EXECUTIVE SUMMARY

Recommendation for the TDC to approve award of Contract 10-5572 for Wiggins Pass Permitting, Modeling & Inlet Management Plan to Coastal Planning & Engineering, Inc. (CPE) as outlined in the attached CP&E proposal for time and material not to exceed $177,489.

OBJECTIVE: To award Contract 10-5572 to CP&E for time and material not to exceed $177,489.

CONSIDERATIONS: This scope of work is to support additional work on Wiggins Pass. This will include preparation of the County environmental impact statement and inlet management study; modeling and geotechnical field investigation; FDEP, Corps, Federal and state agency meetings; county representatives will develop the plan for improving navigation in the pass reducing impacts to the adjacent shoreline. The Scope of Services listed the tasks to be performed by CP&E.

Task 1. Preparation for and Attendance at Meetings……..$ 9,227
Task 2. Prepare Inlet Management Study……$ 55,374
Task 3. Prepare County Environmental Impact Statement……$ 23,065
Task 4. Modeling of Additional Alternatives……$ 39,337
Task 5. Additional Geotechnical Field Investigation……..$ 55,486

TOTAL T&M NTE……..$177,489

The RFP was publicly advertised on August 26, 2010. Email notices were sent to 800 firms with 102 vendors requesting full packages. Two responses were received by the due date of September 24, 2010. A Selection Committee was held on October 13, 2010 and after review and discussion, and by consensus of the members, two (2) firms were shortlisted in the order as follows:

1. Coastal Planning and Engineering
2. Tetra Tech, Inc.

The proposal is currently being reviewed and negotiated with CPE and the Contract will be for time and material not to exceed $177,489.

ADVISORY COMMITTEE RECOMMENDATIONS: At the CAC October 14, 2010 meeting this item was approved 5 to 1.

FISCAL IMPACT: The Source of funds is from Category “A” Tourist Development.

GROWTH MANAGEMENT IMPACT: There is no impact to the Growth Management Plan related to this action.

LEGAL CONSIDERATIONS: This item has been reviewed and approved by the County Attorney’s Office and is legally sufficient for Board action. - CMG

RECOMMENDATION: For the TDC to approve award of Contract 10-5572 for Wiggins Pass Permitting, Modeling & Inlet Management as outlined in the attached CPE proposal for time and material not to exceed $177,489.

PREPARED BY: Gail Hambright, CZM

COASTAL PLANNING & ENGINEERING, INC.

2481 NW BOCA RATON BOULEVARD, BOCA RATON, FL 33431 561-391-8102 PHONE 561-391-9116 FACSIMILE
Website: www.coastalplanning.net
E-mail: mail@coastalplanning.net

October 18, 2010

Gary McAlpin
Collier County Government
W. Harmon Turner Bldg., Suite 103
3301 E. Tamiami Trail
Naples, FL 34112

Subject: SCOPE OF WORK for PREPARATION OF INLET MANAGEMENT PLAN, COUNTY ENVIRONMENTAL IMPACT STATEMENT, ADDITIONAL MODELING AND GEOTECHNICAL INVESTIGATION FOR DESIGN, AND PERMITTING OF WIGGINS PASS IMPROVEMENTS

Dear Gary:

This is a scope of work and fee proposal to support additional work on Wiggins Pass. The scope includes preparation of a County EIS and inlet management study, modeling and geotechnical field investigation. Meetings with the FDEP, Corps, Federal and State agencies and County representatives will be conducted to develop the plan for improving navigation in the pass and reducing impacts to the adjacent shoreline. These studies and meetings will be the basis for permit responses to FDEP and the Corps request for additional information.

The cost of this task will not to exceed $177,489 invoiced as time and material.

If you have any questions regarding this scope of work, please call me.

Sincerely,

COASTAL PLANNING & ENGINEERING, INC.

