City of Pompano Beach, Purchasing Division
1190 N.E. 3rd Avenue, Building C
Pompano Beach, Florida, 33060

May 13, 2013

ADDENDUM #3, RFP H-32-13
DESIGN-BUILD SERVICES FOR NEW BEACH LIBRARY

To Whom It May Concern,

Please review the following question and City response, and additional information, regarding the above Request for Proposal solicitation.

1. Please clarify, shoud we include the cost of permits in our price?

   Response: Yes.

<u>Additional Information</u>

Enclosed is the geotechnical report that exists for the area(s) near the proposed beach library site.

Acknowledge receipt of this Addendum in the area provided on the RFP Proposal Signature page.

The deadline for receipt of responses remains 2:00 p.m. (local), May 24, 2013, in the Purchasing office, 1190 N.E. 3rd Avenue, Building C (front), Pompano Beach, Florida 33060.

Very truly yours,

Leeta Hardin
General Services Director

Enclosure

cc: website
file

TIERRA
GEOTECHNICAL • MATERIALS
ENGINEERING

February 1, 2008

Chen and Associates
500 W.Cypress Creek Road, Suite 410
Fort Lauderdale, Florida 33309

Attn: Mr. Russell Garrett, P.E.

RE: **Geotechnical Engineering Services Report**
Lift Station No. 21
City of Pompano Beach, Florida
Tierra Project No.: 6611-08-028

Dear Russell:

Tierra, Inc. has completed the Geotechnical Investigation for the subject project. The results of our field exploration and subsequent recommendations are presented in this report.

Tierra, Inc. appreciates the opportunity to be of service to Chen and Associates on this project and looks forward to continuing to work with you during the construction phase of this project. If you have any questions or comments regarding this report, please contact our office at your earliest convenience.

Sincerely

TIERRA, INC.

2/1/08

Ramakumar V. Vedula, P.E.
Principal Engineer
FL Registration No. 54873

Attachments

2765 VISTA PARKWAY, SUITE 10 • WEST PALM BEACH, FLORIDA 33411
(561) 687-8536 • FAX (561) 687-8570
State of Florida Professional Engineers License #6486

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1.0 PROJECT DESCRIPTION

The project, as we understand it, consists of the construction of a submersible lift station with a hybrid in-line booster. The project site is located in the City of Pompano Beach south of NE 2nd Street, north of the existing parking lot, west of N. Riverside Drive, and east of N. Ocean Boulevard. Based on information provided to us, majority of the construction will be above ground surface.

The purpose of this study was to provide foundation recommendation for the lift station.

2.0 SCOPE OF SERVICES

The study was performed to obtain information on the existing subsurface conditions at the proposed sites to assist in the design and preparation of the construction plans for the proposed construction. For this, the following services were provided:

1. Reviewed readily available published topographic and soils information. This information was obtained from the "Soil Survey of Broward County, Florida" published by the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS).

2. Performed a Geotechnical field study for the proposed lift station, which included two (2) SPT borings to a depth of 30 feet

3. Prepared this Geotechnical Engineering Services Report for the project.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

3.0 EXPLORATION RESULTS

3.1 Review of USDA Soil Survey, Broward County, Florida

Review of the "Soil Survey of Broward County, Florida", prepared by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), indicates the site is mapped as Canaveral-Urban land complex (Ca) and Urban land complex (Ur).

3.2 Subsurface Conditions

Subsurface conditions at the sites were explored with Standard Penetration Test (SPT) borings located as shown on the Boring Location Plan, Sheet 1 in the Appendix. The SPT borings were drilled using a truck mounted Mobil B-53 drill rig, and mud rotary procedures. Samples of the in-place materials were recovered at frequent intervals using a standard split spoon driven with a 140-pound hammer freely falling 30 inches (the SPT sampling after ASTM D 1586). The samples of the in-place soils were returned to our laboratory for classification by a geotechnical engineer. The samples were classified in general accordance with the Unified Soil Classification System (ASTM D 2487).

The sub-soils encountered in the borings typically consisted of sand, and sand with shell fragments. A 5 ft stratum of sand with cemented sand was encountered at a depth of about 25 feet in one boring.

