**Sea Diversified, Inc.**

151 N.W. 1st Avenue
Delray Beach, Florida 33444
Phone: 561-243-4920
Facsimile: 561-243-4957

1900 S. Harbor City Blvd, Ste 110
Melbourne, Florida 32901
Phone: 321-984-7268
Facsimile: 321-984-7270

April 4, 2018

Mr. James Nelson, Jr., P.E.
City Engineer
City of Daytona Beach
950 Bellevue Avenue
Daytona Beach, FL 32114

*Sent via electronic mail 04/05/2018*
*(NelsonJames@CODB.US)*

**Re: Cover Memo for Proposal for Professional Services**
**As-Built / General Condition Survey**
**Main Street Ocean Pier**
**City of Daytona Beach, Florida**
**Sea Diversified P.N.: 18-2675**
**Contract No.: 2006-21**
**Work Authorization No.: 8**

Dear Mr. Jim Nelson:

Please find enclosed scope of work and agreement to provide professional surveying services to the City of Daytona Beach. The following attachments will accompany this proposal for professional services:

- Scope of Work
- Cost Breakdown
- Sub-consultant's Scope of Work and Fee Proposal

The Scope of Work shall briefly include an updated As-Built / General Condition survey of the Main Street Pier in Daytona Beach, Florida. Surveys shall include, but not limited to:

- Locations of Pier Deck including Above-Deck Fixed Features
- Locations of Pier Support Pilings
- Locations of Below-Deck Structural Members
- Pile Embedment Depths (Test Event)

The following quotes will be effective for ninety (90) days from date of proposal, and issued under Work Authorization No. 8 issued pursuant to Contract No. 2006-21 in accordance with the attached proposal dated 03/29/2018, for a lump sum $59,867.20. Work will be accepted by issuance of a PO.

Should you have questions or require additional information please do not hesitate to contact us at your convenience. We appreciate this opportunity to assist you with this project and look forward to hearing from you soon.

Best Regards,

**William T. Sadler Jr., P.E., P.S.M.**
**President**
**Sea Diversified, Inc.**

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March 29, 2018
*(Original March 19, 2018)*

Mr. James Nelson, Jr., P.E.
City Engineer
City of Daytona Beach
950 Bellevue Avenue
Daytona Beach, FL 32114

*Sent via electronic mail 03/30/2018*
*(NelsonJames@CODB.US)*

**Re: Proposal for Professional Services**
**As-Built / General Condition Survey**
**Main Street Ocean Pier**
**City of Daytona Beach, Florida**
**Sea Diversified P.N. 18-2675**

Dear Mr. Jim Nelson:

Sea Diversified, Inc. (SDI) is pleased to provide the following proposal for professional services pertaining to the referenced project. The scope of work shall encompass an updated As-Built / General Condition survey of the Main Street Pier in Daytona Beach, Florida. The survey scope of work and fee estimate shall be in accordance with your e-mail requests on February 23, 2018 and the previous "2010 Condition Survey" conducted by SDI, which is summarized as follows:

**General:**
SDI shall provide supervision, field / office support staff and equipment to perform the scope of work described, herewith. All work shall be conducted to the highest level of industry standards and under the responsible charge of a Professional Surveyor and Mapper registered in the State of Florida. All work shall meet or exceed the Standards of Practice (Standards) set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 5J-17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes. If time permits, deviations from the scope of work shall be addressed via formal approved addendum to the executed Agreement for Professional Services.

**Horizontal and Vertical Data:**

| | |
|---|---|
| Horizontal Data: | Feet, relative to the Florida State Plane Coordinate System, East Zone, North American Datum, 1983 (NAD83) |
| Vertical Datum: | Feet, relative to North American Vertical Datum of 1988 (NAVD88) |

**Horizontal / Vertical Control Verification:**
SDI will conduct an initial site reconnaissance to identify and mark all necessary horizontal and vertical control needed for the survey. Prior to data collection efforts, survey control will be recovered and verified using either conventional methods or Real-Time Kinematic (RTK) Differential Global Positioning techniques, whichever methodology is deemed most practical.

**Topographic Condition Survey of Ocean Pier**
SDI will conduct topographic data collection of current conditions of the requested areas described below. The survey shall be conducted utilizing "conventional angle-distance/level-rod methods and/or a combination of conventional Real-Time Kinematic (RTK) Differential Global Positioning (DGPS) techniques, whichever methodology is deemed most practical.

