

THE STATE OF SOUTH CAROLINA
In The Court of Appeals

APPEAL FROM CHARLESTON COUNTY
Court of Common Pleas

J.C. Nicholson, Jr., Circuit Court Judge

Appellate Case No. 2016-002003

RECEIVED

MAR 20 2017

SC Court of Appeals

Terratec, Inc., ... Appellant,

v.

Charleston County School District, ...Respondent.

RECORD ON APPEAL VOLUME II

James Edward Bradley, SC Bar # 66130
Moore Taylor Law Firm, P.A.
1700 Sunset Boulevard (29169)
P.O. Box 5709
West Columbia, SC 29171
(803) 796-9160
ward@mttlaw.com
Attorney for Appellant Terratec, Inc.

H. Brewton Hagood, SC Bar # 2438
Elizabeth F. Nicholson, SC Bar # 12402
Rosen, Rosen & Hagood, LLC
151 Meeting Street, Suite 400
P.O. Box 893
Charleston, SC 29402
(843) 577-6726
bhagood@rrhlawfirm.com
Attorneys for Respondent
Charleston County School District

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RECORD ON APPEAL – VOLUME II

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HEERY**Change Proposal Review Form**To: Robert CorbinProject: Rivers Education Center - Main BuildingFrom: Kevin KellyProject No.: 5648Date: May 9, 2012Proposal No.: CW-047Contractor: MB Kahn ConstructionContract: General Contractor

(GENERAL CONTRACTOR) (ARCHITECT) (ENGINEER) (OTHER)

Description of work to be performed: Additional Test pile program due to failure of initial program

A - Customer Requested Change

B - Code/Regulatory Agency Required Change

C - Errors and Omissions

D - Replacing Unsuitable Soils

☒ E - Soils Related Change Other than De-Mucking

F - Unforeseen Conditions

G - Time Related Change

H - Liquidated Damages

I - Value Engineering Change

J - Exercising Pre-Priced Option

K - Accounting Error

(Indicate Reason for Change Proposal)

"Reject"Justification: Design and special inspection team recommend disapproval test program clearly defined in project manual and bid documents.Attachments: ☒ Recommendation Letter from A/E☐ OSF Approval (life safety & structural related change proposals)☐ Independent Cost Estimate☐ Cost Estimate From Atlanta (Cost is Expected to Exceed \$10,000)☐ Pre-Negotiation Position (PNP)☒

Change Proposal Request from Contractor with Detailed Backup

Proposal Cost: \$70,080.58Contingency Status: \$545,369.21Time Extension Requested: 0 DaysTime Extension Recommended: 0 DaysSpecial Circumstances: Memorandums from Davis & Floyd - WPC attached for reference.

Consequence of Rejection:

Comments by Supervisor:

Change order 007 addressed length and test pile program.Approved: ☒ (NO) ☐ (YES)
(Circle One)Robert Corbin
Robert Corbin, Heery International

Decision needed by:

May 18, 2012☒ (NO) ☐ (YES)
(Circle One)Larry Ludario
Larry Ludario, Charleston County School District☒ (NO) ☐ (YES)
(Circle One)William Lewis
William Lewis, Charleston County School District

April 20, 2012

Charleston County School District
c/o Heery International, Inc.
3125 Ashley Phosphate
North Charleston, SC 29418



Attn: Mr. Kevin Kelly
E: kkelly@heery.com
Mr. John Orvin, PE
E: jorvin@davisfloyd.com

Re: Response to Terratec's Change Order Requests No. 2, No. 3 and No. 4 dated September 1, 2011
Rivers Education Center
Charleston County, South Carolina
WPC Project Number: EN111014

Dear Mr. Kelly:

At your request, WPC has reviewed Terratec's Change Order Requests No. 2, No. 3, and No. 4 dated September 1, 2011 concerning their load tests performed at the site. The following comments are offered:

Change Order Request No. 2:

1. Section 1.2.2 of the project specifications indicate, "The test borings as shown on the boring location plan and logs of borings as described in the Geotechnical Report, located in Appendix A, are believed to be representative of the conditions likely to be encountered on the site, and are to be used as the basis for micropile design in conjunction with the *appropriate levels of engineering judgment and experience*". Based on normal geotechnical engineering practice, it is the subcontractor's and their engineer's responsibility to determine the soil conditions within the test area, prior to pile load testing.
2. Soil conditions at Test Program Location #1 in comparison to Test Program Location #2 do not represent anomalies within the Cooper Marl Formation (CMF). It is common within the Charleston Peninsula for the CMF to vary two to five feet within relatively small areas, such as this project site.

WPC, A Terracon Company 1450 Fifth Street West North Charleston, SC 29405
P [843] 884 1234 F [843] 884 9234 wpceng.com terracon.com

Geotechnical

Environmental

Construction Materials

Facilities

ROA000477

CCSD Ex 8 pg 002

Response to Terratec's Change Order Requests No. 2, No. 3 and No. 4
Rivers Education Center • Charleston County, Charleston, SC
April 20, 2012 • WPC Project # EN111014



3. It remains our opinion that the multiple failures at Test Program Location #1 are due to installation procedures and lack of significant grout volumes beyond the theoretical volume.
4. Our attached letter dated June 21 2011, indicates problems with the Test Program #1 system that was due to the subcontractor's and their engineer's choices.
5. Based on the project specifications, item 3.4.2.d states, "Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install another pile at his expense."

Change Order Request #3

1. As indicated in our response to Change Order Request #2, our responses 1 through 5 are pertinent for this request as well.

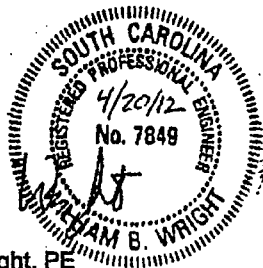
Change Order Request #4

1. The two "hollow bar" test piles were the actual micropile type specified for the project in the geotechnical report and project specifications.
2. The load tests of these micropiles were approximately 25% greater in capacity when compared to the subcontractor's augercast piles at similar depths and at significantly less strain.
3. This comparison clearly indicates the reduced performance of their design. Even with this data, the subcontractor chose to provide an augercast type pile.

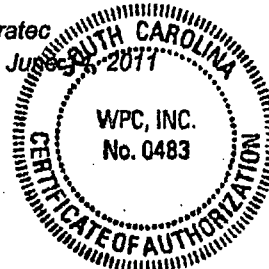
Sincerely,
WPC, A Terracon Company

Thomas C. Smoak, III, EIT
Project Manager

William B. Wright, PE
Senior Principal Engineer



Attached: Change Order Request No. 2, No. 3, No. 4 from Terratec
WPC's Report in Response to Terratec Letter Dated June 21, 2011



2

CHANGE ORDER REQUEST

No. 2

RECEIVED
TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170

MAR 12 2012 803-791-8888 - OFFICE

M.B. KAHN
CONSTRUCTION CO., INC. 803-791-1050 - FAX

Date: September 1, 2011

Attn.: Mr. Scott Spigener

Proj.: Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Ref: Schedule Delay - Tier 1, June 25, 2011 - Load Test No.1 Change Order Request

Dear Mr. Spigener:

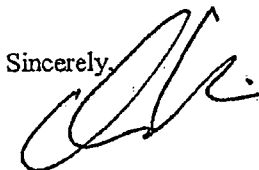
As we identified in our June 25, 2011 Notification, per contract documents, Terratec experienced a substantial schedule delay in the execution of the load test program, due to the presence of a subsurface anomaly that was encountered at the initial load test location.

