

WORK ORDER NUMBER 2018006-1

SECTOR 3 BEACH AND DUNE RESTORATION PROJECT

2018 POST CONSTRUCTION
SEA TURTLE NEST MONITORING SERVICES

This Work Order Number 1 is entered into as of this _____ day of _____, 2018 pursuant to that certain Engineering and Biological Support Services Contract for Sector 3 Agreement for Professional Services entered into as of January, 2018 ("Agreement"), by and between Indian River County, a political subdivision of the State of Florida ("COUNTY") and Aptim Environmental and Infrastructure, Inc. ("CONSULTANT") and The Transet Group, Inc. D.B.A Ecological Associates, Inc. ("SUB-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 SUB-CONSULTANT for the fee schedule set forth in Exhibit 3, attached to this Work Order and made a part hereof by this reference. The SUB-CONSULTANT will perform the professional services within the timeframe more particularly set forth in Exhibit 3, 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. 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 1.4 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, PE, D.CE

By: _____
Peter D. O'Bryan, Chairman

Title: Director of Operations

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

Date: 2/12/2018

By: _____
(Seal) Deputy Clerk

Approved:

Jason E. Brown, County Administrator

Approved as to form and legal sufficiency:

By: _____
William K. DeBraal, Deputy County Attorney



Aptim Environmental & Infrastructure, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
Tel: +1 561 391 8102
Fax: +1 561 391 9116
www.aptim.com

February 9, 2018 (revised from 1/31/2018)

Mr. James Gray
Indian River County
Public Works - Coastal Engineering Division
1801 27th St, Building A
Vero Beach, FL 32960

**Subject: Indian River County, FL
2018 Sea Turtle Monitoring
Sector 3 – 2018006 – Work Order #1**

Dear James:

This proposal outlines a scope of work for Aptim Environmental & Infrastructure, Inc. (APTIM) to provide professional services to Indian River County (the County) for permit-required sea turtle monitoring for 2018 in support of the Sector 3 Beach and Dune Restoration Project. The sea turtle monitoring will be managed and coordinated by APTIM, and conducted by APTIM's approved subconsultant, Ecological Associates, Inc. (EAI). The cost 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).

Scope of Work

APTIM will oversee the scope of work proposed by EAI and provide the necessary administrative coordination to the County. EAI has provided the enclosed proposal and cost breakdown for sea turtle monitoring tasks, which states:

Services described herein conform to biological monitoring requirements stipulated in Florida Department of Environmental Protection (FDEP) JCP Permit #0285993-001-JC (and associated modifications) and applicable U.S. Fish and Wildlife Service (USFWS) Biological Opinions (BOs) for the Sector 3 Project. This work will satisfy requirements for:

- *Year 3 post-construction monitoring for the Sector 3 Dune Repair Project (R-24 to R-55)*

The following tasks under this work order will be performed, as detailed in Exhibit A:

- *Weekly post-construction escarpment monitoring*
- *Post-construction sea turtle monitoring*
- *Marking and monitoring of a representative sample of nests to determine nest fate and reproductive success*
- *Comprehensive nighttime lighting evaluations*
- *Data management and reporting, as conditioned in regulatory permits for the project*



Fee Proposal

The lump sum cost for this work is \$131,824.77.

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

Sincerely,

William Reilly, P.E.
Senior Coastal Engineer
Aptim Environmental & Infrastructure, Inc.

*Electronic signature approved
via email dated 2/9/2018*

Authorized Corporate Signature

Thomas Pierro

Printed Name

Director of Operations

Title

Enclosure

cc: Thomas Pierro, P.E. D.CE, APTIM
Stacy Buck, APTIM
Debbie Neese, APTIM
Kendra Cope, IRC

SPM REVISION: 2016 - REV 18.1
PROJECT NUMBER: 631235921



**Sector 3 - 2018006 - Work Order #1
2018 Sea Turtle Monitoring
Indian River County, FL**

Summary of Cost by Task

Task Number	Task Name	Labor	Sub-contractors	Equipment	Materials	Mobilization/Travel	Totals
Task 1	Sector 3 2018 Sea Turtle Monitoring	\$ 660.00	\$ 131,164.77	\$ -	\$ -	\$ -	\$ 131,824.77

Labor Title	Labor Bill Rate	Sector 3 2018 Sea Turtle Monitoring Task 1	
		Labor Hours	Cost
Project Manager/Sr. Coastal Eng.	\$ 165.00	4	\$ 660.00
Subcontractors			\$ 124,918.83
5% coordination of Subcontractors			\$ 6,245.94
Equipment	-	-	\$ -
Materials	-	-	\$ -
Mobilization/Travel	-	-	\$ -
TOTAL	-	4	\$ 131,824.77

Submitted By: William Reilly
Submitted To: Indian River County
Submission Date: 2/9/2018



Ms. Stacy E. Buck
Senior Marine Biologist
APTIM
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431

February 8, 2018

Re: Scope of Work and Cost Proposal for Sector 3 Post-construction Sea Turtle Monitoring, Indian River County, Florida – 2018.