Stephen Keehn, P.E.
Senior Coastal Engineer

cc: Sheri Dindial, CPE

SCOPE OF WORK for PREPARATION OF INLET MANAGEMENT PLAN, COUNTY ENVIRONMENTAL IMPACT STATEMENT, ADDITIONAL MODELING AND GEOTECHNICAL INVESTIGATION FOR DESIGN AND PERMITTING OF WIGGINS PASS IMPROVEMENTS

The enclosed scope of work describes additional tasks necessary to complete the permitting process for a new 10 year permit for Wiggins Pass. These tasks were not included in the initial Engineering and Permitting scope of work for Wiggins Pass, since they were identified following its approval. The tasks include:

Task 1. Preparation for and Attendance at Meetings	$ 9,227
Task 2. Prepare Inlet Management Study	$55,374
Task 3. Prepare County Environmental Impact Statement	$23,065
Task 4. Modeling of Additional Alternatives	$39.337
Task 5. Additional Geotechnical Field Investigation	$50,486
TOTAL T&M NTE	$177,489

This work will be based on the 1995 Inlet Management Plan prepared for Collier County (County), the recently completed Joint Coastal Permit Application (February 2010), and the Wiggins Pass Modeling Report (January 2009) for Navigation Improvements and Erosion Reduction Project for Wiggins Pass, Florida. These tasks will be incorporated into the new report and EIS, and will be the basis for responding to March 2010 RAI from the Corps and FDEP.

I. PREPARATION FOR AND ATTENDANCE AT MEETINGS

There is a need to attend meetings at FDEP with the Park Service and BBCS, and meet with agency representatives including NMFS to kick off the next phase of the project and for periodic in progress review. The number of meeting will be 2 in Tallahassee, 1 in Collier County and 2 with agency. Meeting includes preparation time.

II. PREPARE INLET MANAGEMENT STUDY

The Florida Department of Environmental Protection (FDEP) is requiring the preparation of a new inlet management STUDY as part of the permitting process as described below from Chapter 62B-41 Rules and Procedures for Application of Coastal Permits:

(m) Demonstration of consistency with adopted statewide strategic management plan, an inlet management plan or a proposed draft inlet management plan in accordance with Rule 62B-41.005(16). If not included in the inlet management plan the applicant will provide the following:
1. A description of the physical characteristics of the inlet;
2. A sediment budget for the inlet;
3. An analysis of the stability and hydraulic characteristics of the inlet including current velocities, tidal prism and current patterns of the flood and ebb tides;

4. A description of the wind and wave climate in the area of inlet influence;
5. A description of the sediment characteristics of the inlet and its related shoals;
6. The influence of existing manmade structures;
7. The current and historic shoreline erosion and accretion trends;
8. A statement of performance objectives and an analysis of the expected effect of proposed coastal construction on the coastal system and marine turtles within the inlet area of influence;
9. An analysis of available alternatives to the proposed coastal construction, including the no action alternative, on meeting the stated performance objective and any related effects on the coastal system or marine turtles; and
10. A demonstration of the anticipated public benefits of the coastal construction.

The inlet management plan will consider the intent in the new legislation that modifies how sediments are managed at navigation inlets, which may be directive in nature as it pertains to Wiggins Pass. Specific guidance from FDEP will be provided during the report preparation process. The new legislation changes Section 161.142 and 161.143 F.S.

The completed inlet modeling report, Joint Coastal Permit (JCP) application and field data collection for Wiggins Pass improvements will provide the basis for addressing the 10 requirements listed above, and will be incorporated in the final plan. The plan will also address comments received from FDEP during their site visit on March 10, 2010 and their initial request for additional information (RAI). A committee appointed by the County will review progress of the plan preparation and their decisions will be incorporated into the plan. The initial draft plan will be submitted to the County and FDEP for their comments. The FDEP's adopted plan may differ from the County's based on the State's procedures.

The goals for the Wiggins Pass navigation improvement study as developed by Collier County and the Wiggins Pass Modeling Evaluation Work Group are:

1. To provide a safe channel for boating;
2. To address erosion at Barefoot Beach;
3. To lengthen the dredge cycle and accomplish it with the least effect on the environment; and
4. To provide a solution that is economically effective.

