

CONSENT

II, A, 2.



**AGENDA REPORT
November 21, 2017**

SUBJECT:

Programmatic Permitting of Indian River Lagoon Muck Removal, Phase I - Task Order with Tetra Tech, Inc. to Provide Engineering and Permitting Services

FISCAL IMPACT:

FY18-19: Save Our Indian River Lagoon Trust Fund, \$156,165

DEPT/OFFICE:

Natural Resources Management

REQUESTED ACTION:

It is requested that the Board of County Commissioners authorize the Chairman to execute the attached Task Order with Tetra Tech, Inc. to provide engineering and permitting services subject to the approval of the County Attorney's Office and Risk Management for programmatic permitting of County-wide Indian River Lagoon Muck Removal projects

SUMMARY EXPLANATION and BACKGROUND:

The Save Our Indian River Lagoon Project Plan (SOIRLPP), most recently updated by the BOCC on March 7, 2017 includes 18 muck removal projects to be implemented over the next ten years. Typically each project requires that significant time and funding be dedicated to obtaining a unique permit for each individual project. An alternative county-wide permitting approach for the Save Our Indian River Lagoon muck removal program is being sought to save time and money going forward.

On September 17, 2013 the Board approved entering into a continuing services agreement with Tetra Tech, Inc. to obtain engineering consulting services, including permitting, for dredging and sediment removal projects. The proposed Task Order for Programmatic Permitting of Indian River Lagoon Muck Removal, Phase I (attached) includes an effort to assess the viability of obtaining a countywide programmatic permit for environmental restoration of the Indian River Lagoon through dredging of muck material. Work will include coordinating up to two meetings each with federal Congressional staff, state Congressional staff, state (FDEP, FFWCC) and federal (USACE, USFWS, NMFS) agencies, Brevard County, and general public stakeholders – for up to 12 meetings total. These meetings will be conducted to discuss the purpose, expected schedules, data collection needs, and agency consultation and permitting procedures for a programmatic approach. These meetings will seek consensus between agencies and stakeholders on permit conditions and requirements to satisfy agency concerns including endangered species and water quality protection.

The use of a "Programmatic" permit application process is intended to reduce permitting costs, eliminate duplication of effort, expedite muck removal program, and optimize use of the Save Our Indian River Lagoon Trust Fund dollars. If approved, this task order will be funded with Save Our Indian River Lagoon Trust Fund dollars that were previously allocated for pursuing individual permits for specific muck dredging projects listed in the SOIRLPP.

CLERK TO THE BOARD INSTRUCTIONS:

Execute 3 originals – one for the Clerk of Courts, one for NRMD, and one for TetraTech, Inc.

ATTACHMENTS:

Description

- ▣ Tetra Tech Task Order

REVIEWERS:

Department	Reviewer	Action
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**Natural Resources
Management
Natural Resources
Management**

McGarry, Mike

Approved

Barker, Virginia

Virginia Barker

Approved

Development and
Environmental Scvs.

John Denninghoff

[Signature]

County Manager

Frank Abbate

Frank Abbate

RECEIVED
NOV 08 2017
County Manager's
Office



Tammy Rowe, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972
Tammy.Rowe@brevardclerk.us

November 22, 2017

M E M O R A N D U M

TO: Virginia Barker, Natural Resources Management Director

RE: Item II.A.2., Task Order with Tetra Tech, Inc. to Provide Engineering and Permitting Services for Programmatic Permitting of the Indian River Lagoon Muck Removal, Phase 1

The Board of County Commissioners, in regular session on November 21, 2017, authorized the Chairman to execute a Task Order with Tetra Tech, Inc. to provide engineering services, subject to approval of the County Attorney's Office and Risk Management, for programmatic permitting of County-wide Indian River Lagoon Muck Removal Projects. Enclosed are two executed Task Orders.

Upon execution by Tetra Tech Inc., please return a fully-executed Task Order to this office for inclusion in the official record.

Your continued cooperation is always appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tammy Rowe, Deputy Clerk

/kp

Encls. (2)

cc: Contracts Administration
County Manager
Finance
Budget

**AGREEMENT TO FURNISH PROFESSIONAL
ENGINEERING SERVICES FOR:
PROGRAMMATIC PERMITTING OF INDIAN RIVER LAGOON
MUCK REMOVAL – PHASE I**

TASK ORDER NO. 14-005-010 SOIRL

This Agreement is made this 21 day of NOV, 2017, by Tetra Tech, Inc., hereinafter referred as the ENGINEER, and the COUNTY OF BREVARD, FLORIDA, hereinafter referred to as the COUNTY, and

WHEREAS, on July 23, 2014, the ENGINEER and the BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY entered into an AGREEMENT, wherein the ENGINEER agreed to furnish engineering services to the COUNTY as referred to in the AGREEMENT, and

WHEREAS, under SECTION II of the PROFESSIONAL SERVICES CONTRACT, the ENGINEER agrees to provide certain professional engineering services which shall be implemented by TASK ORDERS;

NOW, THEREFORE, the parties do mutually agree as follows:

Summary

The COUNTY is undertaking an effort to assess the viability of obtaining a programmatic permit for environmental restoration of the Indian River Lagoon through dredging of muck material. The use of a "Programmatic" permit application is intended to reduce permitting costs, eliminate the duplication of effort, expedite the muck removal program, and maximize the application of County tax dollars for IRL restoration purposes, acknowledging that the current legislation has a sunset clause for the availability of those tax dollars. The COUNTY desires to contract with the ENGINEER for professional engineering services to determine the regulatory agencies' agreement to support a proposed programmatic dredging permitting process. If reasonable assurance of regulatory support is recognized, the project will move to evaluating project areas and execution/sequencing of dredge projects. Professional engineering services for such will be addressed in future task order(s).