Verification of this anomaly was exacted initially by the conductance of a soil boring completed on June 24, 2011. It was further verified upon the successful completion of load testing on similar piles at the alternate load test location. A summary of the soil boring data was provided in our original Notification, while the results of the most recent load test has been submitted in the Pile Load Test Results Report, dated August 24, 2011.

As recorded in the soil boring, the soil conditions recorded at the first test pile location undeniably did not match the soil conditions represented to exist by the design and contract documents under which we conducted our initial design for the test piles. Alternately, the soil conditions at the second test pile location more closely resembled the subsurface conditions represented as the "Best Estimate" in the design and contract documents. Further, the performance of the test piles during load testing were markedly improved at the second load test location. In comparison, the 78 foot pile at the second load test location undeniably outperformed the 78 foot pile at the initial load test location, and the projected pile length at the second test pile location was 9 feet shallower than the shortest projected production pile length established at the initial load test location.

As a result of the varying subsurface conditions in which the test piles were installed, and due to the fact that the design and construction team selected the test pile location (e.g. the test pile location was not specified on the bid documents), we are requesting a Change Order be made to our existing contract to cover our costs associated with the initial load test due to conditions beyond our control (e.g. unforeseen subsurface conditions and test pile location directive). The amount of this Change Order follows the fee established under our schedule of values for load testing (e.g. \$65,000.00). A pay application is attached. Please contact us with any questions or comments.

Sincerely,



Chris Morrison, Vice President
Terratec

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ROA000479

CCSD Ex 8 pg 004

CHANGE ORDER REQUEST No. 3

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

Date: September 1, 2011

Attn.: Mr. Scott Spigener

Proj.: Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Ref: Schedule Delay - Tier 1, June 25, 2011 - Load Test No.1 Delay and Design Change Order Request

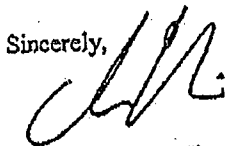
Dear Mr. Spigener:

As we identified in our June 25, 2011 Notification, per contract documents, Terratec experienced a substantial schedule delay in the execution of the load test program, due to the presence of a subsurface anomaly that was encountered at the initial load test location. Verification of this anomaly was exacted initially by the conductance of a soil boring completed on June 24, 2011. It was further verified upon the successful completion of load testing on similar piles at the alternate load test location. A summary of the soil boring data was provided in our original Notification, while the results of the most recent load test has been submitted in the Pile Load Test Results Report, dated August 24, 2011.

The presence of the subsurface anomaly created an unnecessary financial burden on Terratec that would have been averted if the bid and design conditions actually existed at the initial test pile location. In particular, this burden included the conductance of field drilling and sampling at two locations, additional design fees, and excessive administrative fees associated with the determination for failure and the submission of multiple subsequent submittals for the second load test. Additionally, Terratec was burdened financially with additional insurance fees and ongoing lease payments for equipment that was secured specifically for this project.

As a result of the varying subsurface conditions in which the test piles were installed, and due to the fact that the design and construction team selected the test pile location (e.g. the test pile location was not specified on the bid documents), we are requesting a Change Order be made to our existing contract to cover our costs associated with these unnecessary design and delay oriented costs due to conditions beyond our control (e.g. unforeseen subsurface conditions and test pile location directive). The amount of this Change Order request is on the order of \$46,143.27. A detailed breakdown of the costs incurred and a pay application are attached. Please contact us with any questions or comments.

Sincerely,



Chris Morrison, Vice President
Terratec

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CHANGE ORDER REQUEST No. 4

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

Date: September 1, 2011

Attn.: Mr. Scott Spigener

Proj.: Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

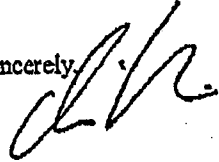
Ref: Work Directive - July 5, 2011 - Installation of Hollow Bar Test Piles

Dear Mr. Spigener:

As MB Kahn directed in several conversations and in an emailed directed to Terratec personnel, dated July 5, 2011, we installed two hollow bar test piles, and conducted Load testing on these piles at the alternate load test location.

As agreed, we are requesting a Change Order be made to our existing contract to cover our costs associated with the installation of these test piles. The amount of this Change Order request is \$37,436.30. A detailed breakdown of the costs incurred and a pay application are attached. Please contact us with any questions or comments.

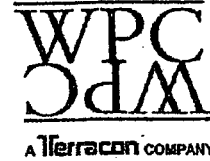
Sincerely,



Chris Morrison, Vice President
Terratec

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June 21, 2011



Charleston County School District
c/o Heery International, Inc.
3125 Ashley Phosphate
North Charleston, SC 29418

Attn: Mr. Kevin Kelly
E: kkelly@heery.com
Mr. John Orvin, PE
E: jorvin@davisfloyd.com

Re: Report in Response to Terratec Letter Dated June 14, 2011
Rivers Education Center Chapter 17 Inspections
Charleston County, South Carolina
WPC Project Number: EN111014

Dear Mr. Kelly:

As requested by Mr. Orvin, WPC has reviewed Terratec's report dated June 14, 2011 concerning their load tests performed at the site. The following comments are offered:

- During load testing, it was discovered that submitted calibration sheets for load cells and jacks (gauges) were more than 1 year old. According to ASTM D 1143 and others, calibrations cannot be more than 1 year old.
- Also, the calibrations for the load cell(s) was only to 45 Kips and not to full 200 Kips plus 20% overage. This resulted in a different load system being used and not using a load cell. According to ASTM's for compression testing, a test over 100 Tons must have a load cell.
- Further, the spacing for reaction piles from the test pile is based on pile size. However, ASTM D 1143 clearly indicates the minimum spacing is 8 feet.
- The choice of micropile type is the subcontractors. In this case, a pile inserted via a hollow stem auger was thought to be the most efficient pile by the subcontractor. Based on 30+ years of geotechnical experience in Charleston and the Cooper Marl Formation, this is definitely not the case. The augered pile creates a uniform skin friction against a remolded side wall. This results in a reduced capacity (Adhesion factor of 50% to 75% of the normal cohesion available in the Cooper Marl). Thus, the type of pile chosen by the subcontractor



historically has limitations and can easily be limited to 50% of other micropile types in the same formation. Poor installation techniques and improper testing methods can also severely limit the ultimate strength of the micropile.

- The fact that all four compression tests plotted near the lower boundary of the geotechnical report (50% strength) is a clear indication that chosen micropile type and installation resulted in a consistently poorly performing pile.
- Table 1 indicates a theoretical grout volume ratio of 1.2 to 1.37. This appears to be incorrect based on our calculations. The grout volume ratio was less than 1 on two piles and slightly greater than 1 on the two piles (less than 10% above). This strongly indicates no significant grout pressure reached the insertion point.
- We observed that during the compressive load tests for 3 of the four piles, the tester was concerned that reaction piles were moving upward and wisely stopped these tests after he observed a clear start of failure.
- Based on load test results, our back calculations of the Cooper Marl capacity indicates a normal historic range of capacity in skin friction of 2.4 to 2.6 ksf with an adhesion factor of about 75% for a net unit skin friction of 1 ¾ to 2 ksf.
- Results of past micropile tests throughout the Charleston area with the Titan rods and their installation systems indicate a normal minimum cohesion of 2.6 ksf with no adhesion reduction factor. We strongly urge the team members to review ongoing projects and their test results in similar soil conditions.
- Since each compression test has failed, the tension tests are not considered valid or reliable information and should not be used to develop tension capacity calculations.
- It appears the structural components of the micropile (steel bar and concrete) are a satisfactory part of the design. However, the soil to pile portion of the design is not realistic based on the micropile type and the chosen installation method.
- As a side note, the report submitted by Terratec was an engineering report based on conclusions and recommendations. South Carolina requires a COA stamp by the engineering company and stamped and dated signatures of the engineers providing the report. This does not appear to be the case since the two engineers were signing as reviewers and not engineers of record.