TASK I-A. COASTAL ENGINEERING ANALYSIS

1. Data Collection & Review. This task was largely completed with the initial permit and modeling work, but a comprehensive search will be conducted to locate recent literature and data to supplement the previously developed history of recent natural and manmade modifications to the inlet and adjacent areas. Recent topographic and bathymetric data of the navigation channel and ebb and flood shoals will also be compiled. Potential data sources include FDEP and County beach and inlet profile surveys, high density LiDAR data, or other local entities including previous data collection and compilation by other

local consultants. Available aerial photography may be utilized to provide supplemental shoreline position information.

2. Shoreline Position Mapping & Change Analysis**.** The analysis of shoreline positions will provide the basis for assessing short-term and long-term shoreline change. The consultant will consider episodic sediment transport trends resulting from hurricanes, inlet modifications and beach nourishment. We will analyze and document inlet activities that have occurred since dredging began in 1984 and evaluate if those activities may have had impacts to the inlet shoreline or adjacent areas.

The consultant will use a geographic information system (GIS) approach to compile and analyze the temporal shoreline position change analyses. The GIS analysis will enable temporal and spatial comparison of FDEP historical shorelines and historical aerial photography.

For time periods where survey data are not available, shoreline changes will be estimated from the interpretation of aerial photographs. An effort will be made to collect photos in digital format. If only hard copies are available, they will be scanned and geo-rectified using GIS so that shorelines can be mapped. Special considerations will be given to short-term changes so natural and man-made responses are not minimized by averaging data.

Inlet ebb and flood shoal configurations, channel orientation and dimensions will be illustrated with available aerial photography sets. The inlet change data will be compared to beach shoreline changes to identify correlations and shoal configurations.

3. Volumetric Changes and Sediment Budget Update**.** A post-dredge sediment budget analysis will be used to describe the sediment transport pathways in the vicinity of Wiggins Pass and adjacent beaches. It will be compared to the sediment budget from the 1995 study. The sediment budget will be expanded beyond the 1-mi monitoring area north and south of the inlet.

Available wind, wave, and tidal data will be reviewed. The wave climate will be assessed in the vicinity of the project to determine the representative range of incident wave angles, wave heights, and wave periods. The intent is simply to help confirm the influences of storms and of changes in inlet and nearshore morphology on the sediment transport patterns.

The inlet area of influence will be defined and inlet impacts and solutions will be determined based on these zones. An odd-even analysis will be based on this defined region.

4. Development of Inlet Management Alternatives. The consultant will identify and describe various non-structural alternatives to improve sediment management within Wiggins Pass. No structural alternative will be considered. The alternatives will address methods to control inlet channel migration, channel modifications, dredge management

options for the navigation channel entrance, and sand distribution and bypassing to re-establish near-historic levels of sediment transport. Quantity and costs will be developed for the selected alternative that is shown to be viable. The performance of viable management options will be evaluated in Task B.

Alternatives will consist of various channel dimensions, orientations, and on-and-offshore disposal plans compared to the existing conditions.

TASK I-B. WAVE & CURRENT MEASUREMENTS, MODELING AND STABILTY CURVE

The consultant has previously deployed two acoustic Doppler current profilers (ADCPs) in the study area for a period of one month. The tide height, current and wave information collected from this deployment was used to calibrate the Delft-3D model determining effects such as wave damping and wave transformation as waves approach the nearshore. The results of field data collection and modeling will be described and illustrated in the plan per items 1 and 4 above. The measured wave, current and water level data will also be delivered in raw and processed (time series) formats on a CD-ROM. Survey data was collected during the wave measurement programs, and will be used to develop an updated stability curve for the inlet which will be compared to the historic curve developed in the 1995 plan. The results of the modeling (including Task IV) will be summarized and illustrated in the modeling section.

TASK I-C. IMP COORDINATION AND MEETING

1. Project Administration. The consultant will attend meetings with FDEP, the Coastal Advisory Committee (CAC) and its Sub-committee on Wiggins Pass, and assist with formulating a plan acceptable to a broad range of local and state interests. Coordination with FDEP Bureau of Beaches and Coastal Systems (BBCS) will be maintained throughout the process in order to solicit their comments if they do not attend the meetings.

It is assumed that the consultant will attend up to three (3) Committee and Sub-committee meetings of the CAC, to be held in Naples. The consultant will prepare meeting exhibits and other project documentation. The consultant will attend the meetings and assist the County with communications with key stakeholders and development of the County's plan.

