



**II. FISCAL IMPACT ANALYSIS**

**A. Five Year Summary of Fiscal Impact:**

<b>Fiscal Years</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Capital Expenditures	_____	_____	_____	_____	_____
Operating Costs	<u>101,062</u>	<u>60,637</u>	_____	_____	_____
External Revenues	_____	_____	_____	_____	_____
Program Income (County)	_____	_____	_____	_____	_____
In-Kind Match (County)	_____	_____	_____	_____	_____
<b>NET FISCAL IMPACT</b>	<u>101,062</u>	<u>60,637</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>		
Budget Account No.:	Fund <u>3652</u>	Department <u>381</u>	Unit <u>M037</u>	Object <u>3120</u>	
	Fund <u>3653</u>	Department <u>381</u>	Unit <u>M703</u>	Object <u>3120</u>	
Reporting Category	_____				

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

	<u>2021</u>	<u>2022</u>
Beach Improvement Fund		
3652-381-M037-3120 Singer Island Dune Project	\$ 56,269	\$ 33,761
3653-381-M703-3120 South Lake Worth Inlet STP	\$ 44,793	\$ 26,876

C. Department Fiscal Review: *J. Murray*

**III. REVIEW COMMENTS**

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

*Lisa M. ... 2/22/21*  
*J. ... 2/23/21*  
 OFMB *J.S. ... 2/22*  
 Contract Dev. and Control *2-23-21 TW*

B. Legal Sufficiency:  
*[Signature]*  
 Y.B. Herman 2/24/2021  
 Assistant County Attorney

C. Other Department Review:  
 \_\_\_\_\_  
 Department Director

**TASK ORDER**

TASK ORDER: 1542-06 CONSULTANT: Aptim Environmental & Infrastructure, LLC

ACCOUNT: various CONTRACT: R2019-1542  
[Fiscal approval of Budget Availability: see attached BAS ]

PROJECT MANAGER: Teal Kawana PHONE: 561-681-3852

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

PROJECT NAME: 2021 Sea Turtle Monitoring for May thru December – Singer Island & Ocean Ridge

LOCATION/DISTRICT #: Singer Island & Ocean Ridge / Districts 1 & 4

TASK DESCRIPTION (use additional pages if necessary): The Consultant shall monitor sea turtle nesting along the beaches of Singer Island and Ocean Ridge and provide data management and analysis, as described in the attached APTIM proposal dated February 1, 2021.

DELIVERABLES: See attached scope of work dated February 1, 2021.

TASK ORDER TYPE: FIXED PRICE \$135,011.49 DUE DATE: 12/31/2021  
NOT-TO-EXCEED \$26,687.50

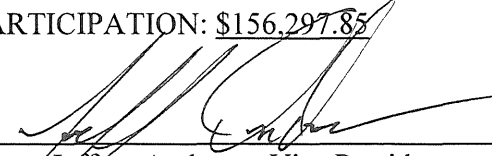
**TOTAL AMOUNT \$161,698.99**

(Check where appropriate)  
for Contract and Subcontract Amounts:

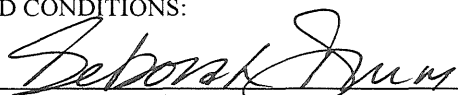
	Black	Hispanic	Women	Other (specify)	White Male
M/WBE(State) <input type="checkbox"/>	\$ _____	\$ _____	\$ _____	\$ _____	
SBE-M/WBE* <input type="checkbox"/>	\$ _____	\$ _____	\$ _____	\$ _____	
SBE <input checked="" type="checkbox"/>	\$ _____	\$ _____	\$156,297.85	\$ _____	\$ _____

\*certified as both an SBE and a State MBE

TOTAL SBE-M/WBE PARTICIPATION: \$156,297.85

CONSULTANT REP:  DATE: 02/08/2021  
Jeffrey Andrews, Vice President

APPROVED AS TO TERMS AND CONDITIONS:

ERM DIRECTOR:  DATE: 2/17/21  
Deborah Drum

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

ASSISTANT COUNTY ATTORNEY: \_\_\_\_\_ DATE: \_\_\_\_\_

BOARD OF COUNTY COMMISSIONERS: \_\_\_\_\_ DATE: \_\_\_\_\_  
Dave Kerner, Mayor



Palm Beach County  
Environmental Resources Management

INTERDEPARTMENTAL BUDGET AVAILABILITY STATEMENT

REQUEST DATE: 2/9/2021

REQUESTED BY: Matt Mitchell

PHONE: 681-3833

PROJECT TITLE: 2021 Sea Turtle Monitoring

PROJECT NO: S015/S040

SITE: Singer Island/Ocean Ridge

ACTIVITY: 014- Monitoring

CONTRACTOR/CONSULTANT NAME: Aptim Environmental & Infrastructure, LLC

SCOPE OF SERVICES: Provide monitoring services for sea turtle nesting along Singer Island and Ocean Ridge beaches. Task Order No. 1542-06

BUDGET ACCOUNT NUMBER(S):

Fund	Dept	Unit	Obj	SObj	Program	(Proj) Task	(Site) Sub Task	(Activity) Task Ord	Amount
3652	381	M037	3120		E037	S015	CSII	014	\$90,029.92
3653	381	M703	3120		E703	S040	COCR	014	\$71,669.07

BAS APPROVED BY: *S. Perry* DATE: 2/9/21

ENCUMBRANCE NUMBER: \_\_\_\_\_

**OEBO SCHEDULE 1**

**LIST OF PROPOSED CONTRACTOR/CONSULTANT AND SUBCONTRACTOR/SUBCONSULTANT PARTICIPATION**

SOLICITATION/PROJECT/BID NAME: 2021 Sea Turtle Monitoring for May - Dec. S.I. & O.R.  
 NAME OF PRIME RESPONDENT/BIDDER: Aptim Environmental & Infrastructure  
 CONTACT PERSON: Katy Brown  
 SOLICITATION OPENING/SUBMITTAL DATE: \_\_\_\_\_

SOLICITATION/PROJECT/BID No.: Task Order No. 1542-06  
 ADDRESS: 6401 Congress Avenue, Suite 140, Boca Raton, FL 33431  
 PHONE NO.: 561-361-3181 E-MAIL: kathryn.brown@aptim.com  
 DEPARTMENT: Environmental Resources Management

**PLEASE LIST THE DOLLAR AMOUNT OR PERCENTAGE OF WORK TO BE COMPLETED THE PRIME CONTRACTOR/CONSULTANT ON THIS PROJECT.  
 PLEASE ALSO LIST THE DOLLAR AMOUNT OR PERCENTAGE OF WORK TO BE COMPLETED BY ALL SUBCONTRACTORS /SUBCONSULTANTS  
 ON THE PROJECT.**

Name, Address and Phone Number	( Check all Applicable Categories)			DOLLAR AMOUNT OR PERCENTAGE OF WORK				
	Non-SBE	M/WBE Minority/Women Business	SBE Small Business	Black	Hispanic	Women	Caucasian	Other (Please Specify)
1. Aptim Environmental & Infrastructure, LLC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	\$5,401.14	_____
2. D.B. Ecological Services, Inc.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____	_____	\$156,297.85	_____	_____
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____
(Please use additional sheets if necessary)				Total	_____	\$156,297.85	\$5,401.14	_____
Total Bid Price \$ <b>161,698.99</b>				Total SBE - M/WBE Participation	<b>\$156,297.85</b>	_____	_____	_____

- Note:**
- The amount listed on this form for a Subcontractor/subconsultant must be supported by price or percentage listed on the properly executed Schedule 2 or attached signed proposal.
  - Firms may be certified by Palm Beach County as an SBE and/or and M/WBE. If firms are certified as both an SBE and/or M/WBE, please indicate the dollar amount under the appropriate category.
  - Modification of this form is not permitted and will be rejected upon submittal.