Section I, Scope of Work

See Exhibit A

Section II, Schedule

See Exhibit A

Section III, Deliverables

See Exhibit A

EXHIBIT A
SCOPE OF WORK

Section IV, Compensation

For the scope of work described in Section I of this agreement, compensation from the COUNTY to the ENGINEER shall be on an hourly basis as indicated in the attached Exhibit B (actual expenses by category and tasks may vary from those indicated during the course of work), not to exceed **\$156,165** unless authorized by a written Change Order executed by the COUNTY. Upon submittal of deliverables as described in Section III of this agreement, the COUNTY will be invoiced only for actual work performed. The County shall pay such invoices in accordance with Florida's Prompt Payment Act. The County reserves the right to refuse payment for or deduct from any invoice, fees for incomplete or defective work. The following is a summary of the fee breakdown:

A. PROGRAMMATIC PERMITTING – PHASE I SERVICES (\$156,165)

1. Kick-off Meeting with Brevard County Natural Resources Director and Staff - \$16,082
2. Stakeholder and Regulatory Agency Assessment - \$140,083

Section V, Other Terms and Conditions

All of the terms and conditions of the Agreement shall apply to this Task Order as fully set out herein unless such terms and conditions are specifically superseded by the Terms and Conditions of this Task Order. It is hereby acknowledged that this Task Order is prepared based upon the master contract approved by the COUNTY on July 23, 2014 for engineering services, and such, this Task Order is subject to all conditions and stipulations contained in said contract, as amended.

PURSUANT TO FLORIDA STATUTE SECTION 558.0035, AN INDIVIDUAL EMPLOYEE OR AGENT OF TETRA TECH, INC. MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.

Section VI, Effective Date and Authorized to Proceed

This Task Order shall be effective on the date specified in the Notice to Proceed from the COUNTY'S designated representative. This task order will expire one (1) year from the date of issuance of the Notice to Proceed unless otherwise extended through a subsequent change order.

IN WITNESS WHEREOF, the parties hereto set their hands and seals the date and year above written.

BREVARD COUNTY BOARD OF
COUNTY COMMISSIONERS

By: 
RITA PRITCHETT
CHAIRWOMAN
Approved by Board 11/21/17
Date: November 21, 2017

TETRA TECH, INC.

By: _____
Eric T. Dohner
Vice President, Resource Management

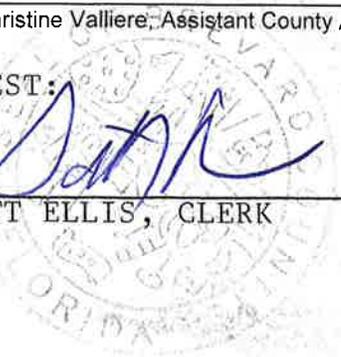
Date: _____

Review for legal form and content

By _____
Christine Valliere, Assistant County Attorney

ATTEST:

SCOTT ELLIS, CLERK





November 1, 2017

Ms. Virginia Barker
Director
Brevard County Natural Resources Management Department
2725 Judge Fran Jamieson Way
Building A Room 219
Viera, Florida 32940

Subject: Proposal for Services to Obtain Programmatic Permits for Muck Removal in the Indian River Lagoon

Task Order One

Dear Ms. Barker:

On behalf of the Tetra Tech Team (comprised of Tetra Tech and specialty services subconsultants Jones Edmunds and Dredging & Marine Consultants, LLC), we are pleased to transmit a proposal to Brevard County to facilitate the programmatic permitting of muck removal projects within the Brevard County segment of the Indian River Lagoon. We appreciate your support of this endeavor, including your recent efforts at the 20 October Indian River Lagoon Oversight Committee meeting.

The attached Statement/Scope of Work (Exhibit A) provides a detailed description of the first two tasks, followed by summary descriptions of several subsequent, "follow-on" tasks once the Team obtains favorable input and direction from the state and federal regulatory and resource agencies. A labor hour projection for the two identified tasks described in detail in Exhibit A, is provided as Exhibit B to this Proposal.

Proposed Fee and Contract

This work will be performed under Contract 260070-14-005, which was executed on July 23, 2014. The rates and other conditions of the contract will conform to the approved rate schedule and contract requirements specified therein. This time and materials price proposal shall not exceed the amount of **\$156,165.00**, as reflected in Exhibit B.

We sincerely appreciate this opportunity to provide the herein described services to Brevard County. Please do not hesitate to call if you should have any questions regarding the attached scope and fee proposal.



Sincerely,

For Tetra Tech

Eric T. Dohner
Vice-President/Project Principal

Michael R. Barnett, P.E., D.CE
Senior Coastal Engineer/Project Manager

For Brevard County

Approved by:

Authorized Signature/Date
RITA PRITCHETT
CHAIRWOMAN

Exhibit A – Scope of Work
Exhibit B – Fee Proposal (Summary and Subconsultant Tabulations)

Cc: Brian Watson, Tetra Tech, Inc.
Matt Shelton, Tetra Tech, Inc.
Stephen Berry, Jones Edmunds
Shailesh Patel, Dredging & Marine Consultants, LLC

Approved by Board 11/21/17

ATTEST:

