

**WORK ORDER NUMBER 2018006-6**

**SECTOR 3 (WABASSO BEACH) BEACH AND DUNE RESTORATION PROJECT**

**2019 RECONNAISSANCE SURVEY**

This Work Order Number 2018006-6 is entered into as of this \_\_\_\_ day of \_\_\_\_\_, 2019 pursuant to that certain Contract Agreement relating to Engineering and Biological support services for Sector 3 (Wabasso Beach) Beach and Dune Renourishment Project entered into as January 9, 2018 ("Agreement"), between Indian River County, a political subdivision of the State of Florida ("COUNTY") and Aptim Environmental & Infrastructure, Inc. ("CONSULTANT").

The COUNTY has selected the CONSULTANT to perform the professional services set forth on Exhibit 1, attached to this Work Order and made part hereof by this reference. The professional services will be performed by the CONSULTANT for the fee schedule set forth in Exhibit 2, attached to this Work Order and made a part hereof by this reference. The CONSULTANT will perform the professional services within the timeframe more particularly set forth in Exhibit 2, attached to this Work Order and made a part hereof by this reference all in accordance with the terms and provisions set forth in the Agreement. Pursuant to paragraph 1.3 of the Agreement, nothing contained in any Work Order shall conflict with the terms of the Agreement and the terms of the Agreement shall be deemed to be incorporated in each individual Work Order as if fully set forth herein.

IN WITNESS WHEREOF, the parties hereto have executed this Work Order as of the date first written above.

CONSULTANT  
Aptim Environmental & Infrastructure, Inc.

BOARD OF COUNTY COMMISSIONERS  
OF INDIAN RIVER COUNTY

By: \_\_\_\_\_  
Thomas P. Pierro, P.E., D.CE

By: \_\_\_\_\_  
Bob Solari, Chairman

Title: Director of Operations

Attest: Jeffrey R. Smith, Clerk of Court and  
Comptroller

Date: \_\_\_\_\_

By: \_\_\_\_\_  
(Seal) Deputy Clerk

Approved: \_\_\_\_\_  
Jason E. Brown, County Administrator

Approved as to form and legal sufficiency: \_\_\_\_\_  
William K. DeBaal, Deputy County Attorney



August 1, 2019

Ms. Kendra Cope  
Coastal Resources Coordinator  
Indian River County Public Works  
1801 27<sup>th</sup> Street  
Vero Beach, FL 32960

**Subject: Indian River County, FL  
Sector 3 – 2018006 – Work Order #6  
Reconnaissance Investigation of Hardbottom Resources**

Dear Kendra:

This proposal outlines a scope of work for Aptim Environmental & Infrastructure, LLC (APTIM), to provide professional services to Indian River County (the County) in support of the Sector 3 Beach and Dune Renourishment Project. The scope of work described herein is to support the County with permitting the Sector 3 project. The tasks to perform this work are listed below and described on the following pages. A breakdown of the hours and expenses to develop the cost is attached. The scope and fee was developed following the provisions of the Professional Services Agreement between Indian River County and APTIM, dated January 9, 2018, to provide engineering and biological support services for the Sector 3 (Wabasso Beach) Beach and Dune Renourishment Project (RFQ#2018006).

The Florida Department of Environmental Protection (FDEP) has requested a reconnaissance level investigation of the hardbottom resources in proximity to the Sector 3 project area. This includes potential resources along the nearshore hardbottom edge, within 400 meters of the perimeter of the proposed borrow area, and within and 25 meters adjacent to the proposed pipeline corridor(s). The following Scope of Work is proposed to gather this information and satisfy the Department's request.

### **Task 1: Sidescan Sonar Survey**

#### Task 1: Scope of Work

An EdgeTech 4125 sidescan sonar system will be used to collect sidescan sonar data over the entire area of investigation. The 4125 sidescan sonar system uses full-spectrum chirp technology to deliver wide-band, high-energy pulses coupled with high resolution and superb signal to noise ratio echo data. The portable sidescan package includes a laptop computer running the Discover<sup>®</sup> acquisition software and a 600/1600 kHz dual frequency towfish running in high definition mode.

The digital sidescan data will be merged with positioning data (Differential Global Positioning System (DGPS) via Hypack), video displayed, and recorded to the acquisition computer's hard disk for post processing and/or replay. The position of the sensor relative to the DGPS antenna will be documented to ensure proper positioning of the data.