A Geotechnical engineer bases soil stratification on a visual review of the recovered samples, laboratory testing, and interpretation of the field boring logs. The boring stratification lines represent the approximate boundaries between soil types of significantly different engineering properties; however, the actual transition may be gradual. In some cases, small variations in properties not considered pertinent to our engineering evaluation may have been abbreviated or omitted for clarity. The boring profiles represent the conditions at the particular boring location and variations do occur among the borings.

4.0 GROUNDWATER CONDITIONS

4.1 Groundwater

The groundwater table was measured at the boring location following termination of drilling. Groundwater in the borings at the time of drilling was encountered at about 6 feet below existing grade.

Groundwater conditions will vary with low and high tide cycles, environmental variations and seasonal conditions, as well as man-made influences. Fluctuations should be anticipated. We recommend that the contractor determine the actual groundwater levels at the time of construction to determine groundwater impact on this construction procedure.

5.0 EVALUATIONS AND RECOMMENDATIONS

5.1 General

The geotechnical study completed for the proposed lift station confirms that the site is suitable for the planned construction when viewed from a soil mechanics and foundation engineering perspective. Subsurface conditions at the site are not expected to impose any major geotechnical constraints or limitations for the proposed lift station.

The lift station can be supported on a shallow foundation system with proper excavation bottom preparation. The proper preparation will involve densification of the bottom looses sandy soil and removal and replacement of any organic materials encountered at the excavation bottom. Proper shoring and dewatering will be required depending of the type construction methodology selected.

5.2 Lift Station Foundation

5.2.1 Shallow Foundation

Based on the data currently available, the planned construction can be supported on shallow foundation bearing on the natural loose to medium dense sandy soils provided that the site is developed in accordance with the requirements in this report. The foundation should be designed and proportioned for a maximum bearing pressures ranging from 2,500 pounds per square foot (psf). The structure should be designed and installed to prevent buoyancy.

Soils loosened by excavation should be re-compacted to at least 95 percent of the ASTM D 1557 maximum dry density. Unsuitable material or organic soils (if any) found at foundation bottoms should be removed and replaced with structural fill.

5.2.2 Pile Foundation

We understand that an Auger Cast-in-place (ACIP) pile is being considered near the wet well under the load bearing walls. The following gives the ACIP pile design criteria and recommendations.

Augercast Pile Design Parameter	12-inch-diameter Pile	14-inch-diameter Pile
Allowable Compressive Capacity	12 tons	15 tons
Tension capacity	5 tons	6 tons
Minimum Pile Spacing	3 ft on-center	3.5 ft on-center
Grout Compressive Strength	3000 lbs/in^2	3000 lbs/in^2
Pile Embedment	Minimum 20 ft below the bottom of the foundation into the sand with shell and sand stratum	Minimum 20 ft below the bottom of the foundation into the sand with shell and sand stratum

Augercast Pile Design Parameter	12-inch-diameter Pile	14-inch-diameter Pile
Estimated Pile Length	About 25 ft to 30 ft	About 25 ft to 30 ft
Steel Reinforcement	four #5 bars full length with #3 ties(1)	five #5 bars full length with #3 ties(1)

Note: (1) The steel reinforcing presented above is the recommended minimum reinforcing only. Adequate pile reinforcing must be designed by the Structural Engineer to resist all axial, bending, tensile, and shear stresses.

As an alternate to ACIP piles, helical anchors could be considered for this project. Depending on the loading conditions, helical anchors could be an economical alternative. Helical anchors come with shaft sizes and single or multiple helix plate diameters selected for job specific requirements. For job specific combinations, helical tie-down anchors have shafts in four square sizes (1.5, 1.75, 2, and 2.25-inch) with helices in configuration of two to four and diameters from 6-inch to 14-inch. Their torque ratings range from 5,000 to 20,000+ foot-pound and tension ratings from 55 to 200 kips. For additional information on Chance Anchors and design lengths, please contact Chance Anchors, Mr. Brent Chisholm @ (770) 998-4764, e-mail: anchorit@bellsouth.net.

5.2.3 Site Clearing

All construction areas should be cleared of brush, stumps, construction debris, and other above-ground debris. Underground utilities and foundation remnants should be removed within the area of the proposed construction. We anticipate stripping of about 6-inches of top soil.