OEBO LETTER OF INTENT – SCHEDULE 2

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: Task Order #1542-06

SOLICITATION/PROJECT NAME: 2021 Sea Turtle Monitoring for May thru Dec. – Singer Island & Ocean Ridge

Prime Contractor: Aptim Environmental & Infrastructure, LLC Subcontractor: DB Ecological Services, 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):

<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>
<input type="checkbox"/> Male <input type="checkbox"/> Female	<input type="checkbox"/> African-American/Black <input type="checkbox"/> Asian American <input 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
	Biological monitoring services				\$5,401.14

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: \$5,401.14

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 2<sup>nd</sup>/3<sup>rd</sup> tier Subcontractor/subconsultant \_\_\_\_\_ Price or Percentage: \_\_\_\_\_

Aptim Environmental & Infrastructure, LLC

Print Name of Prime

By: \_\_\_\_\_

Authorized Signature

Print Name

Title

Date: 02/08/2021

N/A

Print Name of Subcontractor/subconsultant

By: \_\_\_\_\_

Authorized Signature

Print Name

Title

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

OEBO LETTER OF INTENT – SCHEDULE 2

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: Task Order #1542-06

SOLICITATION/PROJECT NAME: 2021 Sea Turtle Monitoring for May thru Dec. – Singer Island & Ocean Ridge

Prime Contractor: Aptim Environmental & Infrastructure, LLC Subcontractor: DB Ecological Services, 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):

<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>
<input type="checkbox"/> Male <input checked="" 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
	Biological monitoring services				\$156,297.85

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: \$156,297.85

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.

\_\_\_\_\_ Price or Percentage: \_\_\_\_\_

Name of 2<sup>nd</sup>/3<sup>rd</sup> tier Subcontractor/subconsultant

Aptim Environmental & Infrastructure, LLC

Print Name of Prime

By: [Signature]

Authorized Signature

Print Name

Vico President

Title

Date: 02/08/2021

DB Ecological Services, Inc.

Print Name of Subcontractor/subconsultant

By: Christine Perretta

Authorized Signature

Christine Perretta

Print Name

President

Title

Date: 2/8/2020



APTIM  
6401 Congress Avenue, Ste. 140  
Boca Raton, FL 33487  
Tel: +1 561 391 8102  
Fax: +1 561 391 9116

February 1, 2021

Juan Cueto  
Palm Beach County  
Environmental Resources Management (ERM)  
Engineering Services Section  
2300 North Jog Road - Fourth Floor  
West Palm Beach, FL 33411-2743

**Re: Proposal for 2021 Sea Turtle Monitoring in Ocean Ridge and Singer Island – Phase 2 (May-Dec)**

Dear Juan:

This proposal is provided at your request for Aptim Environmental and Infrastructure, LLC (APTIM) to provide professional services to assist Palm Beach County (the COUNTY) in permit-required sea turtle monitoring at Singer Island and Ocean Ridge for the 2021 sea turtle nesting season. APTIM has retained D.B. Ecological Services, Inc. to conduct this monitoring as they have extensive experience in monitoring for sea turtles.

#### Scope of Services

APTIM will oversee the scope of work proposed by D.B. Ecological Services, Inc. and provide the necessary administrative coordination to the COUNTY. D.B. Ecological has provided the enclosed proposal and cost breakdown for Ocean Ridge and Singer Island sea turtle monitoring tasks, which states:

“All work to be performed as indicated in the 2021 Palm Beach County Scope for the associated projects. This cost proposal is to provide services from 1 May 2021 – 31 December 2021. Work will be performed adhering to all marine turtle regulations imposed by the US Fish & Wildlife Service and the Florida Fish & Wildlife Conservation Commission.”

#### Fee Proposal

The fee for the services contained in this proposal is \$161,698.99 and will be billed monthly on a lump sum basis in proportion to the percentage of the work completed. Attached please find a spreadsheet that delineates the various tasks of the work estimated with the approved rates and classifications (Exhibit A). The total fee for APTIM’s oversight and administrative coordination is \$5,401.14. The proposal from our sub consultant, D.B. Ecological, is attached as Exhibit B. The cost for D.B. Ecological’s work has been organized in the following tasks:

- 1) Ocean Ridge Monitoring, \$45,581.00
- 2) Ocean Ridge Additional Tasks, \$16,150.00
- 3) Ocean Ridge Optional Tasks, \$7,237.50
- 4) Singer Island Monitoring, \$84,029.35
- 5) Singer Island Optional Tasks, \$3,300.00





APTIM  
6401 Congress Avenue, Ste. 140  
Boca Raton, FL 33487  
Tel: +1 561 391 8102  
Fax: +1 561 391 9116

The Additional and Optional Services (Tasks 2, 3 and 5 in the list above) may be requested by the COUNTY on an as needed basis. These tasks will be compensated on a "Not to Exceed" basis and require the associated back-up documentation. This proposal details the additional services and deliverables that will be provided pending the COUNTY's issuance of a Notice-to-Proceed for the Additional and Optional Services.

The services proposed herein will be performed in accordance with this proposal, the Professional Services Agreement R2019-1542 (dated October 8, 2019) between Palm Beach County and Aptim Environmental & Infrastructure, LLC for Coastal and Marine Engineering Services. We will commence work upon receipt of a Task Order from Palm Beach County. The sea turtle monitoring and reporting for Phase 2 shall be completed by December 31, 2021, barring any circumstances beyond our control.

Thank you for the opportunity to continue to serve Palm Beach County. If you should have any questions, please email at [Kathryn.Brown@aptim.com](mailto:Kathryn.Brown@aptim.com).

