

DUNKELBERGER
engineering & testing, inc.

A Terracon COMPANY

August 19, 2015

City of Fort Pierce
100 North U.S. Highway 1
P.O. Box 1480
Fort Pierce, FL 34954

Attn: Mr. Jack Andrews, P.E.
P: (772) 460-2200
E: jandrews@city-ftpierce.com

RE: **Proposal for Materials Testing & Pile Driving Inspection Services**
Indian Hills Recreation Area - Phase II
Fort Pierce (St. Lucie County), Florida
Terracon Proposal No.: PHB150130

Dear Mr. Andrews:

Dunkelberger Engineering & Testing, Inc., A Terracon Company (**Terracon**) appreciates the opportunity to submit this proposal to conduct Materials Testing and Pile Driving Inspection Services at the above site. We at Terracon would be honored to be part of your construction team in building this project.

This proposal outlines our understanding of the project based on the information that has been reviewed, and provides a cost estimate for our materials testing services. The following items highlight the attributes and strengths that the **Terracon Team** brings to this project:

- **Reporting** – Terracon created its Construction Materials Engineering and Lab Management System (CMELMS™) to comprehensively manage the data that will be created during the project.
- **Geotechnical Knowledge** – Terracon performed the geotechnical investigation for this site and on various sites in the general vicinity of this project. We are very familiar with the local soil and groundwater conditions. Any soils or groundwater related issue can be quickly addressed by our geotechnical engineers.
- **Safety** – Safety plays a major role in providing quality work, regardless of the type or nature of the project. At Terracon, we all have a personal and uncompromising commitment to everyone going home safely each and every day. Our safety program, *Incident and Injury Free®* is about care and concern for people. It is our personal and organizational commitment at all levels of the company and is where safety is held as a core value as well as an operational priority.



Dunkelberger Engineering & Testing, Inc. A Terracon Company 607 NW Commodity Cove Port St. Lucie, Florida 34986
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Geotechnical ■ Environmental ■ Construction Materials ■ Facilities



A. PROJECT INFORMATION

The project will feature the Phase II site improvements to the Indian Hills Recreation Area. We understand the project will include the construction of 5 pedestrian bridges; an observation pier; a boardwalk and floating dock; 3 pavilion shelters; 3 exercise areas; stabilized walking paths; installation of underground storm drainage; a pervious paver driveway and parking area; concrete sidewalks and curbing; asphalt milling and overlay of the existing entrance road; and other incidental construction (fencing and landscaping).

Site Information

ITEM	DESCRIPTION
Location	US Highway 1 and CR 707 in Fort Pierce (St. Lucie County), Florida
Civil Engineer	Kimley-Horn and Associates, Inc. – Vero Beach, Florida
Geotechnical Engineer	Dunkelberger Engineering & Testing, Inc., A Terracon Company - Port St. Lucie, Florida
Construction Schedule	Not provided

Project Description

ITEM	DESCRIPTION
Site Improvements	The site is currently a recreation area with a large storm water retention lake. The Phase II site improvements will include the construction of 5 pedestrian bridges; an observation pier; a boardwalk and floating dock; 3 pavilion shelters; 3 exercise areas; stabilized walking paths; installation of underground storm drainage; a pervious paver driveway and parking area; concrete sidewalks and curbing; asphalt milling and overlay of the existing entrance road; and other incidental construction (fencing and landscaping).

Should any of the above information or assumptions be inconsistent with the planned construction, we request the opportunity to review this proposal and modify it accordingly for re-submittal to your attention.

B. SCOPE OF SERVICES

We propose to provide field and laboratory materials testing services for the sitework construction. A general scope of our services is outlined on the following page.

Earthwork Observation & Materials Testing

We will provide a qualified engineering technician to perform earthwork observations, materials sampling and testing. For this work, we estimate 18 trips for earthwork observations and density testing at 3 hours per trip.