All sidescan sonar data will be processed using the SonarWiz software package developed by Chesapeake Technologies Inc. This software package allows for advanced processing, interpretation, and digital mosaic output

and can produce georeferenced HTML's viewable in generic web-browser software programs. SonarWiz also produces digital geographic information for sidescan data that are exportable for incorporation into a GIS database.

**Nearshore Hardbottom:** The nearshore hardbottom edge will be mapped using sidescan sonar between R-19 and R-58. This includes 300 m updrift and 900 m downdrift of the proposed project area (R-20 to R-55). The sidescan sonar survey will also include the area within 250 m offshore of the beach.

**Pipeline Corridors:** The sidescan sonar survey will encompass the area within the pipeline corridor plus the area within 25 m to the left and right of each corridor.

**Borrow Area:** The sidescan sonar survey will encompass the area within 400 m of the proposed borrow area.

### Task 1 Deliverable

A letter report describing equipment and operations, together with sidescan sonar mosaic maps with digitized interpretations, will be produced for this task. In addition, georeferenced GeoTIFF mosaic files, as well as GIS shapefiles will be exported and included as digital appendices to the letter report.

### Task 1 Schedule

The sidescan sonar survey will commence within four (4) weeks of receipt of a Notice to Proceed from the County. It will take approximately one week to mobilize and collect the sidescan sonar data, followed by another two weeks of data processing, interpretation, and deliverable development.

### Task 1 Cost

The lump sum cost for this task is \$42,216.50.

## **Task 2: In situ Diver Verification and Assessment of Hardbottom Resources**

### Task 2: Scope of Work

The results from the sidescan sonar survey described in Task 2 will guide the *in situ* diver investigation of hardbottom resources identified in the nearshore, within the pipeline corridors and adjacent to the borrow area.

**Nearshore Hardbottom:** Divers will verify the location and distribution of nearshore hardbottom resources identified from the sidescan sonar survey described in Task 1. If small areas of edge mapping are needed due to data gaps in the sidescan sonar data, divers will use a buoy with a Differential Global Positioning System (DGPS) antenna linked to a topside laptop running HYPACK navigational software to delineate the hardbottom edge. The buoy will be towed by divers along the reef edge to record the position of the divers during the survey.

FDEP acknowledged in their request for additional information (RAI) #1 (0285993-009-JC - dated April 4, 2019) that a sizeable amount of information has been collected on hardbottom resources adjacent to the proposed fill template for the previous Sector 3 Beach Restoration project, and agrees that these data were collected recently enough that they provide information on the status of the natural hardbottom community in this area. Therefore, additional characterization of the nearshore hardbottom area is not proposed.

**Pipeline Corridors:** Once the sidescan sonar survey is complete and the data has been interpreted to identify hardbottom resources, the habitat within each proposed corridor will be verified in situ by divers. During each investigation, divers shall determine the presence or absence of hardbottom resources and, if present, note the general condition of the benthic community, identify dominant benthic organisms and substratum types, and estimate the vertical relief of the hardbottom. Video and/or photographs shall be taken to document the findings. Locations verified as areas with hardbottom resources shall be mapped in situ to document the current distribution of hardbottom resources within the pipeline corridors.

**Borrow Area:** Once the sidescan sonar survey is complete and the data has been interpreted to identify hardbottom resources, the habitat will be verified in situ by divers. During each investigation, divers shall determine the presence or absence of hardbottom resources and, if present, note the general condition of the benthic community, identify dominant benthic organisms and substratum types, and estimate the vertical relief of the hardbottom. Video and/or photographs shall be taken to document the findings. Locations verified as areas with hardbottom resources shall be mapped in situ to document the current distribution of hardbottom resources within the pipeline corridors.

### Task 2 Deliverable

FDEP requested a habitat characterization report to facilitate the Department's analysis of potential impacts to hardbottom resources. The report shall summarize the findings of the hardbottom reconnaissance survey described herein, which shall identify the location and distribution of hardbottom resources and describe the benthic resources observed on the hardbottom. The report shall describe the methods used during the reconnaissance surveys and data analysis, and will provide results of the survey in graphical, tabular and text formats. Raw data, video files and shapefiles from the reconnaissance survey will also be included in the report deliverable. Benthic biological data from previous monitoring efforts on the nearshore hardbottom adjacent to the project area will also be presented in the habitat characterization report.

### Task 2 Schedule

The *in situ* diver verification of hardbottom resources will take place after the sidescan sonar survey has been completed and the data has been processed.

Raw data from field operations will be submitted to the County and FDEP within 45 days and the monitoring report will be submitted within 90 days of completion of the survey.