5.2.4 Fill/Backfill Placement

After site clearing, the site should be proof rolled and compacted to a field dry density not less than 95% of the material's maximum dry density as determined by the Modified Compaction Test (ASTM D1557). Structural fill used to raise the site should consist of clean sand and/or sand and gravel (ASTM D 2487), with a maximum of 5 percent passing the U.S. Standard No. 200 sieve. The structural fill should be placed in thin lifts (12-inch thick loose measure), near the optimum moisture content for compaction, and be compacted to at least 95 percent of maximum dry density (ASTM D 1557).

6.0 REPORT LIMITATIONS

Our Geotechnical engineering evaluation of the site and subsurface conditions with respect to the planned construction and our recommendations are based upon the following: (1) site observations, (2) the field exploratory test data obtained during the geotechnical study, and (3) our understanding of the project information and anticipated final grades as presented in this report.

If the final grades vary considerably from those stated, or when final cross-sectional data becomes available, please contact our offices so that we can review our recommendations. Furthermore, upon the discovery of any site or subsurface conditions during construction, which appears to deviate from the data obtained during this Geotechnical exploration, please contact us immediately so that we may visit the site, observe the differing conditions, and evaluate the new information with regards to our evaluation and recommendations contained herein.

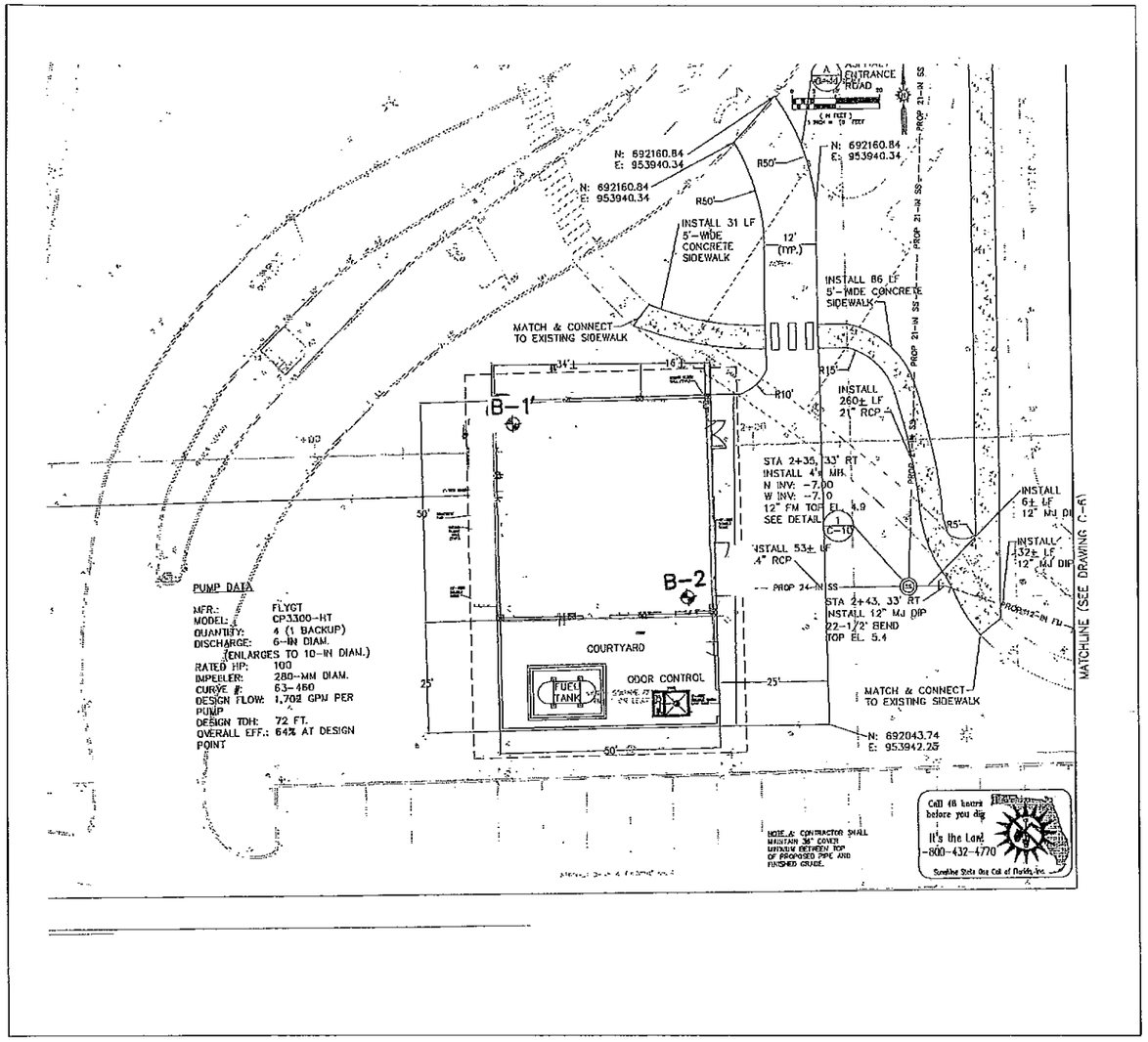
The recommendations presented previously represent design and construction techniques that we feel are both applicable and feasible for the planned construction. We recommend, however, that we be provided the opportunity to review the final foundation plans and the earthwork/foundation construction specifications to evaluate whether our recommendations have been properly interpreted and implemented.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