Dear Ms. Buck:

Ecological Associates, Inc. (EAI) is pleased to submit its Scope of Work (SOW) and Cost Proposal for providing Professional Environmental Services in support of Indian River County's Sector 3 Beach Restoration Project. Services described herein conform to biological monitoring requirements stipulated in Florida Department of Environmental Protection (FDEP) JCP Permit #0285993-001-JC (and associated modifications) and applicable U.S. Fish and Wildlife Service (USFWS) Biological Opinions (BOs) for the Sector 3 Project. This work will satisfy requirements for:

- Year 3 post-construction monitoring for the Sector 3 Dune Repair Project (R-24 to R-55)

EAI will perform the following tasks under this SOW, as detailed in Exhibit A:

- Weekly post-construction escarpment monitoring;
- Post-construction sea turtle monitoring;
- Marking and monitoring of a representative sample of nests to determine nest fate and reproductive success;
- Comprehensive nighttime lighting evaluations; and
- Data management and reporting, as conditioned in regulatory permits for the project.

All sea turtle monitoring activities will be performed under Florida Fish and Wildlife Conservation Commission (FWC) Marine Turtle Permit MTP-010 in accordance with current or future superseding conditions and guidelines issued by the permitting agency.

Records of monitoring activities during 2018 will be provided to APTIM in a form and at frequencies mutually agreed upon. Monthly data reports and a year-end summary report

Indian River County Sector 3 Sea Turtle Monitoring – 2018
Scope of Work – February 8, 2018

will be provided to APTIM in accordance with Exhibits B (Deliverables) and C (Schedules).

EAI will submit its monthly billings for services to APTIM in accordance with the fees set forth in Exhibit D (Costs). No deposit or retainers are required. Implementation of EAI's services is contingent upon receipt of a Notice to Proceed.

Ecological Associates, Inc. appreciates the opportunity to be of service to APTIM. Please feel free to give me a call should you have any questions regarding EAI's proposed services or associated costs.

Sincerely,



Niki Desjardin
Senior Project Manager

c: Stan DeForest/President

EXHIBIT A
Indian River County Sector 3 Sea Turtle Monitoring – 2018

ECOLOGICAL ASSOCIATES, INC.
P.O. BOX 405
JENSEN BEACH, FLORIDA 34958

SCOPE OF WORK

- 1) ***Mobilization.*** The area to be monitored (Study Area) extends from R-24 south to R-68 in Indian River County (Sector 3). This includes the Sector 3 Dune Repair Project and a control beach. Construction of the Dune Repair Project (R-24 to R-55) was completed in the spring of 2015. The control beach, immediately south of the Sector 3 Project Area, extends from R-60 to R-68. Post-construction monitoring activities will commence March 1, 2018 and will continue through approximately February 2019, as stipulated below. Pre-existing survey zone boundaries will be verified and re-marked and project-specific data sheets and a database will be created. A project schedule, as well as field survey schedules, will be created and maintained throughout the life of the project. All equipment and supplies necessary to successfully implement this Scope of Work are available.

- 2) ***Project Management.*** An EAI Project manager will oversee all fieldwork and data management operations and consult with APTIM on permit requirements as necessary. EAI will coordinate its monitoring activities with other FWC Marine Turtle Permit Holders within the Project Area to ensure that it does not interfere with their data collection efforts. EAI will also coordinate its monitoring activities in a manner that best supports the County's Habitat Conservation Plan (HCP) and will furnish data collected under this Scope of Work to the County's HCP Coordinator in a format compatible with the HCP database.

- 3) ***Post-construction Nesting Beach Sea Turtle Monitoring and Reporting (FDEP Specific Condition No. 29).*** Daily early morning nesting surveys will be conducted throughout the Sector 3 Study Area beginning March 1 and continuing uninterrupted through approximately October 31, 2018. Thereafter, the surveys will be conducted approximately three days each week until the last marked nest has been evaluated. Monitoring will be performed by EAI staff either on foot or using ATVs.

During the daily surveys, all emergences (turtle crawls) apparent from the previous night will be interpreted to determine which species of turtle came ashore and whether or not it nested. Crawls will be denoted as being either above or below the previous high tide line.

Throughout the period of monitoring, all nests and false crawls will be enumerated by pre-established survey zones and their approximate geographic locations determined by GPS (sub-meter accuracy). Each false crawl will be categorized as to the stage at which the nesting attempt was abandoned in conformance with FWC requirements for beach restoration projects. Additionally, all obstacles (e.g.,

EXHIBIT A
Indian River County Sector 3 Sea Turtle Monitoring – 2018

scarps, seawalls, etc.) encountered by turtles during their emergences onto the beach will be documented.