Report in Response to Terratec Letter Dated June 14, 2011
Rivers Education Center ■ Charleston County, Charleston, SC
June 21, 2011 ■ WPC Project # EN111014

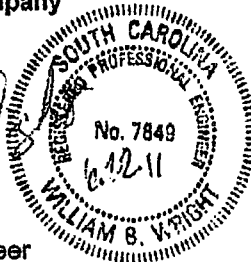


- In closing, we strongly urge the micropile contractor be qualified with specific projects in the Charleston area and tested results. If not qualifiable, a qualified micropile installer should be chosen and used.

Sincerely,
WPC, A Terracon Company

A handwritten signature in black ink, appearing to read 'William B. Wright', is positioned above the printed name.

William B. Wright, PE
Senior Principal Engineer



September 12, 2011

Mr. Kevin P. Kelly
Heery International Inc.
3125 Ashley Phosphate Road, Suite 130
North Charleston, SC 29418

RE: **White Paper on Micropile Design-Contract Document Requirements**
Rivers Education Center-Phase I: Seismic Retrofit, Exterior Restoration, & Core Utilities
Charleston County School District

Dear Mr. Kelly:

As directed by the Charleston County School District, Davis & Floyd has composed this white paper to clearly explain the relationship between the relevant parts of the Contract Documents (drawings, specifications, and geotechnical report) to demonstrate how a micropile subcontractor would gather the necessary information to design and subsequently construct micropiles to meet the design intent. The relevant information from the Contract Documents required for the micropile design is presented below.

Drawings

A. Structural drawing, S-000, Micropile Notes:

- a. Note 1 states that micropiles shall be designed by the Contractor for the loads indicated and in accordance with the requirements in Specification Section 02369 and that the micropiles are to be designed by a professional engineer currently licensed in South Carolina.
- b. Note 2 states that prior to installation of production piles, two (2) static load tests shall be performed on sacrificial non-production piles to confirm production pile length, and that the load test set-up is to consist of a test pile and two adjacent piles used as reaction piles. It also states that the Geotechnical Engineer of Record and Contractor shall monitor and evaluate the load tests to confirm production pile length.
- c. Note 3 states that the load tests are to be performed in accordance with ASTM D3689-07, Standard Test Methods for the Deep Foundations under Static Axial Tensile Load and that a safety evaluation must be completed for the test set-up prior to loading.
- d. Note 4 states that the tensile reinforcing steel in the test piles shall be designed so that the resulting stresses from the maximum ultimate test load does not exceed 80% of the yield stress of the reinforcing steel.

B. Structural drawing, S-100 is the overall foundation plan which shows the location of all of the new pile caps containing the micropiles. Each of the pile caps is noted with PC and a number. The number corresponds to the number of micropiles contained in each of the pile caps. For example, PC-12 means that the pile cap contains 12 micropiles. Note 2 on S-100 states that enlarged pile cap plans are shown on sheets S-400 and S-401. The enlarged pile cap plans on sheets S-400 and S-401 show the locations of each of the micropiles within the pile caps and which piles are to be installed either at a 30 degree batter or installed vertically. From the foundation plans the total number of battered and vertical micropiles required can be determined by simply counting the piles.

C. Structural drawing, S-402, Micropile Foundation Notes:

- a. Note 1 states that new deep foundations shall be the drilled and grouted variety of micropiles designed by the contractor and approved by the Engineer of Record. It also states to see Specification Section 02369 for the design and load testing requirements.
- b. Note 2 states that each micropile for the new deep foundations shall have a minimum ultimate load capacity of 200 kips in compression and tension.
- c. Note 3 states that the new deep foundations shall be designed by a professional engineer currently licensed in South Carolina and to submit signed and sealed calculations for approval by the Engineer of Record.

D. Structural drawing, S-402 also shows sections through each of the pile caps and grade beams. The sections show that the distance of the top of the pile caps below the top of the ground for exterior pile caps is 1'-4" and the distance of the top of the pile caps from the bottom of the first floor slab for those pile caps supporting new interior shear walls is 4'-11". The sections also show the thickness of each of the pile caps and grade beams (i.e. 3'-6", 4'-0", 2'-0", or 2'-6") and that the top of the micropiles is to extend 4 inches into the bottom of the pile cap. S-402 also shows a typical elevation of a micropile. It is noted on this pile detail that the required elevation of the pile tips is -66 feet and that the elevation of the top of the marl is -43 feet.

From these elevations given on sheet S-402 and the ground elevation of 12 feet (NAVD 88 Datum) given on the site plan shown on CS102 and the elevation of the bottom of the first floor slab of 14.91 feet (NAVD 88 Datum) given in Section 1 on S-100, the lengths of each of the micropiles can be determined. For the exterior micropiles, the elevation of the top of the micropiles can be determined using the ground elevation of 12 feet and the dimensions shown in the typical section thru exterior pile caps. The elevation of the top of these piles is $12' - 1.33' - 3.5' + 0.33' = 7.5'$. The total length of the vertical exterior piles can be determined by subtracting the pile top and bottom pile tip elevations. The length of the vertical exterior piles is $7.5' - (-66') = 73.5'$. The length of the 30 degree batter piles can similarly be determined as $73.5' / \cos 30 \text{ degrees} = 84.9'$. For micropiles supporting new interior shear walls, their top elevations can similarly be determined as $14.91' - 4.91' - 4' + 0.33' = 6.33'$. The length of the vertical interior piles is $6.33' - (-66') = 72.33'$ and the length of the 30 degree batter piles is $72.33' / \cos 30 \text{ degrees} = 83.5'$.

Specifications Section 02369-Micropiles

- A. Specification paragraph 1.2.1. "General" states that the work shall consist of furnishing all materials, products, accessories, tools, equipment, services, transportation, labor, supervision, design, installation, and testing of micropiles and pile top attachments.
- B. Specification paragraph 1.2.2. "Ground Conditions" states that the borings contained in the Geotechnical Report, located in Appendix A, are believed to be representative of the conditions on site and are to be used as the basis of micropile design in conjunction with the appropriate levels of engineering judgment and experience.
- C. Specification paragraph 2.6.1. states that reinforcing steel shall be deformed bars in accordance with ASTM A615 Grade 60 or Grade 75 or ASTM A722 Grade 150.
- D. Specification paragraph 2.7.1. states that if permanent pipe casing is to be relied upon to carry loads or reduce deflections then it shall meet the tensile strength requirements of ASTM A252 Grade 3 or be new Structural Grade.
- E. Specification paragraph 2.8.1 states that structural steel plates and shapes for pile top attachments shall conform to ASTM A36 or ASTM A572 Grade 50.
- F. Specification paragraph 3.1.1. states that the micropiles shall be designed to meet the specified loading as shown on the drawings and sealed by an Engineer licensed in the State of South Carolina and the calculations and drawings required from the Contractor shall be submitted to the Engineer of Record for review and acceptance.
- G. Specification paragraph 3.1.2. and 3.1.3. provide equations for the Contractor to use in designing the micropiles.
- H. Specification paragraph 3.1.4. states that the micropile top attachment shall effectively distribute the design load to the concrete pile cap, such that the concrete bearing stress does not exceed the design bearing strength as specified in ACI 318-05 and that the bending stress in the steel bearing plate does not exceed the design flexural strength as specified in the AISC Manual of Steel Construction, Thirteenth Edition.
- I. Specification paragraph 3.4.2.d. states that the Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install and test another pile at his expense.