TASK I-D. ENVIRONMENTAL EFFECTS OF PROPOSED CONSTRUCTION

1. Environmental Section. Previously obtained information will be incorporated into an environmental section describing the effects of the proposed construction on the coastal system and sea turtles.

2. Natural Resources Map. A map of natural resources in the project area compared to the project layout will be updated for inclusion in the report.

TASK I-E. PREPARATION OF UPDATED INLET MANAGEMENT PLAN

1. Preparation of Draft Report. The consultant will prepare a draft IMP based on the coastal engineering analysis, updated sediment budget and numerical modeling results of management alternatives. The report will summarize the construction quantities and estimated costs as well as the impact on adjacent beaches, channel shoaling and maintenance requirements. The consultant will also summarize potential environmental issues that may affect the permitting of inlet modifications. Based on the results of the investigations, the consultant will recommend a modified inlet and beach sediment management approach. The draft of the IMP will be submitted to the County and the FDEP for review and comment.

2. Preparation of Final Report. Based on County, State, Federal and public comments, a final updated Inlet Management Plan will be prepared. Five (5) printed copies and digital CD-ROM copies of the final report will be provided to the County and FDEP. Pertinent comments provided during the permit process will be integrated into the plan.

III. PREPARE COUNTY ENVIRONMENTAL IMPACT STATEMENT

According to Collier County Land Development Code (LDC) 10.02.02A, an Environmental Impact Statement (EIS) must be prepared in support of a Special Treatment Permit approval. Special Treatment (ST) Overlays (LDC 02.03.07) are areas within the County which, "because of their unique assemblages of flora and/or fauna, their aesthetic appeal, historic or archeological significance, rarity in the County, or their contribution to their own and adjacent ecosystems, make them worthy of special regulations." Such areas include mangrove and freshwater swamps, barrier islands, hardwood hammocks, and coastal beaches, all of which fall within the Wiggins Pass project vicinity. The purpose of the ST is to assure the preservation and maintenance of these resources. An EIS provides a method to objectively evaluate the impact of a proposed project upon these resources and environmental quality of the project area. An EIS will be prepared for this project according to the requirements listed in LDC 10.02.02A. The EIS will require the preparation of special maps, ecological analysis and engineering calculations to supplement information already prepared for the JCP permit application. The EIS will incorporate the new and existing information into the County EIS format the consultant will attend up to two (2) meetings to discuss and present the result of the EIS.

IV. MODELING OF ADDITIONAL ALTERANTIVES

Based on guidance from Mr. Robert Brantley (FDEP) during his field visit on March 10, 2010, the restoration of a fully developed ebb shoal may be required under the new Florida Statute regarding inlets, which would have to be built by direct placement of sand. There is a concern that the inlet will not perform acceptably without a fully developed ebb shoal with the initial construction. This alternative can have a significant cost for the County over the selected alternative, since it may contribute to frequent

dredging to implement the project. These concerns can be evaluated by additional long-term model runs (8-10 years) comparing four (4) alternatives using the same matrix comparison method developed in the January 2009 modeling report. This task includes an analysis of the following:

1. The 1970's pre-dredge inlet conditions without channel;
2. 1970's pre-dredge inlet conditions with channel;
3. The selected alternative with dredging at 4-year intervals and indirect ebb shoal construction; and
4. An alternative that directly rebuilds the ebb shoal in one construction project.

RAI #1 from FDEP mandated that all alternatives must avoid or minimize the potential for adverse impact on the coastal system. This concern will be evaluated by additional medium-term model runs (4 years) comparing three (3) requested alternatives using the same matrix comparison methods developed in the January 2009 modeling report. The alternatives include an analysis of the following:

1. Avoid dredging limestone, peat, or clay substrata;
2. Avoid deflation of the ebb shoal; and
3. Avoid loss of shorebird habitat on Wiggins Pass State Park.