**Task I: Pier Deck including Above-Deck Fixed Features**

- Location, dimensions and elevations of the pier deck surface
- Location and dimensions of buildings and other fixed structures
- Location of fixed pier appurtenances such as railings, benches and trash receptacles
- Location all above-deck and exposed utilities and light features

**Deliverables:** Survey map (plan view) certified by a Professional Surveyor and Mapper. Map shall be provided in both hardcopy and electronic (AutoCAD, .dwg) formats.

**Task II: Pier Support Pilings**

- Location & approximate size of all pier support piles (at or around bottom of deck elevation)
- Location and ground elevation of each pile at approximate sand interface
- Approximate embedment depth of each pile from the sand interface
- General condition of each pile noted

**Deliverables:** Survey map (plan view) certified by a Professional Surveyor and Mapper depicting location of piles relative to the outline of the pier deck. Map shall include a tabulation of the piles that shall include a pile number, type, size, ground elevation at sand interface, general condition, and pile embedment depth (as requested). SDI shall also prepare a contour map based upon the elevations obtained as part of this task. The contour map shall specifically identify the location of the Mean High Water Line (MHWL) based upon the elevation of MHW provided by the Florida Department of Environmental Protection (FDEP). This map shall be certified as a Hydrographic / Topographic Survey. Maps shall be provided in both hardcopy and electronic (AutoCAD, .dwg) formats.

**Task III: Below-Deck Structural Members**

- Cross bracing (horizontal) - horizontal and vertical location, size, visual appearance
- Cross bracing (X-bracing) - horizontal and vertical location, size, visual appearance
- Stringers - number, spacing, size, visual appearance

**Deliverables:** Survey map (plan view) and certified by a Professional Surveyor and Mapper depicting location of the below-deck structural components. SDI shall also prepare typical section details of pile bents depicting horizontal and diagonal bracing, stringers and non-structural components. Maps shall be provided in both hardcopy and electronic (AutoCAD, .dwg) formats. A report of findings encompassing photographic documentation of the below deck components will be prepared and submitted along with the survey maps.

*Note: This scope of work does not include the mapping of below-deck utility infrastructure such as water lines, sewer lines, fire lines and electrical conduit.*

**Task IV: Pile Embedment Depths (Test Event)**

- Location and ground elevation of each pile at approximate sand interface
- Approximate embedment depth of each pile from the sand interface **conducted by GRL Engineers*
- General condition of each pile noted

**Deliverables:** Survey map (plan view) and certified by a Professional Surveyor and Mapper depicting location and approximate embedment depth. Maps shall be provided in both hardcopy and electronic (AutoCAD, .dwg) formats. A report of findings will be prepared and submitted along with the survey maps.

*Note: Due to the limitations of pile dynamic testing, SDI recommends a "Test Event" to determine quality and quantity of results in the suggested low-strain pile Integrity Testing (PIT) method. PITs shall be conducted by GRL Engineers, as sub-contractor to SDI. Rate includes a one (1) day "Test" event including sub-contractor, mobilization/demobilization, data collection, and deliverables. Upon determination of effectiveness and results, SDI shall prepare an addendum to this Scope of Work to test the remaining relevant pile depths.*

**Cost:**

| | | |
|---|---|---|
| **Task I:** | **Pier deck including above deck fixed features:** | **$ 16,699.20 Lump Sum** |
| **Task II:** | **Pier support pilings** | **$ 17,136.00 Lump Sum** |
| **Task III:** | **Below-Deck Structural Members** | **$ 20,686.40 Lump Sum** |
| **Task IV:** | **Pile Embedment Depths (Test Event)** | **$ 5,245.60 Lump Sum** |

Should you have questions or require additional information please do not hesitate to contact us at your convenience. We appreciate this opportunity to assist you with this project and look forward to hearing from you soon.

Best Regards,

**William T. Sadler Jr., P.E., P.S.M.**
**President**
**Sea Diversified, Inc.**

Cost Breakdown
Sea Diversified, Inc.
Daytona Main Street Pier Asbuilt / Topographic Survey
SDI P.N. 18-2675
March 29, 2018

## Part I: Pier Deck - Mapping of Above-Deck Features

| Description | Reg Hours | Rate Raw | Rate Loaded | Unit | Total |
|---|---|---|---|---|---|
| 2-Person GPS Survey Crew | 72 | $52.50 | $147.00 | CH | $10,584.00 |
| CAD Technician | 32 | $30.00 | $84.00 | PH | $2,688.00 |
| Survey Technician | 16 | $27.00 | $75.60 | PH | $1,209.60 |
| Professional Surveyor and Mapper | 16 | $37.00 | $103.60 | PH | $1,657.60 |
| Sr. Project Manager | 4 | $50.00 | $140.00 | PH | $560.00 |
| **Total Cost:** | | | | | **$16,699.20** |