Geotechnical Report

The project geotechnical report is located in Appendix A of the Project Manual. As stated in Specification Section 02369 Micropiles paragraph 1.2.2. the borings contained in it are to be used as the basis of micropile design by the micropile subcontractor along with the appropriate levels of engineering judgment and experience. The three SCPT sounding logs given in the report contain data that can be used to estimate soil properties and soil strengths needed for the Contractor's micropile design. It is also stated on page 9 of the report that micropiles should

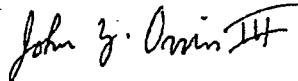
Mr. Kelly
September 12, 2011
Page 4

bear in the Cooper Marl, which was encountered at a depth of 55 feet below the ground surface. Addendum #1 to the Geotechnical Report in Appendix B of the Project Manual shows that 8 inch micropiles are anticipated to achieve the specified 200 kip ultimate resistance with a pile tip depth of 78 feet below grade. This 78 foot depth coincides with the pile tip elevation of -66 feet indicated on sheet S-402 of the drawings.

All of the above referenced items are complimentary and are intended to be used as a whole by the Contractor to perform the micropile design. Therefore, the intent of the Contract Documents was to require the micropile subcontractor to design and install an 8 inch micropile to the depth of 78 feet below the ground surface (El. -66 feet NAVD 88) that would achieve a minimum capacity of 200 kips.

Very truly yours,

DAVIS & FLOYD, INC.



John Y. Orvin, III, P.E.
Senior Structural Engineer

September 12, 2011

Mr. Kevin P. Kelly
Heery International Inc.
3125 Ashley Phosphate Road, Suite 130
North Charleston, SC 29418

RE: **White Paper on Micropile Load Test Program Failure**
Rivers Education Center-Phase I: Seismic Retrofit, Exterior Restoration, & Core Utilities
Charleston County School District

Dear Mr. Kelly:

As directed by the Charleston County School District, Davis & Floyd has composed this white paper detailing the requirements of the Contract Documents what actually occurred during the micropile subcontractor's first test pile program in order to explain the causes for its failure. The relevant paragraphs from Specifications Section 02369 Micropiles pertaining to the load testing program are given below.

1. Paragraph 3.4.2.a. requires that two static load tests be performed on sacrificial non-production piles to confirm production pile length. The load test set-up shall consist of a center test pile and two adjacent piles used as reaction piles. The loads tests shall be performed before the installation of production piles. The load tests shall be evaluated by the Micropile Contractor and Engineer to assure compliance with the job performance requirements.
2. Paragraph 3.4.2.b. requires that the load tests be performed in accordance with ASTM D3689-07, Standard Test Methods for Deep Foundations Under Static Axial Tensile Load. A safety evaluation must be completed for the set-up prior to loading.
3. Paragraph 3.4.2.c. requires that the tensile reinforcing in the test piles shall be designed so that the resulting stress from the maximum ultimate tensile test load does not exceed 80 percent of the yield stress of the reinforcing steel.
4. Paragraph 3.4.2.d. requires that the Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install and test another pile at his own expense.

The first load test program was performed by the micropile subcontractor, Terratec, on June 9, 2011. In accordance with Terratec's Pile Load Test Program Submittal dated May 10, 2011, the load test program consisted of four 8" diameter auger cast test piles with lengths of 66, 70, 75, and 80 feet below the ground surface. A Report of Pile Load Testing Results dated June 14, 2011 was submitted by Terratec following the unsuccessful pile load test program. All four of the test piles failed to achieve the specified ultimate loading of 200 kips. In this report, Terratec concluded that their test piles constructed were competent and that the load test program was conducted in accordance with

ASTM procedures.

As required by paragraph 3.4.1. of the above referenced micropile specification, WPC, who is employed by CCSD as the independent third party IBC Chapter 17 Special Inspector for the project, observed the pile load tests and provided a report of the results.

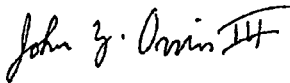
In their letter dated June 21, 2011, WPC reported that ASTM procedures were not followed during the load testing and that the construction of two of the four test piles was not competent. WPC reported the following results that were contrary to those reported by Terratec:

- The spacing of reaction piles of 6 feet is less than 8 foot minimum spacing indicated by ASTM procedures.
- The calibration sheets for the load cells and jacks (gauges) were more than 1 year old. According to ASTM procedures the calibration sheets cannot be more than 1 year old.
- Calibrations for the loads cells were only for 45 kips not the 200 kips plus 20% overage. Therefore the load cells were not used. ASTM procedures require that for tests of over 100 tons a load cell must be used.
- The measured grout volumes were less than 1 on two piles and only slightly larger than 1 (less than 10%) for the other two test piles. Grout volumes less than the theoretical grout volumes indicate a pile that is not sound.
- All of the test piles were failed in compression before the tension tests were conducted, therefore the tension test results reported are invalid.

The cause of the failure of the first test pile program was due to the inadequacy of the micropile subcontractor's pile design. Also contributing to the unacceptable test results were poor quality control during test pile construction and failure to follow the specified ASTM procedures. Therefore, in accordance with paragraph 3.4.2.d. of the micropile specification referenced above the Contractor was required to modify their pile design and install additional test piles at their own expense.

Very truly yours,

DAVIS & FLOYD, INC.



John Y. Orvin, III, P.E.
Senior Structural Engineer

CHANGE PROPOSAL FORM

Project: Charleston County School District
 Contract: Rivers Education Center
 Contractor: M. B. Kahn

Change Proposal Date: 5/8/2012
 Proposal #: 47
 Project #: _____
 Contractor #: 2229

Description of change:
 Change order request for additional test pile program (see Terratec CO Request # 2)

				SUBTOTALS
Materials (Attach list with Qty, Item, Unit \$, Unit MH, Total MH, OT MH, Total \$)				
1 Total Direct Cost of Materials			\$0.00	
2 Overhead & Profit on Item 1.			\$0.00	
3 Sales Tax			\$0.00	
4 Shipping & Transportation			\$0.00	\$0.00
Labor				
5 Total Man-hours:	0 MH @	\$25.00 /hr.	\$0.00	
6 Overhead & Profit on Item 5.			\$0.00	
7 Payroll Taxes & Insurance	31.2%		\$0.00	\$0.00
Equipment Rental (Include quotes)				
8 Equipment Rental			\$0.00	
9 Overhead & Profit on Item 8.			\$0.00	\$0.00
Subcontractors (Include quotes with material & equipment backup)				
10 Subcontractors			\$65,000.00	
11 Overhead & Profit on Item 10.			\$4,550.00	
12 Sub Bond	1.2%		\$78.00	\$69,628.00
			Subtotal of Proposal	\$69,628.00
13 P&P Bond (% of subtotal of proposal)			0.65%	\$452.58
			TOTAL OF CHANGE PROPOSAL	\$70,080.58

Time Extension Requests: _____ day(s) Schedule Activity # Affected: _____

Contractor's Signature: *M. B. Kahn*
 Approval Recommended by Design Consultant: _____
 Owner's Representative Approval: _____

Date: 5/8/12
 Date: _____
 Date: _____

TERRATEC, INC.
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 – Office
803-791-1050 - FAX

RECEIVED
MAY 08 2012
M.B. KAHN
CONSTRUCTION CO., INC.

May 7, 2012

Dear Scott,

This letter is written in response to your letter dated April 16, 2012 regarding Change Order Request #2 submitted by Terratec. This letter is intended to address all of M.B. Kahn's concerns regarding Change Order Request #2, and also provide backup documentation. I will attempt to address each of the concerns separately.