This geotechnical report has been prepared for the exclusive use of Chen and Associates for the specific application to the proposed Lift Station No. 21 in the City of Pompano Beach in Broward County, Florida.

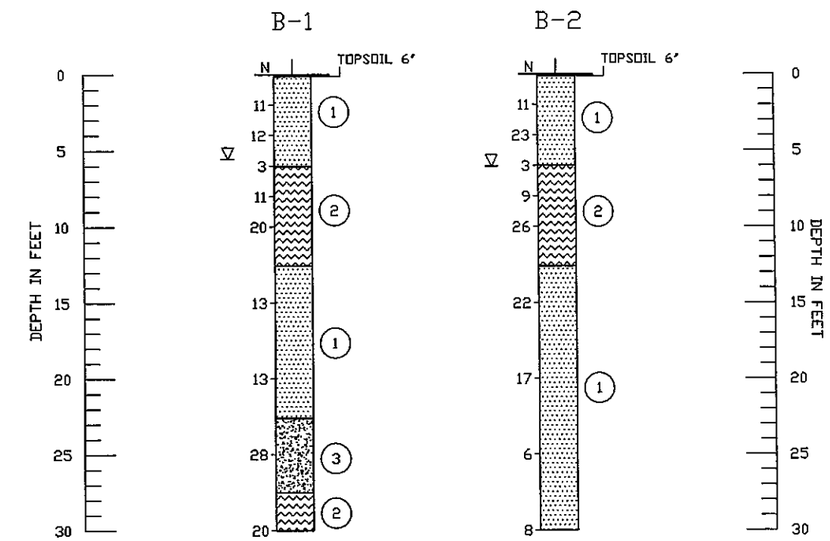
APPENDIX

Boring Location Plan and Soil Profile



SPT BORINGS APPROXIMATE LOCATIONS

BORING LOCATION PLAN



LEGEND

(1) BROWN TO GRAY SAND (SP)	∇ GROUNDWATER TABLE
(2) BROWN SAND WITH SHELL FRAGMENTS (SP)	N SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
(3) BROWN SAND WITH SHELL FRAGMEMTS, SLIGHTLY CEMENTED	SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW

SOIL PROFILES

DRAWN BY: JO CHECKED BY: KV	APPROVED BY: RK DATE: 01/24/08	ENGINEER OF RECORD: RAJ KRISHNASAMY, P.E. FLORIDA LICENSE NO.: 53567	TIERRA 2765 Vista Parkway Suite 10 West Palm Beach, Florida 33411 Phone: 561-687-8538 Fax: 561-687-8570 FL Cert. No.: 6486	SCALE: NOTED	PROJECT NUMBER: 6611-08-028	GEOTECHNICAL ENGINEERING SERVICES PROPOSED LIFT STATION NO.21 POMPANO BEACH, FLORIDA	SHEET 1