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March 25, 2019

Robert Weber
Coastal Program Manager
Town of Palm Beach
951 Old Okeechobee Road, Suite A
West Palm Beach, FL 33401

**RE: PROPOSAL FOR JCP APPLICATION FOR THE REACH 8 BEACH RESTORATION PROJECT,
TOWN OF PALM BEACH, FLORIDA**

Dear Rob:

This proposal is being provided at your request for Aptim Environmental & Infrastructure, LLC (APTIM) to assist the Town of Palm Beach (Town) in preparing a FDEP Joint Coastal Permit (JCP) application for the Reach 8 Beach Restoration Project. The total cost for these services has been estimated, not to exceed \$189,200.00. A scope of services is provided in Exhibit A and the cost summary is provided in Exhibit B.

The services proposed herein will be billed monthly on a time and materials basis and will be performed in accordance with this proposal and the terms of the Professional Services Agreement (PSA) 2017-35 between the Town of Palm Beach and APTIM dated September 15, 2017. The billing rates for services rendered under this proposal will be based on the schedule of hourly billing rates incorporated by reference and attached to the PSA. Thank you for the opportunity to provide these services.

If you have any questions, please call me or Stacy Buck.

Sincerely,

Thomas P. Pierro, P.E., D.CE
Director of Operations
Aptim Environmental & Infrastructure, LLC

cc: Jordon Cheifet, P.E., APTIM
Stacy Buck, APTIM



EXHIBIT A – SCOPE OF SERVICES

Task 1 – Engineering Design & Permit Application

A Joint Coastal Permit (JCP) application to request a 15-year multi-use permit will be developed that includes relevant aspects and features of the proposed Reach 8 Beach Restoration Project based on the Town's project evaluated in the Southern Palm Beach Island Comprehensive Shoreline Stabilization Project Environmental Impact Statement (EIS). The application and submittal process will include the following items:

PRE-APPLICATION MEETING

APTIM will request, prepare for, and attend a pre-application meeting with regulatory staff of the Florida Department of Environmental Protection (FDEP). In general, the purpose of the meeting will be to describe the proposed project and discuss the FDEP's requirements for the pending permit application. Available information will be presented to FDEP staff to determine the sufficiency of the information for permit file development.

ENGINEERING DESIGN

As the basis for the project design and permitting effort, APTIM will utilize the template from the EIS compared to the most recent beach survey data available. Shoreline and volume changes will be updated to evaluate volume needs and distribution on the existing beach conditions. The proposed design may be slightly modified for existing conditions and will maintain focus on minimizing the potential for adverse impacts to the hardbottom resources nearshore of the project. A cross-shore equilibrium profile analysis of the proposed design will be conducted to evaluate the potential for hardbottom impacts.

The design will be based on the Town's preferred project template evaluated in the EIS will consider volume requirements, updated beach conditions, nearshore hardbottom, and other relevant factors of the proposed project. APTIM will review existing data and the proposed template to update the design as appropriate, prepare the permit sketches, and assemble the application attachments. The permit sketches will include plan view and cross-sections of the beach fill template, available construction access(es) and staging areas, topographic and bathymetric survey data, identified regulatory restrictions, and known hardbottom areas. The permit sketches will be signed and sealed by a Professional Engineer registered in the State of Florida and provided with the application.

MINIMIZATION, MITIGATION, & MONITORING PLAN

APTIM will coordinate with FDEP to develop a Minimization, Mitigation, & Monitoring Plan based on anticipated impacts to nearshore hardbottom resources. The plan will use an established means of calculating impacts and determining mitigation requirements. This approach has already been discussed and approved by FDEP for use in the Reach 8 project area. It will also detail the monitoring methodologies for the artificial reef.

TOPOGRAPHIC/BATHYMETRIC SURVEY

APTIM will collect topographic and bathymetric surveys of the proposed beach nourishment project area for the purpose of quantifying the volume in the beach, preparing the permit



sketches, and preparing drawings for the permit application in accordance with Rule 62B-41.008(1)(a), Florida Administrative Code (F.A.C.)

The '62B' topographic and bathymetric survey drawings of the proposed project site will include profiles and a contour map that reflect the current conditions of the project area. The mean high water line, the seaward limit of vegetation, and all other existing structures located in the project area will be mapped and provided as part of the 62B survey requirements. The drawings will meet the State's standards of practice as presented in 5J-17 F.A.C. and will be signed and sealed by the professional surveyor, duly registered pursuant to Chapter 472, Florida Statutes (F.S.), who performed the survey. Descriptions of the structures will also be provided as an attachment to the JCP application.