### Task 2 Cost

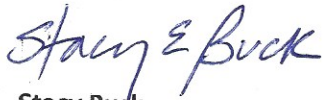
The lump sum cost for this task is \$54,412.65.

### **Summary**

The total lump sum cost to perform the proposed work described herein for Sector 3 – 2018006 – Work Order #6 is \$96,629.15. Please refer to Exhibit 1, attached to the end of this proposal, for a summary of the costs and labor hours of each Task. APTIM will proceed with the tasks upon receipt of a signed work order from Indian River County (unless stated otherwise in the schedule).

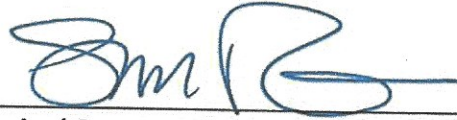
Thank you for the opportunity to serve Indian River County. We look forward to continuing to provide expert professional services to the County. Please do not hesitate to call if you have any questions.

Sincerely,



Stacy Buck  
Lead Marine Biologist  
Aptim Environmental & Infrastructure, LLC

cc: Jordon Cheifet, PE, CFM, APTIM



\_\_\_\_\_  
Authorized Corporate Signature

\_\_\_\_\_  
Thomas P. Pierro, P.E., D.CE  
Printed Name

\_\_\_\_\_  
Director of Operations  
Title



**EXHIBIT 2**

**Indian River County, Florida  
 Sector 3 - 2018006 - Work Order #6  
 Reconnaissance Investigation of Hardbottom Resources**

**Summary of Cost by Task**

Task Number	Task Name	Labor	Equipment	Materials	Travel	Total
Task 1	Sidescan Sonar Survey	\$31,042.00	\$ 9,542.50	\$ -	\$1,632.00	\$42,216.50
Task 2	In situ Diver Verification of Hardbottom Resources	\$39,672.00	\$10,126.65	\$1,350.00	\$3,264.00	\$54,412.65
<b>Totals =</b>		<b>\$70,714.00</b>	<b>\$19,669.15</b>	<b>\$1,350.00</b>	<b>\$4,896.00</b>	<b>\$96,629.15</b>

**Indian River County, Florida  
 Sector 3 - 2018006 - Work Order #6  
 Reconnaissance Investigation of Hardbottom Resources**

**Summary of Labor Hours and Cost**

Labor Title	Labor Bill Rate	Sidescan Sonar Survey		In situ Diver Verification of Hardbottom Resources		Totals	
		Task 1		Task 2		Labor Hours	Cost
		Labor Hours	Cost	Labor Hours	Cost		
Principal Engineer/Sr Proj Mngr	\$ 250.00	2	\$ 500.00		\$ -	2	\$ 500.00
Project Manager	\$ 165.00	12	\$ 1,980.00		\$ -	12	\$ 1,980.00
Survey Technician	\$ 80.00		\$ -	60	\$ 4,800.00	60	\$ 4,800.00
Senior Marine Biologist	\$ 135.00		\$ -	52	\$ 7,020.00	52	\$ 7,020.00
Marine Biologist II	\$ 95.00		\$ -	216	\$ 20,520.00	216	\$ 20,520.00
Professional Geologist	\$ 150.00	24	\$ 3,600.00		\$ -	24	\$ 3,600.00
Geologist III	\$ 130.00	24	\$ 3,120.00		\$ -	24	\$ 3,120.00
Geologist II	\$ 95.00	118	\$ 11,210.00		\$ -	118	\$ 11,210.00
GIS Operator	\$ 105.00	10	\$ 1,050.00	6	\$ 630.00	16	\$ 1,680.00
Boat Captain	\$ 80.00	104	\$ 8,320.00	80	\$ 6,400.00	184	\$ 14,720.00
Technician	\$ 60.00	16	\$ 960.00		\$ -	16	\$ 960.00
Bookkeeper	\$ 80.00	2	\$ 160.00	2	\$ 160.00	4	\$ 320.00
Clerical	\$ 71.00	2	\$ 142.00	2	\$ 142.00	4	\$ 284.00
Subcontractors	-		\$ -		\$ -	-	\$ -
Equipment	-		\$ 9,542.50		\$ 10,126.65	-	\$ 19,669.15
Materials	-		\$ -		\$ 1,350.00	-	\$ 1,350.00
Travel	-		\$ 1,632.00		\$ 3,264.00	-	\$ 4,896.00
<b>TOTAL</b>	-	<b>314</b>	<b>\$ 42,216.50</b>	<b>418</b>	<b>\$ 54,412.65</b>	<b>732</b>	<b>\$ 96,629.15</b>