M.B. Kahn alleges that the Change Order Request #2 was not submitted in a timely fashion, however this is incorrect. Notice of the delay from the soil conditions was provided on June 25, 2011 (See letter attached hereto as Exhibit A). Notice was filed in a timely manner; however, we were unable to place an exact dollar amount on the costs at that time. This together with the "accelerated" work schedule tied up the majority of our resources, making it impossible to respond at the time. We proceeded with work in good faith that our notice was preserved, per a conversation between you and me.

As requested, I have attached detailed costs and supporting documents to substantiate the request for Change Order Request #2 (see Exhibit B). As is evident by Exhibit B, the actual costs are greater than the SOV dollar amount, which was the agreed to cost associated with a load test per our contract. Without waiving our rights to claim the actual costs at a future date, Terratec will agree to settle for the SOV amount initially requested.

Regarding your allegation that Terratec incorrectly tested the original test piles, the original piles were tested in compression and tension because there were both compression and tension load bearing requirements for the micropiles as stipulated in the bid and construction documents. While the project requirements only stipulated a tension test be conducted, the specifications did not disallow additional testing (e.g. load testing in compression). Additionally, there were multiple notifications presented to all parties in our Test Pile Program Submittal that the piles were going to be tested both in compression and in tension (excerpt from approved Test Pile Submittal, Exhibit C, is attached). As the document reads, the Test Pile Submittal was approved by the design team on May 10, 2011 with the testing protocol established therein. The opportunity to deny the testing procedure, testing first in compression and then in tension, should have been acted upon prior to the testing procedures being approved.

To be clear, the only test pile that was tested in compression to failure prior to tension testing was the shortest pile, which was embedded in the sand layer that was not supposed to exist at the site according to the project geotechnical report. The balance of the test piles were tested to within elastic limits, with less than 1/2" displacement. Finally, the results of the compression testing, as summarized in our Load Test Results Report, dated June 14, 2011, identified that proper embedment in the marl at the site would approach 30 feet. This embedment depth coincides with the results of the second successful load test, which required the piles be embedded 31 feet into the marl for production. Excerpts from both load test results reports are attached (see Exhibit D).

M.B. Kahn next alleges that Terratec was involved in the selection of the original test pile site. The location of the test piles were not stipulated in the project documents. The original location was established with Terratec's input in a meeting several weeks prior to the actual installation at the site specified in Exhibit E. Upon arrival on May 10, 2011, the Terratec installation crew was directed by the field superintendent, Shamrock Thompson with M.B. Kahn, presumably at the direction of the design team, to install the test piles at the location indicated on Exhibit F, approximately 110 feet further away from the building than the location presented in our submittal.

Terratec was not involved in selecting the final location for the original test pile site. We participated in establishing the location shown in the submittal, however, the location was changed and we were directed by M.B Kahn personnel to install the piles at the actual test pile location without our input. To this point, the establishment of the test pile location is beyond our scope of work in almost all applications, as it is widely accepted that the design team (e.g. Davis & Floyd and S&ME) are responsible for the designation of the test pile location.

In summation, I believe this letter should clarify all issues with Change Order Request #2 and provide all of the documentation that M.B Kahn requires to approve the Change Order Request #2 and submit it to the Owner. I look forward to M.B Kahn's prompt attention to this matter and submission to the Owner.

Sincerely,

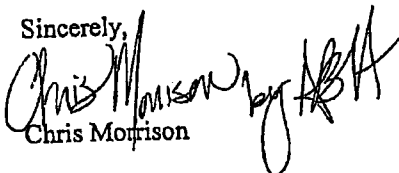

Chris Morrison

EXHIBIT A



June 25, 2011

Mr. Scott Spigener
M.B. Kahn Construction Company
2950 Farrow Road
Columbia, South Carolina 29203

Re: Rivers Educational Center Seismic Retrofit
and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

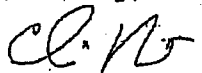
Dear Scott:

This memo will serve as notification that Terratec, Inc. anticipates the submittal of a formal request for a substantial delay. We respectfully forward this memo as required in the contract documents for your use.

As you know, there are differences concerning the soil conditions and the results of the load tests. We are in the process of gathering information to assist the design team in resolving the issues pertaining to the deep foundations for this project. Hopefully, these issues can be resolved quickly.

It is our goal to provide the design team with supplemental data and at the same time continue to move forward with the project.

Sincerely,


Chris Morrison

cc: File

1350 Methodist Park Road • West Columbia, SC 29170 • (803) 791-8888 • Fax (803) 791-1050
Charlotte (704) 529-4114 • (888) 345-1492 • www.terratecinc.com

ROA000495

CCSD Ex 8 pg 020

EXHIBIT B

ITEMIZED - CHANGE ORDER No. 2

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
8037918888 OFFICE
8037911050 FAX

Proj.: Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Ref: Schedule Delay - Tier 1, June 25, 2011 - Load Test No.1 Change Order Request

A summary of the conditions surrounding the itemized breakdown detailed below is attached to the cover sheet.

Change Order Work Task Description - Load Test No. 1

Work Task	% Complete	Start and Complete Dates	Reason for Change Order	Schedule of Values	Schedule of Values Fee	Non-Schedule Cost	Markup	Delay Accrued (days)	CO Request Amount
Load Test #1	100%	May 10 - June 15, 2011	Unforeseen Site Conditions	Yes	\$65,000.00	\$0.00	0%	35	\$65,000.00

Total Change Order Request \$65,000.00

Actual Substantiation for Work Task Description - Load Test No. 1

Work Task	% Complete	Start and Complete Dates	Reason for Change Order	Schedule of Values	Schedule of Values Fee	Non-Schedule Cost	Markup	Delay Accrued (days)	CO Request Amount
Terratec - Pile Installation / Load Test	100%	May 10 - June 15, 2011	Unforeseen Site Conditions	Yes	\$65,000.00	\$43,227.50	0%	35	\$43,227.50
Terratec - Insurance	100%	May 10 - June 15, 2011	Unforeseen Site Conditions	Yes	\$65,000.00	\$3,958.69	0%	35	\$3,958.69
Ready Mixed Concrete Company	100%	May 10 - June 15, 2011	Unforeseen Site Conditions	Yes	\$65,000.00	\$2,866.81	10%	35	\$4,275.49
Williams Form Engineering	100%	May 10 - June 15, 2011	Unforeseen Site Conditions	Yes	\$65,000.00	\$13,539.79	10%	35	\$14,893.77
GS2 - QC Installation and Load Test	100%	May 10 - June 15, 2011	Unforeseen Site Conditions	Yes	\$65,000.00	\$10,809.50	10%	35	\$11,890.45
K&T - Structural Consultation	100%	May 10 - June 15, 2011	Unforeseen Site Conditions	Yes	\$65,000.00	\$2,200.00	10%	35	\$2,420.00
Blanchard Rental	100%	May 10 - June 15, 2011	Unforeseen Site Conditions	Yes	\$65,000.00	\$324.00	10%	35	\$356.40