- The earthwork technician will conduct general observations of proof-rolling the subgrade soils prior to fill and/or aggregate placement. The technician will also collect samples of the borrow fill material and/or aggregates used during construction for laboratory testing.
- In-place density testing will be performed in the mass grading fill during the site work. In accordance with the project specifications, density testing will be performed with a nuclear density gauge to provide instantaneous test results.
- In-place density testing of the backfill during of the installation of rigid and flexible underground pipelines. In-place density testing during earthwork will be performed at a frequency of at least one (1) density test for each 1-foot of fill placed around underground structures and for each 1-foot of fill placed every 200 lineal feet for pipe backfill.
- In-place density testing on the compacted subgrade (building pads, sidewalks and hardscape areas) and pavement components (stabilized subgrade and aggregate base course).
- Laboratory testing on the materials used for pipe backfill, subgrade, and aggregate base course will be performed including moisture-density relationship tests (AASHTO T-180/T-99 Proctors), sieve analysis tests and organic content tests.

Concrete Sampling & Testing

This work includes a qualified concrete technician to be on-site to perform the quality control sampling and testing. For this work, we estimate 4 concrete placements at 3 hours per concrete pour.

- Field testing during of the concrete construction concrete pavement areas (pavilion pads, sidewalk, and curb). This includes sampling, slump testing, molding, transporting, curing and laboratory testing to determine compressive strength of the concrete used for the construction.
- Concrete will generally be sampled at a frequency of one set of test cylinders per 50 cubic yards placed or portion thereof per day. We have estimated field sampling and testing for a total of four (4) concrete placements.

- Laboratory testing of hardened concrete specimens to determine compressive strength of the cured concrete will be performed on the samples obtained during construction.

Pile Driving Inspection

We will provide a pile driving inspector to perform construction observations during the timber pile installation for the pedestrian bridges, observation pier, boardwalk and floating dock. We understand that there are a total of 90 timber piles installed for the Phase II construction. For this work, we estimate 20 days of pile driving inspection at 8 hours per day.

- The pile driving inspector will monitor the pile driving operation on a full time basis to observe that the piles are installed in accordance with the referenced plans and specifications.
- The pile driving inspector will prepare an individual log for each pile that will include but was not limited to: pile number / location, pile type and cross section dimensions, length of pile section, date driven, pile hammer used, driving resistance experienced for each foot of penetration or fraction thereof at the minimum tip elevation and at final tip elevation.
- A summary report will also be prepared that will summarize the pile installation.

Engineering and Reporting

Materials testing and pile driving inspection services involves engineering oversight during the construction to coordinate the materials testing program, engineering review and reporting of the test results, and consultation, if needed.

Our services will be provided on an as-needed basis as dictated by the pace and methods of construction. For scheduling purposes, we normally request at least 24-hour notice prior to the time the field services are needed.

A detailed *Materials Testing & Pile Driving Inspection Estimate* is attached to this proposal as *Exhibit A*. **Should any of these items be incorrect or not applicable, please notify us and the proposal will be modified accordingly.** Additionally, Terracon provides a full range of specialty services such as Facilities Engineering should the project need arise.

We recommend that the scope of work described in the attached *Exhibit A - Materials Testing & Pile Driving Inspection Estimate* be provided to the person(s) who will be responsible for scheduling our services so that they are aware of the services that are proposed. We would also be pleased to meet with the responsible party and go over our scope of services.

Our services specifically exclude job site safety responsibility and our services do not relieve any contractor/subcontractor from complying with project specifications. If you would like us to perform any additional work, please contact us and we will issue a short Supplement to Agreement form or Supplement Proposal that outlines the additional work to be performed and associated fees.

C. REPORTING

Documentation is critical to the success of any testing and inspection project. The quality of our testing and inspection work is only valuable if the field personnel keep proper documentation of their visual observations, direct measurements/tests, photographic documentation, field notes, and information is properly reviewed by a Professional Engineer, and the information is distributed to the Owner/Design/Construction team timely.