A tri-dimensional morphological model will be used to evaluate and compare project alternatives. The model will be calibrated to measured waves, currents and inlet and beach morphological changes as determined from Wiggins Pass monitoring data and ADCP deployments. Multi-year wave climates will be schematized from Wavewatch III Hindcast Data or similar data sources. Schematized wave data will be combined with tide and wind forcings and the coupling between waves, flow, sediment transport and morphology will occur in real time, at every hydrodynamic timestep. The morphological model will include multiple sediment fractions to account for sediment heterogeneity that occurs in the project area where coarser sand are found in many sections of the navigation channel and finer sand is found on adjacent beaches. The alternatives will be refined based on the result of meetings described in task 1.

TASK V. ADDITIONAL GEOTECHNICAL FIELD INVESTIGATION

As part of a 2009 field investigation conducted in support of the Wiggins Pass Improvement Project, previously compiled geotechnical data as well as newly collected vibracore and jetprobe data was compiled and analyzed. The Florida Department of Environmental Protection (FDEP) requested that additional geotechnical data be collected to determine whether geology is the key factor controlling the position of the channel within Wiggins Pass. This scope of services includes the collection and analysis of these additional cores. Twelve (12) vibracores will be collected and analyzed. The 12 core locations were reviewed by FDEP (See Jenifer Koch May 25, 2010 attached E-mail) and their location is provide in the attached drawing. This scope also includes the analysis of a dozen surface grab samples to characterize surficial sediment on the

adjacent shoreline and shoals. This new data, along with the previously assessed data, will be used to develop a geologic description of Wiggins Pass.

PHASE 1: ADMINISTRATION/ PLANNING

Previously compiled geotechnical data will be re-evaluated and analyzed in a GIS (Geographical Information System) framework in order to provide background information in addition to the recent findings of the 2009 vibracore and jetprobe investigations. The information gathered during Task 2 will be used to refine the vibracore plan the consultant will coordinate with the FDEP as necessary.

Prior to conducting the field operations a permit/de minimus exemption must be obtained. In order to do this, a Joint Environmental Resource Permit Application (ERP) application must be submitted to the Florida Department of Environmental Protection for review. This application requires a general project description and a map outlining the area of deployment. The Agency has ninety (90) days to review the permit application. The application is also forwarded to the Bureau of Survey and Mapping, Division of State Lands for title determination. Existing easements must be avoided during deployment or title holders must be notified of the proposed activity. The ERP application is also forwarded to the United States Army Corps of Engineers (USACE), Florida Division of Historical Resources (SHPO) and to Fish and Wildlife Services (FWS) for review and comment. The consultant will apply for the necessary permits. The consultant will complete and submit the required forms, as well as coordinate with the regulatory agencies.

PHASE 2: GEOTECHNICAL SURVEY

The geotechnical survey includes vibracoring to investigate potential geologic controls on the position of the Wiggins Pass channel and to better define the sediments to be dredged. Twelve (12) vibracores will be collected using the equipment and methods described below. A preliminary Vibracore plan was approved by FDEP on May 25 2010, but it should be revisited with FDEP before coring occurs.

Geotechnical Survey Equipment

Vibracoring

A Rossfelder P3 Vibracore, or equivalent, configured to collect undisturbed sediment cores up to 20 feet in length, will be used for this project. This self-contained, freestanding electronic vibracore unit contains a vibratory hammer assembly, an aluminum beam which acts as the vertical beam upright on the seafloor, an aluminum coring pipe, and a cutting edge. If recovery is less than 80% of the expected total penetration, the sampled portion of the pipe will be removed, a new core pipe attached, and a jet pump hose will be attached just below the vibracore head. After lowering the rig to the bottom and jetting to one (1) or two (2) feet above the refusal depth, the jet will be turned off and the vibrator turned on in order to attempt to collect the remaining core.

At each core location a vibracore will be taken. If field measurements indicate that less than 80% recovery has been achieved, then up to two additional cores will be taken, or a hydraulic jetting technique will be used to facilitate sampling below previously retained material. In the event a jet is used, the recovery of the original vibracore and additional vibracore sections will be combined to determine total recovery. Should the above procedures not result in 80% or more recovery, then this drilling effort will be considered a completed core for purposes of payment under this contract.