Sincerely,

Katy Brown  
Lead Marine Biologist  
Aptim Environmental & Infrastructure, LLC

cc: Matt Mitchell, PBC-ERM  
Teal Kawana, PBC-ERM  
Christine Perratta, D.B. Ecological Services, Inc.  
Jeffery Andrews CH, PSM, APTIM

Jeffery Andrews  
Printed Name

Director of Operations  
Title

EXHIBIT A

PALM BEACH COUNTY  
2021 SEA TURTLE MONITORING - PHASE 2 (MAY-DEC)

Cost Estimate

*ApTIM multiplier = 2.92* <sup>2.92</sup>

TASK	LABOR COSTS				DIRECT COSTS	
	Senior Project Manager (Hours)	Project Manager (Hours)	Bookkeeper (Hours)	Clerical (Hours)	Subconsultant Cost (\$)	
<b>1. Ocean Ridge Sea Turtle Monitoring</b>						
a. APTIM Review & Coordination	1	13	4	1		
b. Subcontractor, D.B. Ecological Services, Inc. Monitoring					\$45,581.00	
c. Subcontractor, D.B. Ecological Services, Inc. Additional Tasks - <i>NTE</i>					\$16,150.00	
d. Subcontractor, D.B. Ecological Services, Inc. Optional Tasks - <i>NTE</i>					\$7,237.50	
<b>2. Singer Island Sea Turtle Monitoring</b>						
a. APTIM Review & Coordination	1	13	4	1		
b. Subcontractor, D.B. Ecological Services, Inc. Monitoring					\$84,029.35	
c. Subcontractor, D.B. Ecological Services, Inc. Optional Tasks - <i>NTE</i>					\$3,300.00	
	Total =	2 ✓	26 ✓	8 ✓	2 ✓	\$156,297.85 ✓
	Rate =	\$259.72 ✓	\$155.88 ✓	\$83.08 ✓	\$82.09 ✓	1
	Cost =	\$519.44 ✓	\$4,052.88 ✓	\$664.64 ✓	\$164.18 ✓	\$156,297.85 ✓
	TOTAL LABOR COST =	\$5,401.14 ✓				
	TOTAL DIRECT SUBCONTRACTOR COST =					\$156,297.85
	<b>TOTAL COST =</b>					<b>\$161,698.99</b>

*2.92*

Fixed Price Total: \$135,011.49  
Not-to-Exceed Total: \$26,687.50

**PALM BEACH COUNTY, FL**  
**2021 SEA TURTLE MONITORING - PHASE 2 (MAY-DEC)**  
**OCEAN RIDGE AND SINGER ISLAND**  
**EXHIBIT B**  
**PROPOSAL FROM D.B. ECOLOGICAL SERVICES, INC.**

**February 1, 2021**

**PREPARED BY:**  
**APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC**

D.B. Ecological Services, Inc.  
19663 Hampton Dr  
Boca Raton, FL 33434  
Phone # (561) 376-5502

1/29/2021

**D.B. ECOLOGICAL SERVICES, INC. 2021 COST PROPOSAL FOR PALM  
BEACH COUNTY SEA TURTLE MONITORING  
SINGER ISLAND & OCEAN RIDGE**

All work to be performed as indicated in the 2021 Palm Beach County Scope for the associated projects. This cost proposal is to provide services from 1 May 2021 – 31 December 2021.

Work will be performed adhering to all marine turtle regulations imposed by the US Fish & Wildlife Service and the Florida Fish & Wildlife Conservation Commission.

A cost breakdown has been provided for Ocean Ridge on the attached spreadsheet labeled Exhibit A. The tasks referenced in Exhibit A are only for tasks that necessary from 1 May 2021– 31 December 2021. The total costs established in Exhibit A for Tasks 1-4 = \$45,581.00. The total proposed additional tasks = \$16,150.00. The total proposed optional tasks = \$7,237.50. ✓

A cost breakdown has been provided for Singer Island on the attached spreadsheet labeled Exhibit B. The tasks referenced in Exhibit B are only for tasks that necessary from 1 May 2021 – 31 December 2021. Any additional services will be provided under a separate Agreement. The total costs established in Exhibit B for Tasks 1-4 = \$84,029.35. The total the proposed optional tasks = \$3300.00. ✓

Christine Perretta  
DB Ecological Services, Inc.

2021 Detailed Cost Breakdown for DB Eco ST monitoring Exhibit A

May-Dec

Ocean Ridge

Task	Cost	Unit	# Units	Unit Rate
1 Nest survey	\$ 22,102.50	month	6	3683.75 ✓
2 Scarps	\$ 1,200.00	month	5	240 ✓
3 Nest eval	\$ 2,796.00	month	6	466 ✓
4 Prog Mgmt	\$ 14,000.00	month	7	2000 ✓
4 A,B,C Prog Mgmt	\$ 5,482.50	month	6	913.75 ✓
Subtotal=	\$ 45,581.00 ✓			

OR Additional Tasks (Not to Exceed)

		unit	# units	Unit Rate
A Reloc	\$ 150.00 ✓	Nest	5	\$ 30.00 one time
B Caging	\$ 16,000.00 ✓	night	80	\$ 200.00 nightly
	\$ 16,150.00 ✓			

**Total Optional & Additional Tasks= \$ 61,731.00 ✓**

OR Optional Tasks (NTE)

		unit	# units	Unit Rate
A Pre-con Meeting	\$ 187.50 ✓	hr	1.5	\$ 125.00 one time
B.1 Late season Mon (Sep)	\$ 3,600.00 ✓	day	60	\$ 60.00 month
B.2 Late season Mon (Nov)	\$ 3,300.00 ✓	day	30	\$ 110.00 month
C Mark and Avoid (Included in task B)		month	1	#VALUE! month
D Late Season Reloc	\$ 150.00 ✓	Nest	5	\$ 30.00 one time
	\$ 7,237.50 ✓			150

2021 Detailed Cost Breakdown for DB Eco ST monitoring Per Exhibit B

MAY-DECEMBER

Section 1 - Monitoring

Singer Island

Task		Cost	Unit	# Units	Unit Rate
1	Nest survey	\$ 32,991.00	month	6	5498.5 ✓
2	Scarps	\$ 1,142.85	month	5	228.57 ✓
3	Nest eval	\$ 13,620.00	month	6	2270 ✓
4	Prog Mgmt	\$ 26,091.94	month	7	3727.42 ✓
4 A,B,C	Prog Mgmt	\$ 10,183.56	month	6	1697.26 ✓
Subtotal=		\$ 84,029.35			✓ (863)

OR Optional Tasks (NTE)

					unit	# uni	Unit Rate
A	Late season Mon	\$ 3,300.00 ✓	day	30	\$ 110.00 ✓	month	1 \$ 3,300.00
B	Mark & Avoid (Included in B)	\$ -	month	1	\$ -	month	3 \$ -
		\$ 3,300.00					

Total Optional = \$3300.00 ✓

**Scope of Work**  
**2021 Singer Island Sea Turtle Monitoring**

Palm Beach County's Department of Environmental Resources Management (COUNTY) intends to contract with APTIM (CONSULTANT), to provide sea turtle monitoring services in support of State permit requirements issued to Palm Beach County for the Singer Island Dune Restoration Project. The project is 1.25 miles in length extending from Water Glades through Martinique and encompassing existing sea turtle monitoring zones 1-4. (See attached survey map).

The CONSULTANT shall obtain all Florida Fish and Wildlife Conservation Commission (FWC) permits required for sea turtle monitoring, including authorization for nest relocation. All standard sea turtle permit required reports shall be submitted to FWC by the CONSULTANT. The CONSULTANT shall utilize trained and experienced staff to conduct all monitoring activities. All data shall be collected and entered into a computerized data management system, quality control and assurance conditions satisfied, and then submitted to the COUNTY as set forth in this Scope of Work. The COUNTY may, at its discretion, conduct independent surveys and observe data collection and analysis techniques for the purpose of comparing and validating compliance with FWC guidelines and this contract. Proven and unjustifiable discrepancies of more than 10% of observations on a given day may be cause for contract termination.

All sea turtle crawl data shall be entered into the COUNTY's web-based data management system (database). In the event the COUNTY's database fails to function as designed, the CONSULTANT and the COUNTY shall determine mutually agreeable alternatives for data management and reporting. All physical beach monitoring data shall be compiled, stored, and submitted as outlined in each Task.