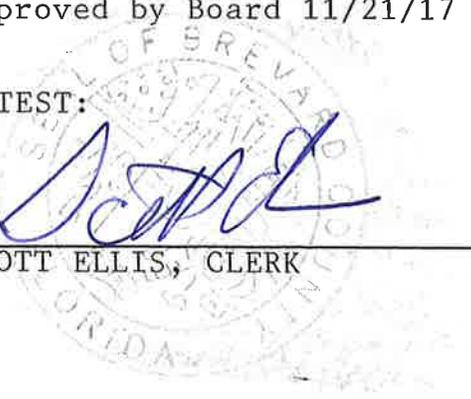
SCOTT ELLIS, CLERK

EXHIBIT A

BREVARD COUNTY - PROGRAMMATIC PERMITTING OF INDIAN RIVER LAGOON MUCK REMOVAL

STATEMENT OF WORK

1 BACKGROUND

The Indian River Lagoon (IRL) system includes the Banana River Lagoon and the Indian River in Brevard County. This unique and diverse ecosystem connects Volusia, Brevard, Indian River, St. Lucie, and Martin Counties. The IRL is part of the National Estuary Program (NEP), one of 28 estuaries of National Significance, and has one of the greatest diversity of plants and animals in the nation. A majority of the IRL system is within Brevard County and provides County residents and visitors with many opportunities and economic benefits. However, the balance of this delicate ecosystem has been disturbed since development in the area has led to harmful impacts. Stormwater runoff from urban and agricultural areas, wastewater treatment facility (WWTF) discharges, septic systems, and excess fertilizer applications have led to harmful levels of nutrients and sediments entering the Lagoon. These pollutants create turbid conditions in the Lagoon and feed algal blooms, both of which negatively affect the seagrass community that provides habitat for much of the Lagoon's marine life. In addition, these pollutants lead to muck accumulation, which releases (fluxes) nutrients and hydrogen sulfide, depletes oxygen, and creates a lagoon bottom that is not hospitable to seagrass, shellfish, or other marine life (Save Our Indian River Lagoon Project Plan [SOIRLPP] Update, February 2017).

Projects that remove muck overlying the natural, sandy substrate of the IRL and its tributaries are beneficial to the recovery of seagrasses. Muck deposits contain nutrients that dissolve and flux into the water column, increasing abundance of phytoplankton, drift macroalgae, and epiphytes that attenuate light and constrain seagrass growth and extent. Additionally, seagrass cannot grow in bottom areas that have a thick mucky substrate, further limiting where they can exist. Muck is easily suspended within the water column due to wind or human activities such as boating. This resuspension limits light availability and suppresses seagrass growth. Areas containing muck that are too deep to support seagrass remain a nutrient source that potentially affects a broader area of the Lagoon through nutrient flux and resuspension of fine sediments and their subsequent transport.

The February 2017 SOIRLPP Update stated that muck flux (release of nutrients from muck) was responsible for a significant fraction of nitrogen and phosphorus in the Central IRL Sub-lagoon, North IRL Sub-lagoon, and Banana River Sub-lagoon when compared to stormwater runoff, baseflow/septic systems contribution, atmospheric deposition, and point sources. For these reasons, Brevard County, the St. Johns River Water Management District (SJRWMD) and the Florida Department of Environmental Protection (FDEP) consider the control and removal of muck deposits within the IRL as a potential beneficial nutrient-reduction strategy.

In August 2016, the Brevard County Board of County Commissioners (BOCC) voted to approve the SOIRLPP. This plan outlines local projects intended to meet water quality targets as well as improve the health, productivity, aesthetic appeal, and economic value of the IRL. The plan is being managed adaptively and will be updated at least annually. In fall 2016, the citizens of Brevard County approved a \$0.005 sales tax to generate funds over a 10-year period to take action to improve and restore the

ecological conditions of the IRL through environmental dredging projects and implementation of Best Management Practices (BMPs), stormwater treatment, septic tank input reduction, nutrient reduction in reclaimed water, and education.

Currently, each proposed dredging project within the IRL, even those intended only as beneficial environmental dredging projects to remove muck, must individually go through the state and federal permitting processes. The result of this process is a redundant occupation of agency and Brevard County staff, iterative consultation with the resource agencies, permit delays, redundant data collection, and unnecessary expenditures of the tax dollars intended to restore the IRL via muck removal and other means. The use of a "Programmatic" permit application is intended to reduce permitting costs, eliminate the duplication of effort, expedite the muck removal program, and maximize the application of County tax dollars for IRL restoration purposes, acknowledging that the current legislation has a sunset clause for the availability of those tax dollars. The Programmatic Permit Application approach will lead to collaboration between cities, Brevard County, and state/federal agencies to take advantage of the existing testing and survey data, thereby leveraging the available technical knowledge for regulatory agencies and decision-makers, and to optimize the potential for possible matching grant funds toward the restoration of the IRL via muck removal.

The Programmatic Permit Application approach, if acceptable to the stakeholder agencies, would result in the issuance of an Environmental Resource Permit (ERP) from FDEP and a separate US Army Corps of Engineers (USACE) Section 404/10 permit for environmentally beneficial muck removal. As projects are developed within the confines of the permit duration, modifications to the permit are anticipated. In addition, evaluation of the maintenance dredging permit exclusion can be addressed with regulators to remove the maximum dredge depth of -5 feet mean low water when dredging is specific to environmental muck dredging in the IRL Basin.