Actual Cost for Load Test #1 \$81,022.30

Drilling and Pile Installation Labor

<u>Date</u>	<u>Activity</u>	<u>Employee</u>	<u>Hours</u>	<u>Hourly Rate</u>	<u>Cost</u>
05/10/11	Project Management	Sr. Project Manager - CM	4.00	\$55.00	\$220.00
05/10/11	Project Management	Sr. Project Manager - PM	2.00	\$55.00	\$110.00
05/11/11	Project Management	Sr. Project Manager - CM	4.00	\$55.00	\$220.00
05/11/11	Project Management	Sr. Project Manager - PM	2.00	\$55.00	\$110.00
05/13/11	Project Management	Sr. Project Manager - CM	8.00	\$55.00	\$440.00
05/13/11	Project Management	Sr. Project Manager - PM	1.00	\$55.00	\$55.00
05/16/11	Project Management	Sr. Project Manager - CM	8.00	\$55.00	\$440.00
05/16/11	Project Management	Sr. Project Manager - PM	2.00	\$55.00	\$110.00
05/17/11	Project Management	Sr. Project Manager - CM	12.00	\$55.00	\$660.00
05/17/11	Mobilization (Crew #1)	Drilling Supervisor - KT	6.00	\$50.00	\$300.00
05/17/11	Mobilization (Crew #1)	Drilling Tech - DB	6.00	\$30.00	\$180.00
05/17/11	Mobilization (Crew #1)	Drilling Tech - RM	6.00	\$45.00	\$270.00
05/17/11	Mobilization (Crew #2)	Drilling Supervisor - RW	6.00	\$50.00	\$300.00
05/17/11	Mobilization (Crew #2)	Drilling Tech - BW	6.00	\$30.00	\$180.00
05/17/11	Mobilization (Crew #2)	Drilling Tech - BobW	8.00	\$40.00	\$320.00
05/18/11	Project Management	Sr. Project Manager - CM	14.00	\$55.00	\$770.00
05/18/11	Pile Install (Crew #1)	Drilling Tech - RM	12.00	\$30.00	\$360.00
05/18/11	Pile Install (Crew #1)	Drilling Supervisor - KT	13.00	\$50.00	\$650.00
05/18/11	Pile Install (Crew #1)	Drilling Tech - DB	8.00	\$30.00	\$240.00
05/18/11	Pile Install (Crew #1)	Drilling Tech - DB	5.00	\$45.00	\$225.00
05/18/11	Pile Install (Crew #1)	Drilling Tech - CF	8.00	\$30.00	\$240.00
05/18/11	Pile Install (Crew #1)	Drilling Tech - CF	4.00	\$45.00	\$180.00
05/18/11	Pile Install (Crew #2)	Drilling Supervisor - RW	13.00	\$50.00	\$650.00
05/18/11	Pile Install (Crew #2)	Drilling Tech - BW	8.00	\$30.00	\$240.00
05/18/11	Pile Install (Crew #2)	Drilling Tech - BW	3.00	\$45.00	\$135.00
05/18/11	Pile Install (Crew #2)	Drilling Tech - AL	8.00	\$30.00	\$240.00
05/18/11	Pile Install (Crew #2)	Drilling Tech - AL	4.00	\$45.00	\$180.00
05/18/11	Pile Install (Crew #2)	Drilling Tech - BobW	8.00	\$40.00	\$320.00
05/19/11	Project Management	Sr. Project Manager - CM	14.00	\$55.00	\$770.00
05/19/11	Trouble Shooting/Design	Drilling Tech - RM	8.00	\$30.00	\$240.00
05/19/11	Pile Install (Crew #1)	Drilling Supervisor - KT	13.00	\$50.00	\$650.00
05/19/11	Pile Install (Crew #1)	Drilling Tech - DB	8.00	\$30.00	\$240.00
05/19/11	Pile Install (Crew #1)	Drilling Tech - DB	5.00	\$45.00	\$225.00
05/19/11	Pile Install (Crew #1)	Drilling Tech - CF	8.00	\$30.00	\$240.00
05/19/11	Pile Install (Crew #1)	Drilling Tech - CF	4.00	\$45.00	\$180.00
05/19/11	Pile Install (Crew #2)	Drilling Supervisor - RW	13.00	\$50.00	\$650.00
05/19/11	Pile Install (Crew #2)	Drilling Tech - BW	8.00	\$30.00	\$240.00
05/19/11	Pile Install (Crew #2)	Drilling Tech - BW	3.00	\$45.00	\$135.00
05/19/11	Pile Install (Crew #2)	Drilling Tech - AL	8.00	\$30.00	\$240.00
05/19/11	Pile Install (Crew #2)	Drilling Tech - AL	4.00	\$45.00	\$180.00
05/19/11	Pile Install (Crew #2)	Drilling Tech - BobW	8.00	\$40.00	\$320.00
05/20/11	Project Management	Sr. Project Manager - CM	4.00	\$55.00	\$220.00
05/23/11	Project Management	Sr. Project Manager - CM	12.00	\$55.00	\$660.00
05/23/11	Pile Install (Crew #1)	Drilling Supervisor - KT	8.00	\$50.00	\$400.00
05/23/11	Pile Install (Crew #1)	Drilling Tech - DP	8.00	\$30.00	\$240.00
05/23/11	Pile Install (Crew #1)	Drilling Tech - CF	8.00	\$30.00	\$240.00
05/23/11	Pile Install (Crew #2)	Drilling Supervisor - RW	8.00	\$50.00	\$400.00
05/23/11	Pile Install (Crew #2)	Drilling Tech - JM	8.00	\$30.00	\$240.00
05/23/11	Pile Install (Crew #2)	Drilling Tech - BW	8.00	\$30.00	\$240.00
05/23/11	Pile Install (Crew #2)	Drilling Tech - AL	8.00	\$30.00	\$240.00
05/23/11	Pile Install (Crew #2)	Drilling Tech - BobW	8.00	\$40.00	\$320.00
05/24/11	Project Management	Sr. Project Manager - CM	12.00	\$55.00	\$660.00
05/24/11	Pile Install (Crew #1)	Drilling Supervisor - KT	15.50	\$50.00	\$775.00
05/24/11	Pile Install (Crew #1)	Drilling Tech - DP	8.00	\$30.00	\$240.00
05/24/11	Pile Install (Crew #1)	Drilling Tech - DP	7.50	\$45.00	\$337.50
05/24/11	Pile Install (Crew #1)	Drilling Tech - CF	8.00	\$30.00	\$240.00
05/24/11	Pile Install (Crew #1)	Drilling Tech - CF	3.50	\$45.00	\$157.50

05/24/11	Pile Install (Crew #1)	Grout Supervisor - CW	8.00	\$40.00	\$320.00
05/24/11	Pile Install (Crew #1)	Grout Supervisor - CW	8.00	\$60.00	\$480.00
05/24/11	Pile Install (Crew #2)	Drilling Supervisor - RW	18.75	\$50.00	\$937.50
05/24/11	Pile Install (Crew #2)	Drilling Tech - JM	8.00	\$30.00	\$240.00
05/24/11	Pile Install (Crew #2)	Drilling Tech - JM	6.75	\$45.00	\$303.75
05/24/11	Pile Install (Crew #2)	Drilling Tech - BW	8.00	\$30.00	\$240.00
05/24/11	Pile Install (Crew #2)	Drilling Tech - BW	7.75	\$45.00	\$348.75
05/24/11	Pile Install (Crew #2)	Drilling Tech - AL	8.00	\$30.00	\$240.00
05/24/11	Pile Install (Crew #2)	Drilling Tech - AL	5.50	\$45.00	\$247.50
05/24/11	Pile Install (Crew #2)	Drilling Tech - BobW	8.00	\$40.00	\$320.00
05/25/11	Project Management	Sr. Project Manager - CM	4.00	\$55.00	\$220.00
05/26/11	Project Management	Sr. Project Manager - CM	4.00	\$55.00	\$220.00
					<u>\$22,382.50</u>