In order to maintain consistency in data collection techniques, the CONSULTANT shall conduct all monitoring and evaluation practices in accordance with the most current version of the FWC Marine Turtle Conservation Handbook. The CONSULTANT shall be required to follow the stated methodology unless written approval has been given for alternate methods. In the event of a conflict between the guidelines and scope of work, the scope shall prevail and the CONSULTANT shall notify the COUNTY of any conflicts. The CONSULTANT (including all monitoring staff) shall also be required to have read and understood the guidelines and to attend an early season consistency meeting with COUNTY staff. Additional training and/or clarification of monitoring criteria shall be provided as necessary at that meeting.

**Task 1: Daily Nesting Surveys and Beach Monitoring**

Daily surveys for sea turtle monitoring activity shall be conducted for all zones between March 1 and October 31. The locations of all crawls marked for evaluation are to be collected with a real time corrected DGPS unit with sub-meter accuracy. GPS data shall be uploaded to the database within one business day of data collection and examined for accuracy of content and position and for real-time correction. If necessary, data may be post-processed to obtain sub-meter accuracy using a base station approved by the COUNTY. Each occurrence where post-processing is necessary, as well as the steps taken to identify and resolve the problem, shall be reported to the COUNTY with the appropriate monthly data submittal.

The following parameters shall be recorded for each crawl encountered on a daily survey form approved by the COUNTY:

- A. Date
- B. Start and end time of survey
- C. Weather conditions during survey
- D. Survey zone
- E. Species of turtle
- F. Crawl type
- G. Estimated distance from the egg chamber or landward extent of the non-nesting emergence to the high water line

- H. Estimated distance from the egg chamber or landward extent of the non-nesting emergence to the toe of dune
- I. Number of abandoned body pits
- J. Number of abandoned egg chambers
- K. Any obstructions (natural or man-made) encountered by the turtle and the turtle's response to that obstruction. Interactions with beach furniture, boats, or recreational equipment shall be recorded on a FWC Obstructed Nesting Attempt form and submitted to FWC per FWC guidelines and the COUNTY with the appropriate monthly data submittal.

Additionally, each nest record must contain a designation of marked/staked (yes/no) and clutch located (yes/no). If the nest is marked, a unique nest identification number must be assigned according to the COUNTY's naming convention.

If authorized by the FWC Marine Turtle Permit, nests may be relocated for conservation purposes, in accordance with FWC guidelines. All relocated nests must be marked for evaluation, regardless of species or marking rotation. Relocated nests shall be identified by the addition of "R" after the marked nest number (example: CC-060314-4BR-SIN).

Zone boundary markers will be installed at the beginning of the season (if missing) and maintained by the CONSULTANT in the dune at historical locations within the entire survey area throughout the nesting season.

Frequency: Daily from March 1 through October 31.

Deliverable: Each crawl record, including all parameters mentioned above, shall be entered into the COUNTY's database within one business day of collection. If the database is malfunctioning, the CONSULTANT will immediately notify the COUNTY. Original datasheets are to be scanned to PDF format and submitted with the monthly deliverable. A monthly summary of daily surveys will be submitted as described in Task 4 (Program Management) and will confirm survey extents and times and summarize any unusual activity on the beach. All original or post-processed GPS datafiles shall be submitted with the appropriate monthly data submittal. Any crawl location that cannot be corrected through real-time or post-processing shall be reported to the COUNTY with the appropriate monthly data submittal.

### **Task 2: Escarpment Mapping**

Weekly visual surveys for escarpment formation shall be conducted for the entire survey area. Escarpments steeper than 60° that exceed 18 inches in height for a distance of 100 feet or greater shall be mapped as a line feature with DGPS. The average height of any escarpments meeting the above criteria shall be estimated and the maximum height measured.

Frequency: Weekly from March 1 to September 30. Task to be a not-to-exceed item based on the number of weeks an escarpment is mapped.

Deliverable: A cumulative summary spreadsheet of all surveys, including date and time, environmental conditions (winds, tide, and sea state), zone, average height, and maximum height and length of the escarpments (as a Microsoft Excel file), as well as GIS line features of escarpments (as ArcMap shapefiles in NAD83, Florida East) and the original GPS datafiles shall be included with each monthly data submittal.

### **Task 3: Nest Evaluations and Monitoring**

Selected nests shall be located, marked, tracked throughout the incubation period, and nest contents evaluated, if applicable. Nests shall be marked approximately 2 feet west of the egg chamber using a 2 foot (or larger) painted wooden stake. An additional painted wooden stake shall be placed at the toe of the dune in the dune vegetation. Precise measurements (distance and bearing) shall be made to the dune stake and recorded on the datasheet. If nest poaching occurs, an alternate staking method, proposed by the CONSULTANT and approved by the COUNTY, may be implemented in high-risk poaching areas upon FWC recommendation.



The clutch for each marked nest shall be located by digging a maximum of 10 narrow holes. If the clutch is not found, the approximate location shall be marked and monitored throughout the incubation period.

The nest marking rotation for each species shall be developed in consultation with the COUNTY prior to the start of each sea turtle nesting season. The nest marking protocol shall take into account variable nesting densities and potential losses due to erosion or depredation in the project and non-project areas to ensure similar sample sizes for each treatment. Historic and predicted trends shall be used to formulate the protocol. A running count shall be maintained and the beach shall be surveyed in the same direction each day to ensure randomization of nests selected for marking. By July 15 of each nesting season, the CONSULTANT shall compare the current data to predictions and, as necessary, make adjustments to the marking protocol to ensure a sufficient number of evaluated nests.

When sufficient numbers of nests are available, the following minimum numbers of nests shall be marked for each species:

- A. Loggerhead – 100 nests in the dune fill (fill) and 100 nests on the berm (non-fill)
- B. Green – 100 nests in the dune fill (fill) and 100 nests on the berm (non-fill)
- C. Leatherback – all nests

Every marked nest shall be checked daily for:

- A. Presence of nest stakes – if the nest stake is missing, the stake shall be reset, that day, using either the distance and bearing information recorded in the database or GPS coordinates, unless continued stake loss due to ongoing, extreme tidal events is likely
- B. Evidence of overwash – overwash events shall be categorized as to severity using the following criteria:
  - a. 1 = overwash over the egg chamber but less than 1 meter west of the egg chamber
  - b. 2 = overwash extent greater than 1 meter west of the egg chamber
- C. Evidence of predation – all depredation events, by a mammalian predator or nesting turtle, that involve loss of viable eggs and/or hatchlings (not just loss of hatchlings) shall be recorded using the following parameters:
  - a. Predator species
  - b. Number of eggs lost
  - c. Incubation stage at time of depredation
    - i. Pre-hatchling emergence
    - ii. Post-hatchling emergence

All predated nests shall be assigned a fate of “Predated” on the first instance of egg loss, even if viable eggs remain intact; these nests shall not be evaluated for reproductive success. Depredation events by non-mammalian predators, such as crabs, birds, or ants, shall be recorded only in the comments section; these nests shall be evaluated for reproductive success. If hatchlings are depredated after leaving the chamber, but before entering the water, the number of depredated hatchlings and the predator, shall be recorded in the comments section; these nests shall be evaluated for reproductive success.