## Part II: Mapping of Pier Support Piles

| Description | Reg Hours | Rate Raw | Rate Loaded | Unit | Total |
|---|---|---|---|---|---|
| 3-Person Topographic Survey Crew | 48 | $37.00 | $103.60 | CH | $4,972.80 |
| 2-Person GPS Survey Crew | 8 | $52.50 | $147.00 | CH | $1,176.00 |
| 3-Person Hydrographic Survey Crew | 24 | $80.00 | $224.00 | CH | $5,376.00 |
| CAD Technician | 32 | $30.00 | $84.00 | PH | $2,688.00 |
| Survey Technician | 24 | $27.00 | $75.60 | PH | $1,814.40 |
| Professional Surveyor and Mapper | 8 | $37.00 | $103.60 | PH | $828.80 |
| Sr. Project Manager | 2 | $50.00 | $140.00 | PH | $280.00 |
| **Total Cost:** | | | | | **$17,136.00** |

## Part III: Mapping of Below-Deck Structural Members

| Description | Reg Hours | Rate Raw | Rate Loaded | Unit | Total |
|---|---|---|---|---|---|
| 3-Person Topographic Survey Crew | 84 | $37.00 | $103.60 | CH | $8,702.40 |
| 2-Person GPS Survey Crew | 24 | $52.50 | $147.00 | CH | $3,528.00 |
| CAD Technician | 24 | $30.00 | $84.00 | PH | $2,016.00 |
| Survey Technician | 24 | $27.00 | $75.60 | PH | $1,814.40 |
| Professional Surveyor and Mapper | 16 | $37.00 | $103.60 | PH | $1,657.60 |
| Project Architect/Engineer | 24 | $40.00 | $112.00 | PH | $2,688.00 |
| Sr. Project Manager | 2 | $50.00 | $140.00 | PH | $280.00 |
| **Total Cost:** | | | | | **$20,686.40** |

## Part IV: Pile Embedment Depths (Test Event)

| Description | Reg Hours | Rate Raw | Rate Loaded | Unit | Total |
|---|---|---|---|---|---|
| 3-Person Topographic Survey Crew | 8 | $37.00 | $103.60 | CH | $828.80 |
| Survey Technician | 16 | $27.00 | $75.60 | PH | $1,209.60 |
| Professional Surveyor and Mapper | 2 | $37.00 | $103.60 | PH | $207.20 |
| GRL Engineering PIT Crew | | | | LS | $3,000.00 |
| **Total Cost:** | | | | | **$5,245.60** |

| | |
|---|---|
| **Expenses (24"x26" plots)** | **$100.00** |
| | **$59,867.20** |

Note: Loaded Rate = Raw Labor Rate x 2.8 multiplier
3/30/2018

GRL engineers, inc.
Dynamic Measurements and Analyses

March 29, 2018

Mr. Mike Donovan
Sea Diversified, Inc.
1900 S. Harbor City Blvd, #110
Melbourne, FL 32901

Dear Mr. Donovan,

As requested, the following is our proposal for dynamic low-strain Pile Integrity Testing (P.I.T.) for the purpose of possibly assessing unknown lengths of timber piles supporting the Daytona Pier.

The piles that do not have jackets can possibly be tested with the low-strain Pile Integrity Testing (P.I,T.) method. Testing of in-service timber piles is an extension of the conventional use of the method, and can possibly be utilized for evaluation of in-place pile length within the capability and limitations of the method). Please note that there is always the possibility of inconclusive results, which should be considered before authorizing the work. Testing is performed by attaching sensors to the pile (typically two sensors, one at the pile top and another along its length at least 6 feet below pile top) and applying low-strain impacts with hand-held hammers to the pile top. The resulting data is evaluated for assessment of stresswave reflections and calculations of approximate in-place pile length. Depending on data quality, characteristics, and complexity, testing may yield good results, or the test may be inconclusive. In any event, with good usable data, the results should be expected to be within about 10% accuracy due to the natural variability of material properties. We will utilize our experience and expertise to obtain the data and perform the analyses.

To perform the test, we will need provided to us means to safely and conveniently access the very pile tops and sides for instrumentation, hand-held hammer impacts and test performance.

Our suggestion is to spend a day on site and try to do as much P.I.T. testing as possible depending on piles access and see if the data is useful (provided with good access, we can test 10 to 15 piles in a day on site). Our charge for one day on site (engineer and P.I.T. equipment), data analyses, and report of P.I.T. results will be $ 3,000.00.

Please let us know if you have any questions or comments, or if we may be of service.

Regards,

Brian Mondello

Brian Mondello, P.E.
GRL Senior Engineer