Load Test Labor

<u>Date</u>	<u>Activity</u>	<u>Employee</u>	<u>Hours</u>	<u>Hourly Rate</u>	<u>Cost</u>
06/02/11	Project Management	Sr. Project Manager - CM	4.00	\$55.00	\$220.00
06/03/11	Project Management	Sr. Project Manager - CM	2.50	\$55.00	\$137.50
06/06/11	Project Management	Sr. Project Manager - CM	10.00	\$55.00	\$550.00
06/06/11	Pile Load Test	Load Test Crew - RM	6.00	\$30.00	\$180.00
06/06/11	Pile Load Test	Load Test Crew - CW	9.00	\$30.00	\$270.00
06/07/11	Project Management	Sr. Project Manager - CM	12.00	\$55.00	\$660.00
06/07/11	Pile Load Test	Load Test Crew - RM	12.00	\$30.00	\$360.00
06/07/11	Pile Load Test	Load Test Crew - CW	8.50	\$30.00	\$255.00
06/08/11	Project Management	Sr. Project Manager - CM	8.00	\$55.00	\$440.00
06/08/11	Pile Load Test	Load Test Crew - RM	5.00	\$30.00	\$150.00
06/08/11	Pile Load Test	Load Test Crew - CW	6.00	\$30.00	\$180.00
06/09/11	Project Management	Sr. Project Manager - CM	14.00	\$55.00	\$770.00
06/09/11	Pile Load Test	Load Test Crew - RM	14.00	\$30.00	\$420.00
06/09/11	Pile Load Test	Load Test Crew - CW	13.50	\$30.00	\$405.00
06/10/11	Project Management	Sr. Project Manager - CM	11.50	\$55.00	\$632.50
06/10/11	Pile Load Test	Load Test Crew - RM	9.50	\$30.00	\$285.00
06/10/11	Pile Load Test	Load Test Crew - CW	12.50	\$30.00	\$375.00
06/13/11	Project Management	Sr. Project Manager - CM	12.00	\$55.00	\$660.00
06/13/11	Pile Load Test	Load Test Crew - RM	12.00	\$30.00	\$360.00
06/13/11	Pile Load Test	Load Test Crew - CW	13.00	\$30.00	\$390.00
06/14/11	Project Management	Sr. Project Manager - CM	9.00	\$55.00	\$495.00
06/14/11	Pile Load Test	Load Test Crew - RM	8.00	\$30.00	\$240.00
06/14/11	Pile Load Test	Load Test Crew - CW	9.00	\$30.00	\$270.00
06/15/11	Project Management	Sr. Project Manager - CM	6.00	\$55.00	\$330.00
06/15/11	Pile Load Test	Load Test Crew - RM	3.00	\$30.00	\$90.00
06/15/11	Pile Load Test	Load Test Crew - CW	5.50	\$30.00	\$165.00
					<u>\$9,290.00</u>
Labor Total					\$31,672.50

Pile Install Mobilization and Equipment Fees

<u>Date</u>	<u>Equipment</u>	<u>Description</u>	<u>Billable Unit</u>	<u>Unit Cost</u>	<u>Cost</u>
05/17/11	Drill Crew #1	Drill Rig/Truck - Mob	1	\$600.00	\$600.00
5/18-24/11	Drill Crew #1	Drill Rig/Truck - Per Day	4	\$150.00	\$600.00
5/17-24/11	Drill Crew #1	Support Truck	5	\$40.00	\$200.00
05/17/11	Drill Crew #2	Drill Rig/Truck - Mob	1	\$600.00	\$600.00
5/18-24/11	Drill Crew #2	Drill Rig/Truck - Per Day	4	\$150.00	\$600.00
5/17-24/11	Drill Crew #2	Support Truck	5	\$40.00	\$200.00
5/17-24/11	Back Hoe	Back Hoe - Mob	1	\$500.00	\$500.00
5/17-24/11	Back Hoe	Back Hoe - Per day	5	\$150.00	\$750.00
05/17/11	Grout Pump Crew #1	Grout Pump - Mob	1	\$350.00	\$350.00
5/18-24/11	Grout Pump Crew #1	Grout Pump - Per Day	4	\$250.00	\$1,000.00
5/17-24/11	Grout Pump Crew #1	Support Truck	5	\$40.00	\$200.00
5/18-24/11	Grout Pump Crew #1	Press. Washer - Per Day	5	\$25.00	\$125.00

5/17-24/11	Support Truck - CM	Support Truck - Per Day	5	\$40.00	<u>\$200.00</u>
					\$5,925.00
Load Test Mobilization and Equipment Fees					
<u>Date</u>	<u>Equipment</u>	<u>Description</u>	<u>Billable Unit</u>	<u>Unit Cost</u>	<u>Cost</u>
06/06/11	Load Frame Mob	Load Frame/Equip - Mob	1	\$750.00	\$750.00
6/6-15/11	Back Hoe	Back Hoe - Per day	8	\$150.00	\$1,200.00
6/6-15/11	Load Test Crew	Support Truck	8	\$40.00	\$320.00
6/6-15/11	Support Truck - CM	Support Truck - Per Day	8	\$40.00	<u>\$320.00</u>
					\$2,590.00
Equipment Total					\$8,515.00

Pile Install Reimbursables					
<u>Date</u>	<u>Employee</u>	<u>Description</u>	<u>Billable Unit</u>	<u>Unit Cost</u>	<u>Cost</u>
05/17/11	Drill Crew #1	Per Diem	4	\$25.00	\$100.00
05/17/11	Drill Crew #1	Lodging	2	\$110.00	\$220.00
05/17/11	Drill Crew #2	Per Diem	4	\$25.00	\$100.00
05/17/11	Drill Crew #2	Lodging	2	\$110.00	\$220.00
05/18/11	Drill Crew #1	Lodging	2	\$110.00	\$220.00
05/18/11	Drill Crew #1	Per Diem	4	\$25.00	\$100.00
05/18/11	Drill Crew #2	Lodging	2	\$110.00	\$220.00
05/18/11	Drill Crew #2	Per Diem	4	\$25.00	\$100.00
05/23/11	Drill Crew #1	Lodging	2	\$110.00	\$220.00
05/23/11	Drill Crew #1	Per Diem	4	\$25.00	\$100.00
05/23/11	Drill Crew #2	Lodging	2	\$110.00	\$220.00
05/23/11	Drill Crew #2	Per Diem	4	\$25.00	<u>\$100.00</u>
					\$1,920.00

Load Test Reimbursables					
<u>Date</u>	<u>Employee</u>	<u>Description</u>	<u>Billable Unit</u>	<u>Unit Cost</u>	<u>Cost</u>
06/06/11	Load Test Crew	Per Diem	2	\$25.00	\$50.00
06/06/11	Load Test Crew	Lodging	1	\$110.00	\$110.00
06/07/11	Load Test Crew	Per Diem	2	\$25.00	\$50.00
06/07/11	Load Test Crew	Lodging	1	\$110.00	\$110.00
06/08/11	Load Test Crew	Per Diem	2	\$25.00	\$50.00
06/08/11	Load Test Crew	Lodging	1	\$110.00	\$110.00
06/09/11	Load Test Crew	Per Diem	2	\$25.00	\$50.00
06/09/11	Load Test Crew	Lodging	1	\$110.00	\$110.00
06/12/11	Load Test Crew	Per Diem	2	\$25.00	\$50.00
06/12/11	Load Test Crew	Lodging	1	\$110.00	\$110.00
06/13/11	Load Test Crew	Per Diem	2	\$25.00	\$50.00
06/13/11	Load Test Crew	Lodging	1	\$110.00	\$110.00
06/14/11	Load Test Crew	Per Diem	2	\$25.00	\$50.00
06/14/11	Load Test Crew	Lodging	1	\$110.00	<u>\$110.00</u>
					\$1,120.00

Reimbursables Total \$3,040.00

TOTAL In-House Cost \$43,227.50

Davis-Garvin Agency, Inc. - SC
PO Box 21627 * Columbia, SC 29221-1627

-----INVOICE-----

Terratec, Inc.
1350 Methodist Park Road
West Columbia, SC 29170

Invoice Date 05/20/11
Invoice No. 341171
Bill-To Code TERRATEC
Client Code TERRATEC
Inv Order No. 110*488514

Named Insured: Terratec, Inc.