Beach profiles will be collected at 500' intervals per 62B requirements including each R-monument within 1000' of the Reach 8 Beach Restoration project area, from R-129-210 to R-134+135. Profiles will extend to the depth of closure.

ESTABLISHMENT OF AN EROSION CONTROL LINE (ECL)

A mean high water (MHW) survey will be conducted in accordance with standards set by FDEP, Division of State Lands, Bureau of Survey and Mapping. Surveys will be platted and submitted to the State for approval and recording. Survey deliverables will consist of four (4) 22" X 34" survey maps signed and sealed by a registered Florida Surveyor and Mapper compliant with requirements Chapter 161 F.S. APTIM will coordinate as necessary with the Division of State Land's for review and submission of the survey drawings. An electronic version of the ECL legal description will also be delivered. AutoCAD format files will be delivered. APTIM will prepare for and attend the required workshop and hearing. It is assumed that the Town will be responsible for preparation or delivery of the required public notice of the ECL public hearing or recording in the official records.

SEISMIC SURVEY FOR ARTIFICIAL REEF SITING

APTIM will conduct a geophysical and hydrographic survey with the goal of investigating the potential for development of an artificial reef site in the nearshore habitat offshore of the Town. APTIM will provide comprehensive survey services including field data collection using APTIM equipment and personnel, data processing, interpretation, analysis, and composition of a final letter report of findings, including an isopach showing the thickness of unconsolidated material over rock. Groundtruthing (jet probes) of the remotely-sensed data is not included within this proposal.

APTIM's survey plan will consist of a one half day mobilization of equipment and personnel, one full day of survey operations, and one half day demobilization of equipment and personnel. APTIM will work with the Town to determine the survey area. Once determined, APTIM will collect 30-meter spaced survey lines over the survey area for adequate coverage to delineate locations suitable for artificial reef placement. It is expected that APTIM will be able to cover 30 nautical miles of line coverage in the two-day survey, equating to between 300 and 500 acres (depending on survey area size and shape). APTIM will work with the Town to refine the potential survey area to target an appropriately sized area to achieve the estimated coverage. APTIM will carefully target a weather window to ensure optimal survey production and allow for accessing shallow waters nearshore.



APTIM will review and process and interpret the seismic sub-bottom data to determine overburden thickness of unconsolidated material above the limestone/consolidate rock for placement of an artificial reef. In addition, APTIM will map and delineate any other anomalous features identified in the seismic data. Bathymetry data will be processed and edited in accordance with National Geodetic Standards, requirements for a U.S. Army Corps of Engineers Class II Hydrographic Survey. An ASCII file with the processed x/y/z bathymetry data will be generated and submitted to the Town.

A letter report of findings detailing field acquisition, data processing, interpretation, analysis and processed isopach (unconsolidated sediment thickness) maps of the surveyed area, signed and sealed by a Professional Geologist licensed in the State of Florida. This will include electronic CADD files (AutoCAD (.dwg) format) depicting profiles and isopach plots, GIS shapefiles and ASCII x/y/z and x,y (delta) z data files.

ARTIFICIAL REEF ENGINEERING AND DESIGN:

Stability Analysis

APTIM will perform a stability analysis of the proposed artificial reef based on the depths of water at the site. The submerged artificial reef will be subject to hydrodynamic forces associated with the ocean environment, which will be addressed in the analysis. The analysis will include an assessment of the required boulder size, need for anchoring, and foundation type (i.e. geotextile fabric, marine mattress, etc.) necessary to minimize wave-induced displacement, long-term settlement, and functionality as mitigation.

Design Drawings

APTIM will prepare permit sketches with sufficient detail to support the environmental permit application. The optimal location will be identified and the layout will consider nearby hardbottom and foundation requirements. Relevant coastal engineering factors including placement of the artificial reef in areas that may result in scouring or burial due to longshore and/or cross-shore sand movement, will be considered. The drawings will include plan views, typical cross-sections, and preliminary material quantities as typically required to obtain environmental permits. Relevant exposed hardbottom and hydrographic survey data will be included in the drawings where appropriate.

AGENCY COORDINATION

This phase includes coordination with State agencies, including FDEP and FWC, during the development and submittal of the permit application.

Task 2 – Agency Response & Coordination

The FDEP has 90 days to review the application and either issue a Notice of Intent to issue the permit or issue a Request for Additional Information (RAI). FDEP RAI's may also include comments from the Florida Fish and Wildlife Conservation Commission, other State agencies and the general public.