Geotechnical Data Analysis

Sediment Sample Analysis

Upon completion of field operations, all vibracores will be transported to a lab. There, the vibracores will be logged by describing sedimentary properties by layer in terms of layer thickness, color, texture (grain size), composition and presence of clay, silt, gravel, or shells and any other identifying features. The vibracores will be photographed in 2.0 ft intervals. Sediment samples will be extracted from the vibracores at irregular intervals based on distinct stratigraphic layers in the sediment sequence. The relative strength of the clay will be assessed on a method to be determined. The vibracores will then be wrapped and archived. Cores will be stored for a period of up to one (1) year. After this time, cores will either be relinquished to the client or stored for an additional annual cost of $25 per core.

Mechanical Sieve Analysis

The sediment samples (vibracore samples and grab samples) will be analyzed to determine color and grain size distribution. During sieve analysis, any obvious uncharacteristically large fragments (such as whole shell or large shell fragments) will be removed and the description (weight and size) of the material will be noted. The wet, dry and washed Munsell colors will be noted. Sieve analysis of the sediment samples will be performed in accordance with the American Society for Testing and Materials (ASTM) Standard Methods Designation D 422-63 for particle size analysis of soils. This method covers the quantitative determination of the distribution of sand size particles. For sediment finer than the No. 230 sieve (4.0 phi) the ASTM Standard Test Method, Designation D 1140-00 will be followed. The sieve stack used for mechanical analysis will conform to the BBCS guidelines provided in Table 1.

Table 1. *Mesh sizes to be used for granularmetric analysis.*

Sieve No.	Size (phi)	Size (mm)
3/4	-4.25	19.00
5/8	-4.0	16.00
7/16	-3.5	11.20
5/16	-3.0	8.00
3 ½	-2.5	5.60
4	-2.25	4.75
5	-2.0	4.00
7	-1.5	2.80
10	-1.0	2.00
14	-0.5	1.40
18	0.0	1.00
25	0.5	0.71
35	1.0	0.50
45	1.5	0.36
60	2.0	0.25
80	2.5	0.18
120	3.0	0.13
170	3.5	0.09
200	3.75	0.08
230	4.0	0.06

Weights retained on each sieve will be recorded cumulatively. Grain size results will be entered into the gINT® software program, which computes the mean and median grain size, sorting, silt/clay percentages for each sample using the moment method.

Carbonate Testing

Approximately half of the samples extracted from the vibracores will be tested for carbonate content. Carbonate content will be determined by percent weight using the acid leaching methodology described in Twenhofel, W.H. and Tyler, S.A., 1941. Methods of Study of Sediments. New York: McGraw-Hill, 183p. Samples representing material above the proposed channel cut depth will also be extracted from the cores previously collected by the consultant in 2009. These samples will also be tested for carbonate content.

PHASE 3: PRODUCT AND REPORT DEVELOPMENT

A final report summarizing the results of this vibracore investigation and discussing the geology of Wiggins Pass will be prepared and submitted to the FDEP and Collier County. This report will include project results, including vibracore logs, vibracore photographs, granularmetric reports and grain size distribution curves. The report will address FDEP's RAI questions from their March24, 2010 letter and the May 4, 2010 meeting. The report

will also include figures showing the estimated distribution of sand, organics, clay, rock substrate and silty material suitable to address FDEP questions and develop a dredging plan.

The consultant will provide geotechnical information in an electronic format suitable for input to the FDEP Reconnaissance Offshore Sand Search (ROSS) database as required by the FDEP. The data will be submitted in Access or gINT files.

The Wiggins Pass Geotechnical Investigation will be conducted to the industry standard of care and will coordinate the investigations with FDEP as required.

V. CONSTRUCTION SERVICES:

TBD: Plans, specification, construction observations, surveys, post-construction report and certification.