- D. Evidence of hatchling emergence – each marked nest, older than 45 days post-deposition, shall be checked daily for hatchling emergence. If emergence is noted, the estimated number of emerged hatchlings shall be recorded.
- E. Evidence of disorientation – all hatchling emergences observed in the survey area (not just those from marked nests) shall be evaluated for disorientation. A disorientation report shall be completed for any amount of disoriented hatchlings. All disorientation events shall be recorded on the FWC Marine Turtle Disorientation Incident Report form and faxed or emailed to the COUNTY and FWC within 24 hours of observation; the original form shall be submitted to FWC within one week of observation.

All appropriate information shall be recorded daily on a nest inspection datasheet (automatically generated by the database).

Each marked nest shall be evaluated for reproductive success no earlier than 72 hours post-emergence or 70 days post deposition, whichever is earlier, in accordance with FWC guidelines. For each marked nest, the following parameters shall be recorded on a hatch success form approved by the COUNTY:

- A. Number of hatched eggs
- B. Number of unhatched eggs
- C. Number of pipped live eggs
- D. Number of pipped dead eggs
- E. Number of live hatchlings
- F. Number of dead hatchlings
- G. Number of spacer eggs
- H. Depth to the top of the chamber (inches)
- I. Depth to the bottom of the chamber (inches)

Each marked nest shall be assigned a fate according to the following codes:

- A. Hatched (H) – hatched, eggs found
- B. Hatched, emergence not observed (HNO) – hatched, emergence not observed, eggs found
- C. Predated (PD) – predated, any number of eggs lost
- D. Protected (PR) – marked solely for protection or project purposes
- E. Poached (PV) – poached, any number of eggs lost
- F. Washout (WO) – eroded prior to anticipated or actual emergence, any number of eggs lost
- G. Lost (L) – not evaluated due to erosion after anticipated or actual emergence or proximity to a viable nest, all marking stakes removed and GPS coordinates unavailable, etc
- H. Could Not Locate (CNL) – eggs unable to be located
- I. Scavenged (SCV) – predated after hatchling emergence, any number of eggs lost
- J. Turtle Scattered (TS) – eggs scattered by nesting female, any number of eggs lost

For nests assigned a fate of “Lost”, an explanation of the circumstances must be entered into the comments section (example: nest eroded on 9/21 from Hurricane Xavier at 74 days post-deposition). If hatchling emergence is not observed after 70 days, the nest site shall be excavated to locate the clutch. A nest fate of “Could Not Locate” may only be used after a 4’x4’x4’ area has been excavated. All relocated nests must be marked and evaluated, regardless of species or marking rotation.

Frequency: Daily from March 1 until the last marked nest is evaluated.

Deliverable: Each nest inspection event and hatch success record, including the above mentioned parameters, shall be entered into the COUNTY’s database within one business day of collection. Copies of nest inspection sheets and hatch success datasheets are to be scanned to PDF format and provided with the appropriate monthly data submittal.

#### **Task 4: Program Management, Quality Assurance/Quality Control, and Reporting**

All data reporting forms shall be checked for accuracy and clarity by a CONSULTANT supervisor or senior staff member and all problems resolved within one business day of data collection. Data shall be entered into the COUNTY’s database and each entry verified for accuracy by at least one other person within four (4) weeks of data collection. Persons performing data entry and all verification checks shall initial and date each original datasheet. Alternative methods for data verification and quality assurance may be implemented by the CONSULTANT if approved in advance by the COUNTY.

Deliverable: A summary of the range of dates reviewed, all problems encountered associated with any task and problem resolution shall be included with each monthly data submittal. All deliverables and invoices shall be submitted on or before the 15<sup>th</sup> of each month following the month of data collection in order to receive payment. For reporting purposes, the COUNTY will be copied on or sent copies of reports submitted under Marine Turtle Permit requirements including but not limited to INBS/SNBS reports, Shoreline Protection Project Excel

Spreadsheets, reproductive reports, and annual summaries in format specified by FWC and as detailed in applicable permit conditions.

**Deliverables and Invoices**

All deliverable reports and support data to compile the report shall be provided in electronic formats (Word, Excel, ArcGIS, PDF). Palm Beach County ERM shall be notified of spreadsheet submission via email cc to the Project Manager. All deliverables shall be complete and accurate before full payment for each task shall be authorized.

**Optional Task A - Late Season Construction Monitoring**

If construction activities occur between November 1 and November 30, daily sea turtle nesting surveys and nest monitoring and evaluations shall be conducted through November 30 in accordance with permit conditions and Tasks 1 and 3.

Frequency: Daily surveys and monitoring of nests shall occur until the last nest has been evaluated.

Data Reporting: As described in Tasks 1 and 3.

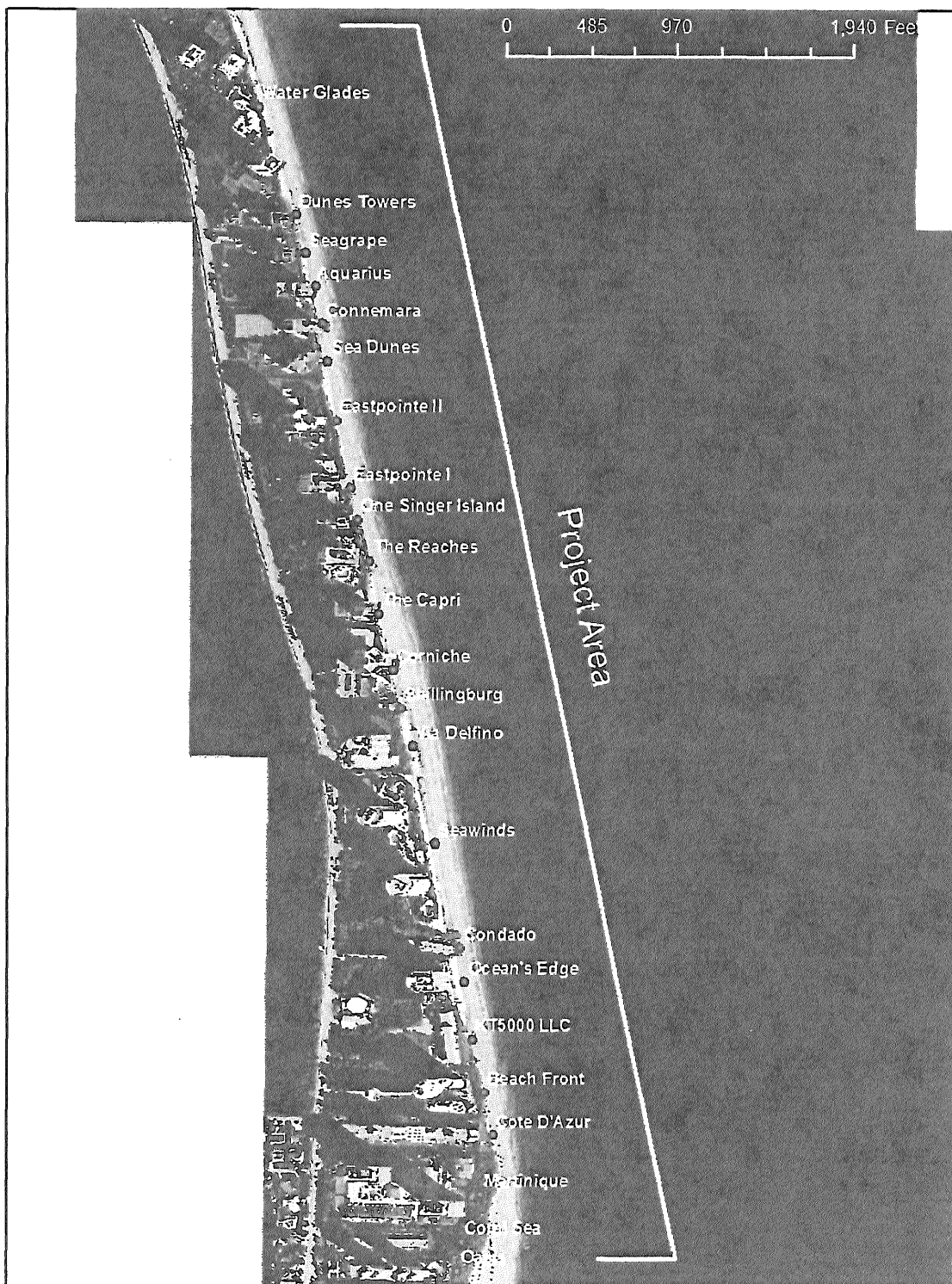
**Optional Task B – Mark and Avoid Activities**