Upon conclusion of sea turtle data analyses for the 2018 nesting season, an interpretive report, including an assessment of project impacts, if any, will be submitted to APTIM. This assessment will be based on statistical and other comparisons of nesting and reproductive success data between treatment and control areas. EAI will meet with APTIM to review and identify any changes warranted in the interpretive report. If such changes are made by EAI, a revised final report will be prepared and submitted to APTIM.

- 4) ***Nest Marking and Monitoring (FDEP Specific Condition No. 29).*** A representative sample of nests (approximately 130 loggerhead, 130 green turtle and 10 leatherback nests) within the Sector 3 Project Area, as well as the control, will be marked between March 1 and September 15, 2018. The clutch of each marked nest will be located and surrounded by a series of small stakes connected by brightly colored surveyor's tape. Each marked nest will be monitored throughout its incubation period to determine nest fate (e.g. hatched, washed out, depredated, vandalized, etc.). After an appropriate incubation period, and in accordance with FWC protocols, nests will be excavated to determine reproductive success. Two measures of reproductive success will be calculated: hatching success (the percentage of eggs in the nest that hatch) and emerging success (the percentage of eggs in the nest that produce hatchlings which successfully escape from the nest). At the direction of Indian River County, late season nests will be barricaded for conservation purposes.

- 5) ***Pre-season Escarpment Survey and Weekly Post-construction Scarp Monitoring (FDEP Specific Condition No. 24).*** A complete escarpment (scarp) survey will be conducted within the Sector 3 Project Area during the first week of February 2018 and the results submitted to APTIM. The length, average height category, and approximate maximum height (as described below) will be recorded for both beach and dune scarps. As dune scarps effectively mark the landward extent of suitable nesting habitat, it may not be necessary to monitor these throughout the entire nesting season. APTIM shall be responsible for seeking clarification from the USFWS regarding weekly monitoring of dune scarps. EAI will provide data or clarification regarding this matter where needed.

Additionally, scarp surveys will be conducted on a weekly basis within the Sector 3 Project Area from March 1 through September 30, 2018. In accordance with FWC protocol, scarps are functionally defined as an abrupt change in beach slope (greater than 45°) at least 18 inches in height that persists for a distance of 100 feet or more. The location of both the northern and southern terminus of each scarp will be recorded by GPS and average scarp height assigned to one of three categories (0 to 2 feet, 2 to 4 feet, and 4 feet or higher). Additionally, the maximum height of each scarp will be measured. The location (relative to R monuments), approximate length, height category, maximum height, and percentage of beach scarped will be

EXHIBIT A
Indian River County Sector 3 Sea Turtle Monitoring – 2018

presented in tabular and/or graphic format for reporting purposes. *EAI will submit weekly reports of scarp monitoring data to FWC (marineturtle@myfwc.com). EAI will also notify APTIM of any persistent scarps within the Project Area that may interfere with sea turtle nesting. APTIM shall be responsible for notifying FWC of the presence of those scarps and for coordinating any remediation measures, if required.*

- 6) *Nighttime Lighting Evaluations (FDEP Specific Condition No. 27).* EAI will conduct two nighttime lighting evaluations of beachfront properties within the Sector 3 Dune Repair Project Area to assess compliance with local ordinances as well as the County's Habitat Conservation Plan. One survey will be conducted in May 2018, with a follow-up survey between July 15 and August 1. During the surveys, non-compliant beachfront lighting will be identified, assigned a problem code, and recorded using highly-accurate GPS systems. A report will be generated in Excel format (which will include County-specific data fields), identifying each facility and all non-compliant lights as well as recommended modifications. Geo-referenced maps will also be created showing the locations of all non-compliant lights identified during the surveys. Following submission of an annual report on enforcement actions (to be prepared by Indian River County), and EAI Lighting Specialist will participate in a meeting with Indian River County and FWC to discuss the survey reports and marine turtle disorientations documented within the Project Area.

- 7) *Summary Spreadsheet of Sea Turtle Nesting Activity (FDEP Specific Condition No. 29).* At the end of the 2018 nesting season, an Excel spreadsheet of all nesting activity and reproductive success will be prepared and submitted electronically to APTIM, JCP Compliance, and FWC.

EXHIBIT B
Indian River County Sector 3 Sea Turtle Monitoring – 2018

ECOLOGICAL ASSOCIATES, INC., P.O. BOX 405, JENSEN BEACH, FL 34958

DELIVERABLES

Unless otherwise specified below, all reports will be delivered in a format (hard and/or electronic) and in such quantities as requested by APTIM. All reports will be submitted to APTIM in accordance with Exhibit C.