WIGGINS PASS INLET MANAGEMENT STUDY, COUNTY ENVIRONMENTAL IMPACT STATEMENT, MODELING AND GEOTECHNCIAL INVESTIGATION
FEE PROPOSAL FOR COASTAL ENGINEERING / ECOLOGICAL SERVICES COLLIER COUNTY, FL.
Modeled after Contract No. 09-5262 Rates

		LABOR COST															DIRECT COST			
TASK		Project Manager (Hours)	Senior Coastal Engineer (Hours)	Senior Inspector CE (Hours)	Planner - Coastal Modeler (Hours)	Junior Modeler# (Hours)	Admin. Intern (Hours)	Senior Inspector - (Hours)	Junior Inspector (Hours)	Planner - Mapper (Hours)	Designer-Geo. (Hours)	Environ-mental Specialist (Hours)	Designer-Ecologist (Hours)	Inspector (Hours)	GIS Specialist (Hours)	Admin Assist. (Hours)	Lodging & Per Diem	Car (Miles)	Model	Expenses
I. PREPARATION FOR AND ATTENDANCE AT MEETINGS																				
MEETING PREPARTION AND ATTENDACE WITH PERMIT AGENCIES IN TALLAHASSEE			16	1						8						2			Travel	$1,600
MEETING PREPARATION AND ATTENDANCE IN COLLIER COUNTY			21	4												2		750		$9
T&M NTE	**9,227**																			
II. PREPARE INLET MANAGEMENT STUDY																				
A. COASTAL ENGINEERING ANALYSIS		1	16	44										4		2				
B. WAVE, CURRENT & MODELING DESCRIPTION, AND STABILITY CURVE			36	60				14	6		12				8	2				
C. IMP COORDINATION AND MEETINGS			60	10												10	4	1000		$70
D. ENVIRONMENTAL EFFECTS OF CONSTRUCTION			2	6				2				20	12	2						
E. PREPARATION OF INLET MANAGEMENT PLAN																				
i. DRAFT		2	20	48				4				14	8	2	8	18	1			$800
ii. FINAL			8	32											2	8				
T&M NTE	**55,374**																			
III. PREPARE COUNTY ENVIRONMENTAL IMPACT STATEMENT																				
MAPPING, GRAPHICS AND ADMIN		1	8					12		3		31		24	2	4				
PROJ. DESC., SLR ANALYSIS, AND DRAINAGE FLOW			8	20								2				4				
NATIVE VEG., GROWTH & WATER MANAGEMENT AND ARCHAEOLOGY			2					2		2		48				4				
PREPARE FOR AND ATTEND COMMITTEE MEETINGS			8	8								16	4		1	2	2	500		$15
T&M NTE	**23,065**																			
IV. MODELING OF ADDITIONAL ALTERNATIVES																				
SET UP AND RUN MODEL - UP TO 7 ALTERNATIVES		1	8	16	20	68	216								5				Model	$300
REPORT PREPARATION AND REVIEWS			16	20	24	32	40			20					4	16	1	250		$100
T&M NTE	**39,337**																			
V. ADDITIONAL GEOTECHNICAL FIEDL INVESTIGATION (12 vc)																				
ADMINISTRATION AND PLANNING			2							20										
GEOTECHNICAL FIELD INVESATION																				
Mobilization / Demobilization								8									3	250		
Vibracoring and Grab Sampling								52											VC -Contractor	$18,500
OFFICE AND LABORATORY ANALYSIS								80	44										Sieve Analysis	$4,500
Carbonate testing								4											Carbonate Testin	$2,550
PRODUCT AND REROT DEVELOPMENT		2	2							20	40									
T&M NTE	**50,486**																			
Total Labor Hours		7	233	269	44	100	256	178	50	73	52	131	24	32	30	74	11	2750	0	$28,444
Labor Rate		$148.00	$155.00	$85.00	$110.00	$75.00	$60.00	$85.00	$65.00	$110.00	$100.00	$115.00	$100.00	$65.00	$100.00	$60.00	$136	$0.45	1	1
Labor Cost		$1,036	$36,115	$22,865	$4,840	$7,500	$15,360	$15,130	$3,250	$8,030	$5,200	$15,065	$2,400	$2,080	$3,000	$4,440	1496.0	1237.5	0.0	$28,444
TOTAL LABOR COST		**$146,311**																		
TOTAL DIREFCT COST		**$31,178**																		
TOTAL COST ALL TASKS		**$177,489**																		

Note: # Junior Modeler is a new rate requested as part of the is proposal .