If construction activities occur between November 1 and November 30, all nests documented in the project area shall be marked and left in place. Such nests will be marked and the actual location of the clutch determined. A circle with a radius of three (3) feet, centered at the clutch shall be marked by stake and survey tape or string. Only those nests that are marked for Task 3 are to be evaluated.

Frequency: Daily from September 1 through November 30.

Data Reporting: As described in Tasks 1 and 3.

### Survey Map



**Scope of Work  
2021 Ocean Ridge Sea Turtle Monitoring**

Palm Beach County's Department of Environmental Resources Management (COUNTY) intends to contract with APTIM Environmental and Infrastructure Inc. (CONSULTANT), to provide sea turtle monitoring services. This work is in support of current and anticipated State and Federal permit requirements issued to Palm Beach County for the South Lake Worth Inlet Sand Transfer Plant Bypassing.

The CONSULTANT shall provide services associated with monitoring sea turtle nesting for the beach 1500 feet north of the South Lake Worth Inlet running south to 180 feet south of R-monument 153 at the historical sea turtle zone 4 southern limit (3,500 total feet; see attached survey map).

The CONSULTANT shall obtain all Florida Fish and Wildlife Conservation Commission (FWC) permits required for sea turtle monitoring, including authorization for nest relocation. All standard sea turtle permit required reports shall be submitted to FWC by the CONSULTANT. The CONSULTANT shall utilize trained and experienced staff to conduct all monitoring activities. All data shall be collected and entered into a computerized data management system, quality control and assurance conditions satisfied, and then submitted to the COUNTY as set forth in this Scope of Work. The COUNTY may, at its discretion, conduct independent surveys and observe data collection and analysis techniques for the purpose of comparing and validating compliance with FWC guidelines and this contract. Proven and unjustifiable discrepancies of more than 10% on a given day may be cause for contract termination.

All sea turtle crawl data shall be entered into the COUNTY's web-based data management system (database). In the event the COUNTY's database fails to function as designed, the CONSULTANT and the COUNTY shall determine mutually agreeable alternatives for data management and reporting. All physical beach monitoring data shall be compiled, stored, and submitted as outlined in each Task.

In order to maintain consistency in data collection techniques, the CONSULTANT shall conduct all monitoring and evaluation practices in accordance with the most current version of the FWC Marine Turtle Conservation Handbook. The CONSULTANT shall be required to follow the stated methodology unless written approval has been given for alternate methods. In the event of a conflict between the guidelines and scope of work, the scope shall prevail and the CONSULTANT shall notify the COUNTY of any conflicts. The CONSULTANT (including all monitoring staff) shall also be required to have read and understood the guidelines and to attend an early season consistency meeting with COUNTY staff. Additional training and/or clarification of monitoring criteria shall be provided as necessary at that meeting.

**Task 1: Daily Nesting Surveys and Beach Monitoring**

Daily surveys for sea turtle monitoring activity shall be conducted for all zones between March 1 and October 31. The locations of all crawls marked for evaluation are to be collected with a real time corrected DGPS unit with sub-meter accuracy. GPS data shall be uploaded to the database within one business day of data collection and examined for accuracy of content and position and for real-time correction. If necessary, data may be post-processed to obtain sub-meter accuracy using a base station approved by the COUNTY.

The following parameters shall be recorded for each crawl encountered on a daily survey form approved by the COUNTY:

- A. Date
- B. Start and end time of survey
- C. Weather conditions during survey
- D. Survey zone
- E. Species of turtle
- F. Crawl type
- G. Estimated distance from the egg chamber or landward extent of the non-nesting emergence to the high water line

- H. Estimated distance from the egg chamber or landward extent of the non-nesting emergence to the toe of dune
- I. Number of abandoned body pits
- J. Number of abandoned egg chambers
- K. Any obstructions (natural or man-made) encountered by the turtle and the turtle's response to that obstruction. Interactions with beach furniture, boats, or recreational equipment shall be recorded on a FWC Obstructed Nesting Attempt form and submitted to FWC per FWC guidelines and the COUNTY with the appropriate monthly data submittal.

Additionally, each nest record must contain a designation of marked/staked (yes/no) and clutch located (yes/no). If the nest is marked, a unique nest identification number must be assigned according to the COUNTY's naming convention.

If authorized by the FWC Marine Turtle Permit, nests may be relocated for conservation purposes, in accordance with FWC guidelines. All relocated nests must be marked for evaluation, regardless of species or marking rotation. Relocated nests shall be identified by the addition of "R" after the marked nest number (example: CC-060314-4BR-OR).

Zone boundary markers will be installed at the beginning of the season (if missing) and maintained by the CONSULTANT in the dune at historical locations within the entire survey area throughout the nesting season.

Daily coordination with sand transfer plant or construction personnel must occur indicating that the daily nesting survey has been completed in the area and either sand transfer plant or construction activities may begin.

Frequency: Daily from March 1 through October 31.

Data Reporting: The sand transfer plant clear time shall be recorded on the daily survey datasheet. Each crawl record, including all parameters mentioned above, shall be entered into the COUNTY's database within one business day of collection. If the database is malfunctioning, the CONSULTANT will immediately notify the COUNTY. Original datasheets are to be scanned and included in PDF format with monthly deliverables. A monthly summary of daily surveys will be submitted as described in Task 4 (Program Management) and will confirm survey extents and times and summarize any unusual activity on the beach. All original or post-processed GPS datafiles shall be submitted with the appropriate monthly data submittal. Any crawl location that cannot be corrected through real-time or post-processing shall be reported to the COUNTY with the appropriate monthly data submittal.

#### **Task 2: Escarpment Mapping**

Weekly visual surveys for escarpment formation on the beach shall be conducted for the entire survey area. Escarpments steeper than 60° that exceed 18 inches in height for a distance of 100 feet or greater shall be mapped as a line feature with DGPS. The average height of any escarpments meeting the above criteria shall be estimated and the maximum height measured.