2 SCOPE OF WORK

Muck removal projects are required to meet applicable permitting requirements that address the muck removal methods, contamination of dredged sediments, and where the dredged material can be placed. The purpose of this Scope of Work (SOW) is to provide the necessary services to obtain 15-year "Programmatic" permits from state and federal agencies to hydraulically dredge muck in the Brevard County portions of the IRL. The areas proposed for environmental dredging in this SOW are entirely within Brevard County and involve the North IRL, Central IRL, the Banana River Lagoon, and southern Mosquito Lagoon. We propose the following tasks to obtain these permits. Tasks 1 and 2 will be completed to assure reasonable understanding of the SOW and understanding of the limitations to be imposed by regulators. Once this is established, the required assessments will be completed in the following tasks to determine the included and excluded areas of the programmatic permit.

TASK 1.0 KICK-OFF MEETING WITH BREVARD COUNTY NATURAL RESOURCES DIRECTOR AND STAFF

The Consultant will coordinate a kick-off meeting with the Brevard County Director of Natural Resources Management to discuss specific elements that are essential to the programmatic permitting process. This discussion is intended to result in agreement on what the County's objectives are, preliminary project areas, what elements are negotiable from a permitting perspective, and what elements are not. Materials and exhibits for the IRL and areas of proposed dredging using existing information will be prepared by the Consultant for this discussion.

Deliverable: Draft and final meeting minutes and Technical Memorandum outlining permitting considerations in .pdf format.

TASK 2.0 STAKEHOLDER AND REGULATORY AGENCY ASSESSMENT

This task involves coordination, consensus building, and discussion of project permitting with congressional and legislative staffs, Brevard County BOCC, local municipal stakeholders, Florida Inland Navigation District (FIND), and the general public through the County's Save Our Lagoon website. A concurrent level of consensus building will occur with senior management at USACE, US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), FDEP, and the Florida Fish and Wildlife Conservation Commission (FFWCC).

For this task, the Consultant will coordinate and lead up to two meetings each with federal Congressional staff, state Congressional staff, state (FDEP, FFWCC) and federal (USACE, USFWS, NMFS) agencies, Brevard County BOCC, and general public stakeholders – for up to 12 meetings total – to discuss the purpose and need, expected schedules, data collection needs, and agency consultation and permitting procedures. Efforts will be made to combine meetings with USACE and USFWS and separately with the FDEP (Tallahassee), FFWCC, and SHPO to reduce the number of meetings. A request will be made of USFWS and FFWCC to convene one of the meetings with representatives from both agencies present. The outcome of these meetings will be to establish lead senior management decision-makers/points of contact (POCs) for each agency involved with the review of the application packages to discuss protocols to facilitate expedited permitting of the proposed action if applicable and to determine several specific permitting-related issues such as but not limited to the following:

1. Sovereign and Submerged Lands – identification of, permitting implications, and lease requirements.
2. National Environmental Protection Act (NEPA) – determine what level of NEPA analysis will be required by USACE.
3. USACE Section 408 – determine if Section 408 issues will affect the project and/or require additional permitting. The proposed dredging zones will specifically avoid removal of muck from any federal project limits with the intent of eliminating any potential involvement and costs associated with Section 408 issues/approvals if there are substantial costs to the County associated with USACE not having funding to process a Section 408 application for this permit application and/or the queue to begin the review for a Section 408 application is indeterminate.
4. Establish the needs regarding involvement of FDEP's Submerged Lands Section in this environmental dredging proposed action.
5. Identify temporary and permanent Dredge Material Management Areas (DMMA's).
6. Florida Master Site File review information with FDEP (for coordination and input from the State Historic Preservation Officer).

The initial level of effort involves consensus building and coordination of the proposed permitting with congressional and legislative staffs, Brevard County BOCC, local municipal stakeholders, and FIND. A concurrent level of consensus building will occur with senior management at USACE, USFWS, NMFS, FDEP, and FFWCC. The Consultant will coordinate individual meetings with each of the entities above to brief them on the proposed action and discuss protocols to facilitate expedited permitting of the proposed action.

The Consultant summarize the requirements of FDEP's Submerged Lands Section to support the FDEP ERP permit application.

Deliverable: Draft and final meeting presentations, minutes, and Technical Memorandum outlining permitting considerations in .pdf format. Presentation materials and exhibits will be prepared by the Consultant based on input received from Task 1 for presentation to the state and federal representatives and technical staffs.

FUTURE SCOPE OF WORK ELEMENTS

The following tasks are anticipated to be completed once there is reasonable assurance of regulatory buy-in for the proposed programmatic dredging permitting process. Once there is assurance of project success, including expeditious timeframe and reasonable project limitations and change management procedures, the project will move to evaluating the project area and execution/sequencing of the dredging project(s). The following is merely a summary of anticipated tasks; more detailed scope development will be provided once it is evident that programmatic authorizations will be supported by the stakeholders discussed in Task 2 above.

TASK 3.0 MUCK AND SEAGRASS DATA COMPILATION AND ANALYSIS

Studies have been conducted on the sediments, seagrass extent, and other environmental features in the IRL for decades. Much of this work has been completed by SJRWMD, educational institutions, trained citizen scientists using the Muck Finder app, and municipal sources. In this task, the Consultant will compile existing muck depth, seagrass distribution, and muck contamination concentration data from existing agency sources to perform data gap analyses and to identify which areas of the IRL need sediment thickness surveys, potential contamination sampling, and sediment characterization.

Deliverable: Abbreviated bibliography for data compiled and geodatabase containing spatial data collected.