Sea Turtle Monitoring

Scarp Monitoring: Data will be reported electronically each week to FWC and APTIM. APTIM will also be notified by phone or electronically of any scarps that persists for two consecutive weekly surveys. Results of surveys conducted each month, including locations, heights, and lengths will be tabulated for inclusion in the Monthly Reports.

Monthly Reports: Records of daily sea turtle monitoring activities, including names of monitoring personnel and times of monitoring will be maintained for the duration of monitoring. Within two weeks following the end of each calendar month, EAI will submit a summary report to APTIM that will include, a log of sea turtle monitoring activities, number of sea turtle nests and false crawls by species, number of sea turtle nests marked and evaluated, and results of scarp monitoring. Upon conclusion of data analyses for the 2018 nesting season, a draft interpretive report, including an assessment of project impacts, if any, will be submitted to APTIM. This assessment will be based on statistical and other comparisons of nesting and reproductive success between treatment and control areas.

Nesting Database: All sea turtle data collected during the project will be incorporated into an Access database created and maintained by EAI. These data will be provided to APTIM in an electronic format, as mutually agreed upon, for incorporation into the County's HCP database. Appropriate QA measures will be implemented to ensure that data are completely and accurately transferred from field data sheets to the electronic database.

Lighting Evaluation Reports: Results of nighttime lighting evaluations will be summarized in an Excel spreadsheet and a geo-referenced map will be compiled and submitted to APTIM in electronic format.

Summary Spreadsheet: Upon completion of all field monitoring activities, an Excel spreadsheet tabulating sea turtle monitoring results, as required by FDEP Specific Condition No. 29, will be prepared and submitted to APTIM, JCP Compliance, and FWC.

EXHIBIT C
Indian River County Sector 3 Sea Turtle Monitoring – 2018

ECOLOGICAL ASSOCIATES, INC., P.O. BOX 405, JENSEN BEACH, FLORIDA 34958

PROJECT SCHEDULE

Deliverables. The following work products will be provided to APTIM in accordance with the schedules specified below:

Deliverable	Content	Delivery Date
Monthly Sea Turtle Data Summaries	Dates and times of monitoring, names of monitoring personnel, numbers of sea turtle emergences by species, results of escarpment monitoring, and numbers of nests marked and evaluated for reproductive success.	Within two weeks of the last day of each month following delivery of services (e.g., March report due no later than April 15)
Nighttime Lighting Evaluation Reports	Excel spreadsheet detailing all non-compliant lights observed, including all County-required data fields; geo-referenced map.	Within 30 days of completion of evaluation
FDEP Sea Turtle Monitoring Data Spreadsheet	All nesting survey data and reproductive success data summarized in an Excel spreadsheet.	December 31, 2018

EXHIBIT D
Indian River County Sector 3 Sea Turtle Monitoring – 2018

ECOLOGICAL ASSOCIATES, INC.
P.O. BOX 405
JENSEN BEACH, FLORIDA 34958

COST PROPOSAL – February 8, 2018

PROJECT NAME: Indian River Co. Sector 3 Sea Turtle Monitoring – 2018
(EAI Project No. 18-339)

CLIENT: Ms. Stacy E. Buck
Senior Marine Biologist
APTIM
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
Phone: (561) 361-3185 * Email: Stacy.Buck@APTIM.com

PROJECT DESCRIPTION: Daily sea turtle monitoring and related permit-compliance monitoring along approximately 9.0 miles of beach from R-24 south to R-68 in Indian River County, Florida, as described in EAI's Scope of Work dated February 8, 2018.

PROJECT DURATION: February 2018 – February 2019.

COSTS: All services will be provided at fixed cost (except where noted), as itemized below.

TASK¹	DESCRIPTION	CHARGE
1	Mobilization (re-establish survey markers, stage equipment and supplies, prepare project-specific procedures and data sheets)	\$1,105.00
2	Project management (project oversight, coordination, scheduling and reporting)	\$3,105.00
3	Post-construction sea turtle monitoring, including daily fieldwork, data entry, QA/QC, and final report (March – October 2018 ²)	\$92,096.43
4	Nest marking, monitoring, and reproductive success analysis ³	\$15,984.00
5a	Pre-season scarp survey	\$587.80
5b	Weekly scarp monitoring (March – September 2018)	\$3,365.00
6a	Nighttime lighting evaluations	\$5,030.60
6b	Post-season lighting meeting with County and agencies	\$475.00
7	FDEP permit-required sea turtle monitoring data spreadsheet and report	\$3,170.00
TOTAL COST		\$124,918.83

¹ Corresponds to numbers shown in Scope of Work, Exhibit A.

² Nesting surveys conducted after October 31, 2018 will be charged at a daily rate of \$220.00

³ Nests barricaded as Conservation Nests after September 15, 2018 will be billed at per nest rate of \$25.00.