Frequency: Weekly from March 1 to September 30. Task to be a not-to-exceed item based on the number of weeks an escarpment is mapped.

Deliverable: A cumulative summary spreadsheet of all surveys, including date and time, environmental conditions (winds, tide, and sea state), zone, average height, and maximum height and length of the escarpments (as a Microsoft Excel file), as well as GIS line features of escarpments (as ArcMap shapefiles in NAD83, Florida East) and the original GPS datafiles shall be included with each monthly data submittal. In addition to monthly summary submittal, any scarp that persists for a period of two weeks or longer shall be reported to the COUNTY via phone or email once documented so that it may be reported to the state.

### **Task 3: Nest Evaluations and Monitoring**

All nests located within the survey area shall be located, marked, tracked throughout the incubation period, and nest contents evaluated, if applicable. If nesting levels reach a point where over 100 nests of each species may be marked within a season, an alternative marking scheme may be proposed and approved by the COUNTY. Nests shall be marked approximately 2 feet west of the egg chamber using a 2 foot (or larger) painted wooden stake. An additional painted wooden stake shall be placed at the toe of the dune in the dune vegetation. Precise measurements (distance and bearing) shall be made to the dune stake and recorded on the datasheet. If nest poaching occurs, an alternate staking method, proposed by the CONSULTANT and approved by the COUNTY, may be implemented in high-risk poaching areas upon FWC recommendation.

The clutch for each marked nest shall be located by digging a maximum of 10 narrow holes. If the clutch is not found, the approximate location shall be marked and monitored throughout the incubation period.

The nest marking rotation for each species shall be developed in consultation with the COUNTY prior to the start of each sea turtle nesting season. The nest marking protocol shall take into account variable nesting densities and potential losses due to erosion or depredation in the project and non-project areas to ensure similar sample sizes for each treatment. Historic and predicted trends shall be used to formulate the protocol. A running count shall be maintained and the beach shall be surveyed in the same direction each day to ensure randomization of nests selected for marking. By July 15 of each nesting season, the CONSULTANT shall compare the current data to predictions and, as necessary, make adjustments to the marking protocol to ensure a sufficient number of evaluated nests.

If nesting levels reach a point where not all nests are to be marked, certain nests shall be marked for protection regardless of marking scheme. Protected Nest Designation: In addition to regular nest marking, all nests shall be marked for protection purposes that are laid in:

1. a vehicle access;
2. within 10 feet of a lifeguard tower; or,
3. within 10 feet of the average tide line in Ocean Ridge in areas where mechanical beach cleaning is permitted by DEP. Areas that will not be cleaned during the season do not need to have low nests marked. Daily coordination with the beach cleaner must occur daily to indicate that the daily nesting survey has been conducted in the area and that beach cleaning activities may begin. If any stakes are lost, they must be replaced daily (unless prevented by severe storm conditions) prior to beach cleaning activities.

To identify protected nests (unless they would have been marked as part of the marking rotation), they shall be assigned a nest ID as described in Task 1, with the addition of "P" after the marked nest number (example: CC-060314-4BP-OR). These nests shall be checked daily for the parameters A, D, and E below, but shall not be evaluated for overwash or reproductive success. All stakes shall be removed either 72 hours post-emergence or after 70 days post-deposition, whichever occurs first. All protected nests shall be assigned a nest fate of "Protected".

Every marked nest shall be checked daily for:

- A. Presence of nest stakes – if the nest stake is missing, the stake shall be reset that day using either the distance and bearing information recorded in the database or GPS coordinates, unless continued stake loss due to ongoing, extreme tidal events is likely
- B. Evidence of overwash – overwash events shall be categorized as to severity using the following criteria:
  - a. 1 = overwash over the egg chamber but less than 1 meter west of the egg chamber
  - b. 2 = overwash extent greater than 1 meter west of the egg chamber
- C. Evidence of predation – all depredation events, by a mammalian predator or nesting turtle, that involve loss of viable eggs and/or hatchlings (not just loss of hatchlings) shall be recorded using the following parameters:
  - a. Predator species
  - b. Number of eggs lost
  - c. Incubation stage at time of depredation



- i. Pre-hatchling emergence
- ii. Post-hatchling emergence

All predated nests shall be assigned a fate of "Predated" on the first instance of egg loss, even if viable eggs remain intact; these nests shall not be evaluated for reproductive success. Depredation events by non-mammalian predators, such as crabs, birds, or ants, shall be recorded only in the comments section; these nests shall be evaluated for reproductive success. If hatchlings are depredated after leaving the chamber, but before entering the water, the number of depredated hatchlings and the predator, shall be recorded in the comments section; these nests shall be evaluated for reproductive success. If the CONSULTANT is participating in the FWC NPA program, adjustments can be made to allow predated nests to remain marked. The COUNTY will develop a system to allow these protocols.

- D. Evidence of hatchling emergence – each marked nest, older than 45 days post-deposition, shall be checked daily for hatchling emergence. If emergence is noted, the estimated number of emerged hatchlings shall be recorded.
- E. Evidence of disorientation – all hatchling emergences observed in the survey area (not just those from marked nests) shall be evaluated for disorientation. A disorientation report shall be completed for any amount of disoriented hatchlings. All disorientation events shall be recorded on the FWC Marine Turtle Disorientation Incident Report form and faxed or emailed to the COUNTY and FWC within 24 hours of observation; the original form shall be submitted to FWC within one week of observation.

All appropriate information shall be recorded daily on a nest inspection datasheet (automatically generated by the database).

Each marked nest shall be evaluated for reproductive success no earlier than 72 hours post-emergence or 70 days post deposition (80 days for leatherbacks), whichever is earlier, in accordance with FWC guidelines. For each marked nest, the following parameters shall be recorded on a hatch success form approved by the COUNTY:

- A. Number of hatched eggs
- B. Number of unhatched eggs
- C. Number of pipped live eggs
- D. Number of pipped dead eggs
- E. Number of live hatchlings
- F. Number of dead hatchlings
- G. Number of spacer eggs
- H. Depth to the top of the chamber (inches)
- I. Depth to the bottom of the chamber (inches)

Each marked nest shall be assigned a fate according to the following codes:

- A. Hatched (H) – hatched, eggs found
- B. Hatched, emergence not observed (HNO) – hatched, emergence not observed, eggs found
- C. Predated (PD) – predated, any number of eggs lost
- D. Protected (PR) – marked solely for protection or project purposes
- E. Poached (PV) – poached, any number of eggs lost
- F. Washout (WO) – eroded prior to anticipated or actual emergence, any number of eggs lost
- G. Lost (L) – not evaluated due to erosion after anticipated or actual emergence or proximity to a viable nest, all marking stakes removed and GPS coordinates unavailable, etc
- H. Could Not Locate (CNL) – eggs unable to be located
- I. Scavenged (SCV) – predated after hatchling emergence, any number of eggs lost
- J. Turtle Scattered (TS) – eggs scattered by nesting female, any number of eggs lost

For nests assigned a fate of "Lost", an explanation of the circumstances must be entered into the comments section (example: nest eroded on 9/21 from Hurricane Xavier at 74 days post-deposition). If hatchling emergence is not observed after 70 days (80 days for leatherbacks), the nest site shall be excavated to locate the clutch. A nest fate



of "Could Not Locate" may only be used after a 4'x4'x4' area has been excavated. All relocated nests must be marked and evaluated regardless of species or marking rotation.