TASK 4.0 DMMA USE FEASIBILITY ASSESSMENT

TASK 4.1 FIND SITE FEASIBILITY ASSESSMENT AND DRAFT/FINAL MOA BETWEEN BREVARD COUNTY AND FIND

This task will determine the extent to which the County can technically and cost effectively use FIND DMMA sites within Brevard County to allow the muck removed to be handled on a temporary basis in the FIND DMMA sites with subsequent removal from the FIND site(s) for beneficial use elsewhere. The FIND sites are engineered and maintained by FIND for the primary purpose of providing upland handling of shoal material for maintenance dredging of the Atlantic Intracoastal Waterway. The Consultant will coordinate a meeting between Brevard County, FIND, and the Consultant to discuss temporary use of the FIND DMMA sites near the zones of muck removal. Based on feedback from FIND, the Consultant will draft a proposed Memorandum of Agreement (MOA) between Brevard County and FIND for use of the FIND sites. The MOA may include County development of some of FIND's undeveloped sites and future FIND sites.

Deliverable: Draft and final Technical Memorandum in .pdf format.

TASK 4.2 NON-FIND FEASIBILITY SITE ASSESSMENT

This task will also analyze the potential for non-FIND sites to serve as DMMA sites within reasonable pumping distance from the various zones noted above. Local municipalities have made efforts in the past to identify upland DMMA sites that may be more cost-effective to use and provide more beneficial use options than those provided by the FIND sites.

The project will evaluate the feasibility of performing dredging activities with various sizes of dredges and an assessment of the technical capability to pump/transport the dredged material to the target DMMA(s). Criteria for what constitutes reasonably foreseeable needs for volume capacity and relative location to areas where substantial dredging needs occur will be developed with this task.

The Consultant will prepare a feasibility report regarding the technical ability to pump/transport environmentally dredged muck to handling at FIND sites within reasonable pumping/transporting distances from the muck zones proposed for dredging.

TASK 4.3 DMMA FUNCTIONAL ANALYSIS

To the extent that use of FIND sites is acceptable to the regulatory agencies and FIND, the Consultant will obtain engineering drawings of these sites and their weir structures to include in the permit application packages. The Consultant will determine the conditions of the FIND DMMA sites via site inspections and existing engineering drawings reviews and prepare a condition assessment report that presents the estimated capacity and any improvements that would be required before these sites are used, including preliminary engineering drawings to improve/restore the proposed DMMAs before dredging. The Consultant will provide a scope and fee proposal for engineering and environmental services to bring moderately functional and non-functional DMMAs to the functional level of use for DMMAs that are targeted for use within a three-year environmental restoration dredging planning window. The MOA between the County and FIND will determine who is responsible for the engineering of the FIND sites targeted for use under the Programmatic Permits.

The Consultant will perform a preliminary review of the potential FIND and non-FIND sites in Brevard County to determine the current condition of these sites and quantify their condition as “fully functional,” “moderately functional,” or “not functional.” Fully functional would indicate the site is in workable condition with intact dikes and weir structures that would require relatively minor improvements before deposition of dredged material. A site classified as “moderately functional” would be a site where engineering design and a moderate level of re-construction would be required to use that site. A site classified as “non-functional” would require major engineering design and initial construction or reconstruction before its use.

Light Detection and Ranging (LiDAR) or similar technology would be used to estimate the current volume of storage capacity of each site in Brevard County at the onset of this SOW. Once the first 3 years’ priority dredging zones are established and the timing of the use of these sites by FIND for maintenance dredging of the Intracoastal Waterway is known, sites available for temporary muck deposition would be surveyed for permitting purposes to confirm storage capacity in those sites targeted for priority dredging.

Deliverable: Draft and final Technical Memorandum in .pdf format.

TASK 4.4 CLASSIFICATION OF AREAS TARGETED FOR ENVIRONMENTAL RESTORATION AS MAINTENANCE DREDGING AND NON-MAINTENANCE AQUATIC HABITAT RESTORATION

The Consultant will establish which portions of the proposed muck removal qualify as maintenance dredging and how each agency needs to address those areas that have not been dredged before in light of the unique environmental enhancement goal that this proposed action is seeking to achieve.

The Consultant will prepare a technical report that addresses which muck zones proposed for environmental dredging are considered maintenance dredging for permitting purposes and/or those that would be considered as aquatic habitat restoration based on input from the Task 1.0 discussions and how USACE will address the non-maintenance-designated areas.

The Consultant will compile a muck location and thickness map of the IRL in Brevard County using existing probe and hydrographic survey data for the muck zones identified in Task 2.0. This effort will consider available nutrient flux data and prioritize the vertical and horizontal areas of muck removal for maximum ecological benefit to the extent practicable, will identify data gaps for those muck zones where current survey data do not exist, and will make recommendations to eliminate those data gaps on a recommended schedule for inclusion into the FDEP and USACE permit applications.

Deliverable: Draft and final Technical Memorandums in .pdf format that present findings for each of the subtasks within this Task 3.0 and a muck map in digital GIS format.

TASK 5.0 CULTURAL RESOURCE ASSESSMENT

Since the environmental restoration dredging will include areas not previously excavated for muck removal, the Consultant will coordinate with the Florida Department of State's Division of Historical Resources to identify known or potential cultural resources that will need to be avoided and cultural resource surveys that will be required based on the proposed priority dredging locations identified in Task 2.0.

Deliverable: Draft and final Technical Memorandum in .pdf format.

TASK 6.0 MUCK THICKNESS MAPPING METHODOLOGY EVALUATION

Muck thickness in a large portion of the IRL was not mapped by previous efforts in in 2009 (Nova Southeastern University Oceanographic Center) and 2014 (SJRWMD). As a result, muck thickness mapping in these areas would assist in identifying areas with the thickest muck and prioritizing dredging areas IRL-wide in Brevard County.

