\$1,300.00	-	-	2	\$1,300.00
Trimble Mapping System	\$50.00	2	\$100.00	-	-	2	\$100.00
Field Expendables	\$25.00	2	\$50.00	-	-	2	\$50.00
Dive Equipment	\$25.00	8	\$200.00	-	-	8	\$200.00
SCUBA Nitrox Tanks Fills	\$15.00	24	\$360.00	-	-	24	\$360.00
CEG Labor Subtotal		66	\$6,606.00	12	\$1,294.00	78	\$7,900.00
TOTAL			\$8,616.00		\$1,294.00		\$9,910.00

CONTRACT HISTORY
Foth Infrastructure & Environment, LLC
(f.k.a. Olsen Associates, Inc.)
Continuing Contract for Coastal and Marine Engineering Services

Contract R2023-0090 dated January 24, 2023 for a period of two years, expires on January 23, 2025.
Amendment No. 1 (R2025-0036) dated January 7, 2025 extends the contract through January 23, 2026.
SBE Goal: 48.0%

Consultant Services Authorization summary:

CSA #	TOTAL/ SBE AMOUNT	CSA DUE DATE	PROJECT DESCRIPTION	APPROVED BY/DATE
0090-01	47,130.28 44,853.00	12/31/2023	2023 Lake Worth Lagoon Seagrass Fixed Transect Monitoring	ERM 3/16/2023
0090-02	227,979.42 167,485.00	1/31/2024	2023 Regional Monitoring Surveys and Post-Storm Damage Assessment	BCC 5/16/2023
0090-03	43,889.84 42,089.00	12/31/2023	2023 Lake Worth Lagoon Seagrass Mapping	ERM 4/19/2023
0090-04	33,321.55 0.00	11/30/2023	NCCSPP Segment I - 1 Year Post-Construction Physical Monitoring Report	ERM 5/1/2023
0090-03A	124,767.98 122,082.00	12/31/2023	2023 Lake Worth Lagoon Seagrass Mapping	BCC 7/11/2023
0090-05	34,495.46 0.00	5/1/2024	NCCSPP Sand Search - Phase 1	ERM 8/18/2023
0090-06	5,845.67 5,072.00	12/31/2023	NCCSPP Segment 2 Legal Descriptions	ERM 11/9/2023
0090-07	195,326.24 131,675.00	1/31/2025	2024 Regional Monitoring Surveys and Post-Storm Damage Assessment	BCC 5/7/2024
0090-08	52,267.28 49,990.00	12/31/2024	2024 Lake Worth Lagoon Seagrass Fixed Transect Monitoring	CRC 4/24/2024
0090-09	37,541.17 0.00	12/31/2024	NCCSPP - Segment III Year-Three Post Construction Physical Monitoring Report	ERM 5/10/2024
0090-10	68,773.72 65,400.00	3/31/2025	2024 Coastal Aerial Hardbottom Delineation	CRC 8/14/2024
0090-11	27,108.06 0.00	3/1/2025	NCCSPP Borrow Area Cable Investigation	ERM 12/23/2025
0090-12	52,864.04 50,340.00	12/31/2025	2025 Lake Worth Lagoon Seagrass Fixed Transect Monitoring	ERM 3/21/2025
0090-13	217,999.64 152,272.00	1/31/2026	2025 Regional Monitoring Surveys and Post-Storm Damage Assessment	BCC
0090-14	34,166.48 0.00	6/15/2025	NCCSPP Segment I - 3 Year Post-Construction Physical Monitoring Report	ERM 4/30/2025
0090-15	450,501.30 109,129.00	9/30/2026	NCCSPP Sand Search - Phase 2	BCC

Total: 1,653,978.13
SBE: 940,387.00
SBE Participation: 56.8%
Report Date & Filename: 06/13/25

Subject to Emergency Ordinance 2025-014, approved by the BCC on
June 3, 2025. As a result, the M/WBE participation will not be enforced.