Frequency: Daily from March 1 until the last marked nest is evaluated.

Data Reporting: Each nest inspection event and hatch success record, including the above mentioned parameters, shall be entered into the COUNTY's database within one business day of collection. Copies of nest inspection sheets and hatch success datasheets are to be scanned into PDF format and provided with the appropriate monthly data submittal.

**Task 4: Program Management, Quality Assurance/Quality Control, and Reporting**

All data reporting forms shall be checked for accuracy and clarity by a CONSULTANT supervisor or senior staff member and all problems resolved within one business day of data collection. Data shall be entered into the COUNTY's database and each entry verified for accuracy by at least one other person within four (4) weeks of data collection. Persons performing data entry and all verification checks shall initial and date each original datasheet. Alternative methods for data verification and quality assurance may be implemented by the CONSULTANT if approved in advance by the COUNTY.

Deliverable: A summary of the range of dates reviewed, all problems encountered associated with any task and problem resolution shall be included with each monthly data submittal. All deliverables and invoices shall be submitted on or before the 15<sup>th</sup> of each month following the month of data collection in order to receive payment. For reporting purposes, the COUNTY will be copied on or sent copies of reports submitted under Marine Turtle Permit requirements including but not limited to INBS/SNBS reports, Shoreline Protection Project Excel Spreadsheets, reproductive reports, and annual summaries in format specified by FWC and as detailed in applicable permit conditions.

**Deliverables and Invoices**

All deliverable reports and support data to compile the report shall be provided in electronic formats (Word, Excel, ArcGIS, PDF). Palm Beach County ERM shall be notified of spreadsheet submission via email cc to the Project Manager. All deliverables shall be complete and accurate before full payment for each task shall be authorized.

**Additional Task A: Nest Relocation for Sand Transfer Plant Operation**

Nests deposited in zones 2 and 3 may require relocation out of the area of influence of the sand transfer plant intake and discharge to an appropriate incubation area in the event of active construction; the relocation area shall be selected in consultation with the CONSULTANT and COUNTY prior to each nesting season and shall be re-evaluated periodically during the nesting season to ensure nests are adequately protected and/or are not unnecessarily relocated. Relocation activities must be completed prior to 9:00 AM on the date deposited. All relocated nests must be marked as described in Task 1 and evaluated as described in Task 3. Relocation and incubation areas are shown on Attachment 1. An estimated 5 nests per season may require relocation. The CONSULTANT must be able to obtain a FWC permit authorizing relocation activities.

Frequency: As required when nests are deposited within the relocation area.

Data Reporting: Observer, relocation start and end times, number of eggs, and egg chamber dimensions shall be recorded. Copies of datasheets shall be provided with the appropriate monthly data submittal. Data reporting shall occur in accordance with Tasks 1 and 3.

**Additional Task B: Caging Activities**

Nests deposited in the groin field (zones 3 and 4) may require screening with restraining cages to prevent hatchling interaction with the T-head groins. The egg chamber must be located for all nests deposited within the groin field (Attachment 1) as described in Task 3; if the nest marker is lost during incubation, it must be reset using sub-meter accurate DGPS coordinates and the top of the egg chamber reconfirmed, as described in Task 3, prior to cage

deployment. The minimum caging criteria based on beach and conditions shall be determined in coordination with the COUNTY prior to the first cage deployment. After 45 days of incubation, a restraining cage will be placed over the egg chamber for nests that require screening. The cage must be closed at sunset, checked once between 11:00 PM and 1:00 AM, and opened at sunrise every day. Hatchlings found in the cages shall be released immediately at a location that is not influenced by artificial lighting. The CONSULTANT shall conduct all nest and monitoring evaluations as described in Task 3. The cage shall be removed 72 hours post-emergence, during nest excavation, not upon nest emergence.

Frequency: As required when nests are deposited within the groin field.

Data Reporting: Date of cage checks, observer, cage open, check, and close times, emergence, number of hatchlings, and position of hatchlings within the cage shall be recorded. Data reporting shall occur in accordance with Tasks 1 and 3. Cost for this task shall be provided on a per night visit.

**Optional Task A: Pre-construction meeting**

The CONSULTANT will be required to attend a pre-construction meeting for any proposed construction which could include the sand trap dredging project and beach nourishment.

Frequency: Once prior to construction initiation.

Data Reporting: A copy of the pre-construction attendance sheet shall be provided to the COUNTY with the appropriate monthly data submittal.

**Optional Task B: Late season construction monitoring for the stretch of beach extending from 1500' north of the South Lake Worth Inlet to Adams Road (~2.25 miles)**

If construction activities occur between November 1 and November 30, daily sea turtle nesting surveys and nest monitoring and evaluations shall be conducted through November 30 in accordance with permit conditions and Tasks 1 and 5. Activities may include marking nests with perimeter stakes and flagging tape for protection from construction activity and relocation of nests from active construction zones as described in Additional Task A. Relocation could begin as early as August 28 (65 days prior to construction).

Frequency: Daily surveys and monitoring of nests shall occur until the last nest has been evaluated.

Data Reporting: As described in Tasks 1 and 3.

**Optional Task C: Mark and avoid activities for the stretch of beach extending from 1500' north of the South Lake Worth Inlet to Adams Road (~2.25 miles)**

If shoreline protection activities conducted by the COUNTY will occur during the period from March 1 to April 30 or in November, nests deposited in work areas where construction has ceased or will not occur for 65 days, shall be marked and left in situ as described in environmental permits. All nests shall be surveyed, monitored and marked as described in Task 1, with the addition of at least a 10' stake and ribbon perimeter, and evaluated and monitored as described in Task 3; The CONSULTANT shall be responsible for coordination with the construction contractor.

Frequency: As needed.

Data Reporting: Data reporting shall occur in accordance with Tasks 1 and 3.

**Optional Task D: Nest relocation for the stretch of beach extending from 1500' north of the South Lake Worth Inlet to Adams Road (~2.25 miles)**

Nest relocation for construction purposes shall occur under the following circumstances:

- a) If shoreline protection activities will occur during the period from 1 November to 30 November, nests deposited in areas that will be directly affected by shoreline protection activities shall be relocated to a nearby area that will not be affected by shoreline protection activities, regardless of species or marking rotation. Nest relocations will occur as authorized by USFWS and FWC.
- b) Late season nests deposited 65 days prior to an expected construction start date in areas that will be directly affected by shoreline protection activities shall be relocated.
- c) Any nest laid in an active construction area during activities described in Optional Tasks B and C shall be relocated.

All relocated nests shall be marked as described in Task 1, checked daily and evaluated for reproductive success as described in Task 3, regardless of species or marking rotation. The CONSULTANT shall be responsible for coordination with the construction contractor. The CONSULTANT shall be responsible for obtaining the appropriate marine turtle permit modification from the Florida Fish and Wildlife Conservation Commission to relocate nests for construction purposes.

Frequency: As needed.

Data Reporting: Data reporting shall occur in accordance with Tasks 1 and 3.

Survey Map