Several techniques such as single-beam acoustics have been used to estimate muck thickness in the IRL and other locations in Florida. The Southwest Florida Water Management District (SWFWMD) recently used a Teledyne Optech Coastal Zone Mapping and Imaging LiDAR (CZMIL) sensor to map unconsolidated sediment in Kings Bay, Florida (SWFWMD, 2017). In addition, new technologies for bathymetric and subaqueous sediment mapping are emerging from Europe.

The Consultant will evaluate available bathymetric survey and field verification methodologies that can effectively map muck thickness in the IRL and recommend a survey approach that will most accurately and cost-effectively identify muck thickness versus carbonate or mineral soils. This technical approach will become a part of the specific conditions as a requirement to determine the depth of the muck and avoid removal of sandy sediments that provide the appropriate surface for the re-establishment of submerged aquatic vegetation (SAV).

Deliverable: Draft and final Technical Memorandum in pdf format.

TASK 7.0 SEDIMENT SURVEY AND DATA COLLECTION

If not already available, the Consultant will complete an unconsolidated sediment (muck) survey of high-priority areas for muck removal within the first 3 years of the permit period. Other muck removal zones will be surveyed in the future using the same survey criteria by other consultants/contractors as part of the specific conditions of the permits to get accurate survey data preceding dredging events during the duration of the permits. The data will be provided as a signed-and-sealed survey report and map and will provide elevations of top of muck, carbonate and mineral soil.

Consultant will complete a sediment survey using state-of-the-art hydrographic survey technology to establish layers of muck from the sandy or shell hash bottom. An initial pilot study will select the most accurate survey equipment to perform the muck survey. This equipment will be calibrated to manual readings obtained by direct probing. Elevations and horizontal positions will be recorded using Real-Time Kinematic Global Positioning System (RTK GPS) in conjunction with the fathometer. Data collection and presentation will occur with the Horizontal Datum set to North American Datum (NAD) 1983/2011, Florida State Plane System, East zone, US feet, and Vertical Datum set to North American Vertical Datum of 1988 (NAVD88). The survey will be signed and sealed by a Florida Professional Surveyor and Mapper.

Muck and carbonate or mineral soil survey locations will have a vertical accuracy of 0.1 foot or greater and a horizontal accuracy of 1.0 feet.

Deliverable: Draft and final Technical Memorandum in .pdf format and signed-and-sealed surveys.

TASK 7.1 SEDIMENT ANALYSIS

The Consultant will perform sediment sampling of muck down to carbonate or mineral soil at a specified number of locations agreed to by stakeholders and design engineer (Figure 1). Sediment samples will be collected using a 7.5-centimeter-diameter polycarbonate piston-coring device following standard methods for soil sampling (for detailed method see Osborne and DeLaune, 2014), including a complete analysis and evaluation of physical characteristics of sediment including concentrations of nutrients, metals, and organic contaminants.

The chemical and physical characterizations of muck samples collected at agreed-on locations will be analyzed. Laboratory analyses will include the following: particle size distribution, moisture content, organic matter content, total carbon, total nitrogen (TN), ammonia, and total phosphorus (TP). A Synthetic Precipitation Leaching Procedure (SPLP) laboratory extraction by EPA Method 1312 will also be conducted for sediments at three locations. The SPLP is expected to be a requirement by FDEP for soils proposed to be used as for beneficial re-use of the muck. In addition to the SPLP testing, Modified Elutriate testing following USACE guidance may be required based on input provided by the agencies during the Task 1.0 discussions. If needed, the Modified Elutriate testing will be performed to determine the levels of contaminant release from discharge water from the FIND upland placement sites.

The potential exists that since this is a muck layer and not typical shoal material, Modified Elutriate testing may not be needed with discharge from the upland site being monitored by turbidity testing.

TASK 7.2 PHYSICAL CHARACTERIZATION AND NUTRIENT ANALYSIS

Following guidance provided by the Task 1.0 discussions, the Consultant will complete an analysis and evaluation of a mutually agreed upon number of samples for the presence of nutrients and potential contamination, as necessary, including determining the concentrations of the following metals and compounds: arsenic, cadmium, chromium, copper, lead, selenium, silver, mercury, semi-volatile organic compounds, phenols and polycyclic aromatic hydrocarbons, and total recoverable petroleum hydrocarbons. The Consultant will use input provided by discussions held during Task 1.0 to maximize the use of existing testing data to characterize the physical characteristic of the target muck zones. In some cases, data gaps will exist where no reliable data exists and sampling and testing will be required.

TASK 7.3 DRAFT REPORT FOR SEDIMENT DISTRIBUTION AND PHYSICAL CHARACTERISTICS

The Consultant will prepare a draft technical report that presents the introduction, method, results, and maps depicting mineral soil bathymetry, muck depths, SAV coverage, and dominant SAV. The report will include figures of the bathymetric mapping. Brevard County comments will be incorporated into the final report submittal.

The Consultant will create a draft technical report for the sediment analysis covering the sediment distribution mapping and analysis including the methods and laboratory results of the sediment characterization, nutrient analysis, and contamination analysis. Brevard County comments will be incorporated into the Final Report submittal.

Deliverable: Draft and final Technical Memorandums in .pdf format for each of the technical reports above for sediment distribution and separately for physical characteristics analyses and test results. This deliverable will include GIS data as an electronic support file to this analysis.