Terracon created its Construction Materials Engineering and Lab Management System (CMELMS™) to comprehensively manage the massive volumes of data that will be created. This system allows the project team to easily track, manage and distribute field and laboratory reports in real time and quickly sort through the information to consult on critical issues. Technicians/Inspectors are scheduled, costs and budgets are tracked and daily progress is communicated to keep owners and the design/construction team informed every step of the way.

With CMELMS™ our goals are simple. We will deliver:

- Written notification of deviations within 24 hours
- Field reports in no more than five business days from when field services were provided (typically 1 to 2 days)
- Laboratory reports in no more than two business days from when the laboratory services were completed (typically 0 to 1 day)

If tests/inspections made indicate non-compliance with the contract documents or referenced specifications, we will promptly notify the contractor personnel so corrective action can be taken and documented. Failing tests or non-conformance items (deviations) are immediately relayed to the designated parties, and draft reports are available at the end of each day. The test results and inspection information are quickly entered into the system and formal reports are produced. Failing tests and project deviations are easily tracked in a tabular Project Deviation Log which is distributed to all appropriate parties when deviations are reported.

D. SAFETY

Safety plays a major role in providing quality work, regardless of the type or nature of the project. Conducting our work safely means conducting our work in the only acceptable way. At Terracon, we all have a personal and uncompromising commitment to everyone going home safely each

and every day. Incident and Injury-Free (IIF) is about care and concern for people. It is our personal and organizational commitment at all levels of the company and is where safety is held as a core value as well as an operational priority. Working safely is an inseparable part of working correctly, just as much as other operational priorities, in particular quality, profitability and schedule. We are proud that our safety initiatives have resulted in a **2014 EMR of 0.80 and just recently announced 2015 EMR of 0.77.**

As a supplement to Terracon's safety culture, each employee receives safety training specific to the job function and/or project assigned through one-on-one discussions, morning safety conference calls or web-based training seminars. Safety is a primary focus of our monthly department meetings where each meeting includes discussion of a safety topic. IIF is not just something we do; it's in everything we do.

E. SCHEDULING

Our innovative system that includes Microsoft Office Outlook and our proprietary Construction Materials Engineering Laboratory Management System (CMELMS™) software will be used for scheduling and tracking work tasks for our field personnel. Scheduling should not be coordinated through our field personnel.

Our services will be performed on an as-requested basis with scheduling by contractor or his designated personnel. We request our services be scheduled a minimum of one working day in advance. We request a notice of two working days prior to the commencement of each category of activities. We will endeavor to schedule services on lesser notice, but may not always be able to meet the desired project schedule. All requests for services should be submitted to our local Port St. Lucie office phone (772) 343-9787 **between 7:00am and 4:00pm, Monday through Friday. Messages left on the scheduling line outside of these hours on weekdays or on Saturday, Sunday and Holidays will be received the next business day.**

Terracon will not be responsible for scheduling our services and will not be responsible for tests/inspections that are not performed due to a failure to schedule our services on the project or any resulting damage.

F. COMPENSATION

This cost estimate is based on our experience with similar projects and our review of the contract documents that have been provided.

Terracon will provide the scope of services described on a time and materials (hourly and unit rate) basis. However, the construction schedule, weather conditions, efficiency of scheduling by site personnel, etc. will determine the actual cost of our services.

Materials Testing & Pile Driving Inspection Services
Indian Hills Recreation Area – Phase II
Fort Pierce (St. Lucie County), Florida
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We propose to provide these services on a unit rate basis in accordance with the City of Ft. Pierce Construction Materials Testing & Geotechnical Services RFQ No. 6005. Based on the described scope of work, construction schedule and testing frequencies, we have extended our Materials Testing & Pile Driving Inspection Services (Exhibit A) for an **estimated budget of \$17,810**. Other terms and conditions related to the engagement of our services shall be in accordance with the terms of the RFQ No. 6005 Contract. We understand that this work will be performed under a Purchase Order issued by the City of Ft. Pierce.