**REVIEW AND RESPOND TO RAIs:**

APTIM will attempt to consolidate the agencies' RAIs into a single response. We will coordinate with the Town on the extent of the response and what the implication may be to the permitting process and construction. We will draft a response and submit this to the Town for review prior to submittal to the agencies.

AGENCY COORDINATION

This phase includes ongoing coordination with State agencies, including FDEP and FWC, to respond to RAIs during the permit review process. In cases where coordination and response efforts may exceed the level of effort estimated herein, APTIM will contact the Town to discuss an approach and can develop a supplemental proposal if requested.



EXHIBIT B – COST SUMMARY

The services proposed herein will be billed monthly on a time and materials basis. The services proposed herein will be performed in accordance with this proposal and Professional Services Agreement (PSA) 2017-35 between the Town of Palm Beach and APTIM dated September 15, 2017. The billing rates for services rendered under this proposal will be based on the schedule of hourly billing rates incorporated by reference and attached to the PSA. Although this proposal is detailed by separable items and estimated by specific staff and categories, it is anticipated that some work elements will exceed the estimate while others fall below the estimate to complete. Our staff will be used as needed to achieve the scope of services and to meet the stated objectives and timelines. Should the project require additional services not represented in this proposal, APTIM will coordinate with the Town on a mutually agreeable revised scope of work, if requested.



Town of Palm Beach
Reach 8 Beach Nourishment
JCP Application

	LABOR														EQUIPMENT										DIRECT	Task SubTotal	
JCP Application	Senior Project Manager Hours	Program Manager Hours	Coastal Engineer III Hours	Senior Marine Biologist Hours	Professional Surveyor & Mapper Hours	Hydrographer Hours	Surveyor Hours	Survey Technician Hours	Geologist III	Geologist II	Senior CAD Operator Hours	CAD Operator Hours	GIS Operator Hours	Boat Captain Hours	Survey Boat days	Trimble RTK GPS days	Odom Hydrotrack Sounder days	Speed of Sound Velocity Meter days	CHIRP 512i Seismic Profiler days	Sonar Wizard Map Seismic Data Processing Package days	Heave, Pitch, Roll Compensator days	Generator days	Hypack Navigation System days	Miscellaneous Expenses (\$)			
1. Engineering Design & Permit Application Pre-Application Meeting Engineering and Design Minimization, Mitigation & Monitoring Plan Compilation and Submittal Topgraphic/Bathymetric Survey Erosion Control Line Seismic Survey Artificial Reef Engineering and Design Agency Coordination	16		16	16									8												1	\$ 149,250.00	
	16		40								40	40														\$ 9,280.00	
	4		4	36									16													\$ 20,560.00	
	4		8	16																						\$ 8,340.00	
					24		36	64			2	32		12	1	2	1	1			1		1			\$ 4,446.00	
																										\$ 19,203.00	
	8		16		60		40				2	40														\$ 21,095.00	
		16	16		16	40	40	40	32	80			4	12	2	2	2	2		2	4	2	2	3			\$ 38,036.00
																											\$ 13,840.00
	22		32	32																					\$ 14,450.00		
2. Agency Response & Coordination Review and Respond Agency Coordination	24		72	74																						\$ 39,950.00	
	14		34	34																						\$ 26,800.00	
																										\$ 13,150.00	
																										\$ -	
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TOTAL	124	16	278	220	100	40	116	104	32	80	44	116	36	12	3	5	3	3	2	4	3	2	4	1			
RATE	\$ 235.00	\$ 165.00	\$ 150.00	\$ 140.00	\$ 130.00	\$ 125.00	\$ 95.00	\$ 80.00	\$ 130.00	\$ 95.00	\$ 160.00	\$ 110.00	\$ 110.00	\$ 80.00	\$ 1,050.00	\$ 495.00	\$ 165.00	\$ 63.00	\$ 1,150.00	\$ 155.00	\$ 215.00	\$ 60.00	\$ 260.00	\$ 66.00			
COST	\$ 29,140.00	\$ 2,640.00	\$ 41,700.00	\$ 30,800.00	\$ 13,000.00	\$ 5,000.00	\$ 11,020.00	\$ 8,320.00	\$ 4,160.00	\$ 7,600.00	\$ 7,040.00	\$ 12,760.00	\$ 3,960.00	\$ 960.00	\$ 3,150.00	\$ 2,475.00	\$ 495.00	\$ 189.00	\$ 2,300.00	\$ 620.00	\$ 645.00	\$ 120.00	\$ 1,040.00	\$ 66.00			

LABOR	\$ 178,100.00
EQUIPMENT	\$ 11,034.00
DIRECT	\$ 66.00
TOTAL	\$ 189,200.00