TASK 8.0 DREDGE LOCATION EVALUATION, CLASSIFICATION, MEANS, AND RANKING

The Consultant will use data analysis results from the previous tasks to develop a matrix table that lists spatially unique/separate locations that warrant dredging and a suite of criterion such as but not limited to the following that will assist in ranking the proposed dredging areas:

- Dredging methods and logistics.
- Rough order of magnitude cost.
- Resource benefits.
- Estimated nutrient load reduction.
- Contamination issues.
- Permitting challenges.
- Probability of seagrass restoration.
- Timing of load reduction projects upstream of the muck accumulation area

This table will establish and prioritize proposed dredge areas over the lifetime of the permit(s). Exhibits will supplement the table that depict the location(s) of the area to be dredged, location of pipelines, and dredge material processing/settling area. In addition, the Consultant will attend two meetings with the County and up to two meetings with the IRL Save Our Lagoon Oversight Committee to review a preliminary and final draft matrix table.

Deliverable: Draft and final Technical Memorandum in .pdf format that presents methods used to develop the matrix table, final recommendations, and associated figures. Draft and final meeting minutes will also be prepared.

TASK 9.0 SEDIMENT CHARACTERIZATION FOR ENGINEERING DESIGN AND TREATMENT REQUIREMENTS FOR PLACEMENT INTO POTENTIAL DMMA SITES

The physical and contamination characteristics of muck sediments to be dredged are important because they have significant implications on such things as processing requirements, disposal, dewatering schedule, and dredging duration. The Consultant will develop a sediment sampling plan for up to five priority dredging areas identified in Task 2.0. For each priority dredging area, we will conduct a physical characterization and sediment contamination evaluation as described previously but with a focus on the necessary treatment of the muck to meet FDEP water quality discharge requirements including the use of flocculants to scrub nutrients from the return discharge water. This task will include jar/pilot testing of muck sediments to assess the need to use flocculants or similar techniques to manage the muck placement into the proposed DMMA sites for temporary storage.

TASK 10.0 PERMITTING-RELATED DESIGN

The Consultant will develop design plans sufficient for permitting with plan sheets for each identified project at a scale appropriate and acceptable to FDEP and USACE for permit application purposes pursuant to agreements made during Task 1.0. The sheets expected for each project area include (1) title sheet, (2) staging and dewatering sheet, (3) general notes, (4) overall site map, (5) sediment survey results represented by bottom contours and muck thicknesses (presented on a 100-foot-by-100-foot grid interval), (6) known utilities, and (7) locations for equipment setup and sediment dewatering and disposal. The plans will endeavor to minimize restrictions on public access, boat launching, and navigation and minimize impacts to manatee feeding and/or migration.

The Consultant will develop preliminary cost estimates for each identified dredge site presented on the plans. The cost estimates will include information on assumed hauling distances for disposal or details on other means of conveying sediment slurry such as pipes.

Deliverable: Preliminary and final design drawing packages sufficient for permitting purposes and cost estimates.

TASK 11.0 PREPARE ENVIRONMENTAL RESOURCE PERMIT APPLICATION PACKAGE INCLUDING USACE ENGINEERING FORM 4345 INFORMATION

The Consultant will prepare a permit application package for submittal to FDEP and USACE for purposes of obtaining a Master Environmental Dredging Permit/ERP and Section 10/404 permit approvals, respectively. Permit packages requesting a 15-year permit duration will provide permit forms and required supporting documentation for each of the projects identified in Task 10 above. There are approximately twenty (20) dredge sites presently identified in the Brevard County section of the Indian River Lagoon – some of which are already permitted at this writing.

Deliverable: Draft and final permit application packages.

TASK 12.0 REQUESTS FOR ADDITIONAL INFORMATION

Requests for additional information (RAIs) are commonly issued by the regulatory agencies and are expected for this project due to its unique and somewhat complex nature. The early consensus building of Task 1.0 is expected to aid in limiting the extent and number of RAIs needed for the agencies to complete the permit review and approval process. The Consultant will prepare responses to one RAI each for USACE and FDEP.

Deliverable: Draft and final RAI responses in .pdf format.

TASK 13.0 MONTHLY PROGRESS REPORTS AND PROJECT MEETINGS

The Consultant will provide up to 18 Monthly Progress Reports and will coordinate and lead up to six progress- or project-related meetings during the course of the project.

Deliverable: Draft and final progress reports and meeting minutes in .pdf format.

ENVIRONMENTAL LAW LEGAL SUPPORT

Although not part of this SOW, Brevard County may consider securing outside environmental legal counsel specializing in state and federal permitting and defense of sensitive environmental dredging projects to work with the Programmatic Permit Team on a Not-to-Exceed basis. This legal support is intended to work as co-counsel with the Brevard County Attorney providing counsel on permitting and previous legal precedent issues for dredging in environmentally sensitive areas/Class II waterbodies/Aquatic Preserves and during the permitting phase to help minimize and avoid the potential for legal challenges to the proposed Programmatic Permits from USACE and FDEP.

3 SCHEDULE

The services identified in Tasks 1 and 2 are expected to require approximately six months to complete. Once the Consultant has obtained more details on agency intent, the "Future Scope of Work Elements" (summarized above as Tasks 3-13, inclusive) will be more fully developed, along with a detailed project schedule to complete these task activities and deliverables.

4 COMPENSATION

Total Fees for Tasks 1 and 2 are estimated at \$156,165 and will not be exceeded without prior written authorization from Brevard County.

5 EXCLUSIONS AND ASSUMPTIONS

- Permitting fees are not included.
- Cultural resource field surveys are not included.
- Wetland delineation and listed species surveys of proposed spoil areas are not included.
- No dredging of federal project channels will be involved with this permitting.