Please note that if additional scopes of work are requested or if additional site visits are requested beyond those anticipated we will discuss with you at that time and may need to increase the project's budget. Also, labor and expense charges associated with re-inspections/re-testing and contractor or weather-related standby/delay time is not included and will be described as such in reports and/or invoicing for your information. We will contact you if these situations occur. The billing for our services will be directed to your attention on a monthly basis.

We greatly appreciate the opportunity to provide this proposal for our services during construction. If you have any questions, please do not hesitate to contact us.

Sincerely,
DUNKELBERGER ENGINEERING & TESTING, INC.,
A TERRACON COMPANY

Kimberly Roberts
Project Manager

A handwritten signature in black ink, appearing to read "D. T. Youngstrom".

David T. Youngstrom
Office Manager

Enclosure: Exhibit A – Materials Testing & Pile Driving Inspection Estimate



EXHIBIT A

Indian Hills Recreation Area - Phase II

Ft. Pierce, Florida

MATERIALS TESTING & PILE DRIVING INSPECTION ESTIMATE

Earthwork Observation & Soil Testing					
Description	Total Units	Type		Rate	Extended Cost
1 Earthwork Technician (Estimate 18 trips@3 hrs/trip)	54	Hours	x	\$54.00	= \$2,916.00
2 Vehicle/Trip Charge	18	Trip	x	\$20.00	= \$360.00
3 Proctor Test T99/T180	3	Each	x	\$85.00	= \$255.00
4 Sieve Analysis T27	3	Each	x	\$65.00	= \$195.00
6 Organic Content Test T267	3	Each	x	\$30.00	= \$90.00
5 Natural Moisture Content	3	Each	x	\$15.00	= \$45.00
6 Atterberg Limit Test T89/T90	0	Each	x	\$55.00	= \$0.00
7 Limerock Bearing Ratio Test (FM 5-515)	0	Each	x	\$275.00	= \$0.00
8			x		= \$0.00
9			x		= \$0.00
				Totals	\$3,861.00
Concrete Testing					
Description	Total Units	Type		Rate	Extended Cost
1 Concrete Technician (Estimate 4 pours@3 hrs/pour)	16	Hours	x	\$54.00	= \$864.00
2 Vehicle/Trip Charge (Includes concrete cylinder pickup)	8	Trip	x	\$20.00	= \$160.00
3 Concrete Compressive Strength Test (4 sets of 4 cyls.)	16	Each	x	\$15.00	= \$240.00
4			x		= \$0.00
5			x		= \$0.00
6			x		= \$0.00
7			x		= \$0.00
				Totals	\$1,264.00
Pile Driving Inspection					
Description	Total Units	Type		Rate	Extended Cost
1 Pile Driving Inspector (Estimate 20 days@8 hrs/day)	160	Hours	x	\$65.00	= \$10,400.00
2 Vehicle/Trip Charge	20	Trip	x	\$20.00	= \$400.00
3			x		= \$0.00
4			x		= \$0.00
5			x		= \$0.00
6			x		= \$0.00
7			x		= \$0.00
				Totals	\$10,800.00
Engineering & Reporting Services					
Description	Total Units	Type		Rate	Extended Cost
1 Principal Engineer	5	Hour	x	\$145.00	= \$725.00
2 Project Manager/Engineer	10	Hour	x	\$95.00	= \$950.00
3 Administrative Assistant	5	Hour	x	\$42.00	= \$210.00
4			x		= \$0.00
				Totals	\$1,885.00
Materials Testing & Pile Driving Inspection Services					
1 Subtotal of Materials Testing & Pile Driving Inspection Services				Totals	\$17,810.00
2				x	= \$0.00
				Totals	\$0.00

Total = \$17,810.00