EXHIBIT B
FEE ESTIMATE

EXHIBIT B - FEE SCHEDULE

Brevard County - Programmatic Permitting of Indian River Lagoon Muck Removal

Contract Approved Rate Description	Project Role	Staff	Hours Projected	Approved Rate	Fee Sub-Total
Principal	Project Principal	E. Dohner	8	\$196.10	\$1,568.80
Sr. Professional/ Sr. PM	Project Manager	M. Barnett	128	\$196.10	\$25,100.80
Assist. Proj. Manager	Project Coordinator	M. Shelton	88	\$146.56	\$12,897.28
Assist. Proj. Manager	Permitting Specialist	A. Hague	69	\$146.56	\$10,112.64
GIS Technician	GIS & Production Support	A. Rinne	24	\$82.57	\$1,981.68
Admin. Support	Admin. Support	L. Monter	8	\$61.93	\$495.44
		Professional Services Subtotal	325		\$ 52,156.64
Jones Edmunds and Associates, Inc.	Agency Coordination and Programmatic Permitting				
Dredging & Marine Consultants, LLC	Specialists				\$ 54,184.00
Fee on Subconsultants	Dredging Project Design Specialist				\$ 37,710.00
Travel and ODCs	with 10% fee			10.00%	\$ 9,189.40
	with no markup			0.00%	\$ 2,925.00
	Reimbursable Expenses Allowed By Contract				\$ 12,114.40
Note: Actual Expenditures between Labor and Expense Categories May vary					
TOTAL FEE PROPOSAL - IRL PROGRAMMATIC PERMITTING TASK ORDER ONE					\$ 156,165.04

EXHIBIT B

COST ESTIMATE

Brevard County IRL Dredging Programmatic Permitting

November 1, 2017

Task Order Services	Principal	Chief Scientist	Project Manager	Admin	Sub-TOTAL HOURS	Sub-TOTAL FEE	Principal	Principal	Project Manager	Project Scientist	Sr GIS Designer	GIS Analyst/Tech	Admin Support	Sub-TOTAL HOURS	Sub-TOTAL FEE	TOTAL HOURS	TOTAL FEE
IRL Dredging Programmatic Permitting	S. Patel	J. Steward	N. Czyski	Nasrin	147.00	37,710.00	Sbery	14.00	43.00	90.00	2.00	36.00	13.00	62.2	\$ 51,774	559.00	\$ 89,483.50
Task 1.0 Client Kick-Off Meeting	8.00	4.00	4.00	2.00	18.00			2.00	8.00	10.00				30.00	\$ 5,260	48.00	\$ 2,600.00
1.1 Prepare for, coordinate and lead meeting	1.00	1.00	1.00	1.00	4.00			1.00	1.00	1.00				3.00	\$ 1,200	12.00	\$ 1,190.50
1.2 Draft and final meeting minutes	9.00	5.00	5.00	3.00	21.00	3,075.00		3.00	9.00	14.00	0.00	0.00	1.00	38.00	\$ 6,160	60.00	\$ 3,075.00
Task 2.0 Stakeholder & Regulatory Agency Assmt	4.00	24.00	2.00	2.00	32.00			1.00	1.00	4.00		12.00		20.00	\$ 2,365	52.00	\$ 2,365.00
2.1 GIS mapping to summarize critical existing data	2.00	2.00	1.00	1.00	6.00			4.00	4.00	18.00	2.00	15.00		39.00	\$ 7,150	58.00	\$ 7,150.00
2.2 Prepare draft and final presentation materials	108.00	16.00	16.00	4.00	144.00			24.00	24.00	56.00		6.00		138.00	\$ 24,927	282.00	\$ 24,927.00
2.3 Meeting (12)	24.00	8.00	8.00	4.00	44.00			9.00	9.00	18.00		3.00		39.00	\$ 10,872	107.00	\$ 10,872.00
2.4 Draft and final meeting minutes (12)	138.00	50.00	27.00	11.00	226.00	34,635.00		14.00	34.00	76.00	2.00	36.00	13.00	273.00	\$ 45,314	499.00	\$ 34,635.00
TOTAL Estimated Hours	147.00	55.00	32.00	11.00	248.00			14.00	43.00	90.00	2.00	36.00	13.00	311.00		559.00	
Rates	\$145.00	\$155.00	\$130.00	\$55.00				\$220.00	\$165.00	\$130.00	\$100.00	\$85.00	\$74.50				
TOTAL Labor Fee	\$21,255.00	\$8,525.00	\$4,160.00	\$770.00				\$3,088.00	\$7,195.00	\$12,420.00	\$200.00	\$2,700.00	\$968.50				
Travel Expenses																	
ODC																	
TOTAL Fee	\$24,255.00	\$8,525.00	\$4,160.00	\$770.00		\$37,710.00		\$3,088.00	\$7,195.00	\$12,420.00	\$200.00	\$2,700.00	\$968.50		\$51,774	\$337,710.00	\$91,894.50

Total Estimated Fees \$ 91,894

JONES EDMUNDS

Class	Rate (\$/hr)	JE Staff
Principal	\$220.00	BCunningham, MNelson, WNickel, DJones
Program/Project Manager	\$165.00	SKaufman, JGregory, BMillinor
Sr. Project Engineer	\$171.00	AFoley
Engineer III	\$125.00	Urosario, MO'Brien
Engineer I	\$85.00	
Project Scientist	\$130.00	Bbukata
Staff Scientist	\$100.00	Mahler, Pstein
Sr CADD Designer	\$95.00	
Sr GIS Designer	\$100.00	Dgerber, Brosefeld
GIS Analyst/Tech	\$85.00	Snyquist
Admin Support	\$74.50	

Source: TMDL Contract 2014-2015 rates