Amount Remitted: \$

Please return this portion with your payment.

Make checks payable to: Davis-Garvin Agency, Inc. - SC

Effective Date	Policy Period	Coverage Description	Transaction Amount
05/18/11	05/17/11 to 01/26/12	Torus National Insurance Co. Policy No. 10887B110ALI *New - Commercial Umbrella	5,234.00
		Policy Fees - Fees	500.00
		Invoice Number: 341171	Amount Due: 5,734.00
*Premiums Due and Payable on Effective Date			

EWB

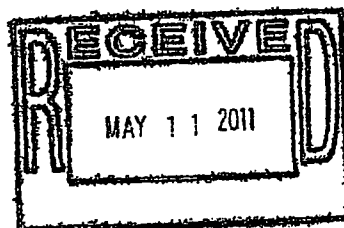
Page: 1

INVOICE COPY

ROA000501

CCSD Ex 8 pg 026

PREMIUM FINANCING SPECIALISTS CORP
 A DIVISION OF IPFS CORPORATION (IPFS)
 1122 LADY ST. # 940
 COLUMBIA, SC 29201
 (800)217-7927 - FAX: (803)771-8710



NOTICE OF PAYMENT DUE		
DATE MAILED	ACCOUNT NUMBER	DUE DATE
05/06/11	SCC-232914	05/26/11

IF ANY QUESTIONS, PLEASE CALL: (800)217-7927

IMPORTANT

To protect your account please make sure that your payment is made on or before the payment due date shown. Your payment for the insurance premiums we are budgeting for you is due on the date indicated. **MAKE CHECK OR MONEY ORDER PAYABLE to PREMIUM FINANCING SPECIALISTS CORP.** and return the payment and this notice to the address shown on coupon.

INSURED
 TERRATEC, INC
 ATTN: MARGARET C. MORRISON, PRES.
 1350 METHODIST PARK RD
 W COLUMBIA, SC 29170-2842

CURRENT BALANCE	PAYMENT DUE
\$10,662.12	\$1,777.02

To ensure proper credit, please send the coupon below with your payment and write your account number on your check.

Please see the coupon for the overnight, priority, or other special delivery address. Do not use the P.O. Box address for these services as it may cause a delay in receipt.

Make online payments or view account information at www.premiumfinance.com.
 Please use access code S66JW9P to register (first time users).

TERRATEC, INC.

Premium Financing Specialists

General Liability SCC-232914

5/26/2011

1,777.02

10220

ROA000502

CCSD Ex 8 pg 027

Make Checks Payable To:

Appalachian Underwriters, Inc.
C/O PayGo Billing
PO Box 800
Oak Ridge, TN 37831-0800

Payment Due By: 6/10/2011

Amount Due Now: \$892.05

Amount Enclosed:

Check Number:

Policy Number: AWC18858-10
Worker's Compensation - Specialty
Insured: TERRATEC INC

AWC18858-10

Please Tear and Enclose Payment Stub

Pay by Credit Card

Contact ITP at 866-984-3123. A convenience fee of \$14.95 will be added to your credit card.
Please note that credit card payments over \$3,000.00 are not accepted.

Pay by Check

1. Print the payment stub above and include with your check.
2. Make check payable to 'Appalachian Underwriters, Inc.'
3. Write your policy number in the MEMO line of your check.
4. Mail your payment to:

Appalachian Underwriters, Inc.
C/O PayGo Billing
PO Box 800
Oak Ridge, TN 37831-0800

OR overnight to:

Appalachian Underwriters, Inc.
C/O PayGo Billing
800 Oak Ridge Turnpike
Suite A-1000
Oak Ridge, TN 37830



PAGE 1 OF 1

DATE: 05/05/2011

Vehicles

NOTICE OF PAYMENT DUE

AGENT: DAVIS-GARVIN AGENCY INC

PHONE: 803-732-0060

SC

000183

TERRATEC INC
1350 METHODIST PARK RD
WEST COLUMBIA SC 29170

000183

ACCOUNT # CB00402159

DESCRIPTION	POLICY NUMBER	CURRENT DUE
LAST PAYMENT RECEIVED 04/22/2011		\$967.82
BUSINESS AUTO POLICY 01/26/2011 - 01/26/2012	BAP 2187219 05-07-07	\$982.82
SERVICE CHARGE		5.00
MINIMUM DUE 05/26/2011		\$987.82

PAYMENT OPTIONS

OPTION 1: PAY IN FULL	OPTION 2: PAY IN INSTALLMENTS	OPTION 3: "E-PAY" PAYMENT PLAN
PAY \$8,744.87	PAY \$987.82 Your next bill will be: Amount: \$982.82* Due: 06/28/2011 * A service charge will be added to this bill	ELECTRONIC FUNDS TRANSFER OPTION - Complete the "E-PAY" Payment Plan Authorization Form (See reverse side of billing stub) so we can automatically withdraw future monthly payments from your bank account. PAY \$842.48 now via check

We appreciate the opportunity to serve your insurance needs.

Payment of amount less than minimum due may result in cancellation of policy(ies). (If policy(ies) previously terminated, see Important Note on reverse side.)

Your renewal policy will expire at 12:01 a.m. standard time on the renewal effective date shown if the minimum amount due is not received by the due date.

If you have questions concerning account payment status, please call the Payment Services Department at 1-800-444-8950, Ext. 5118. Please see important message(s) on reverse side.

PLEASE FOLD AND TEAR ALONG DOTTED LINES

PLEASE FOLD AND TEAR ALONG DOTTED LINES

ACCOUNT: CB00402159
NAME: TERRATEC INC

AGENT: 00007276

POLICY: BAP 2187219

DUE DATE	E-PAY DOWN PAYMENT	INSTALLMENT	PAY IN FULL	AMOUNT ENCLOSED
05/26/2011	\$842.48	\$987.82	\$8,744.87	

If we do not receive the amount due by the due date, a late fee will be added to your next bill

0000932004021590010000178000096782

State Auto Insurance Companies
PO Box 182738
Columbus, OH 43218-2738Pay online at www.StateAuto.com☐ CHECK HERE TO SELECT "E - PAY PLAN" IF OFFERED ABOVEALSO, PLEASE ENCLOSE DOWNPAYMENT AND COMPLETE ENROLLMENT FORM ON REVERSE SIDE.
STATE AUTO WILL NOTIFY YOU IN WRITING REGARDING THE AMOUNT OF YOUR FIRST E-PAY DEDUCTION.

822285 Print

CCSD Ex 8 pg 029

ROA000504

Equipment



PAGE 1 OF 1

DATE: 05/05/2011

NOTICE OF PAYMENT DUE

AGENT: DAVIS-GARVIN AGENCY INC

PHONE: 803-732-0060

SC

000184

TERRATEC INC
1350 METHODIST PARK RD
WEST COLUMBIA SC 29170

ACCOUNT # CB00402158

DESCRIPTION	POLICY NUMBER	CURRENT DUE
LAST PAYMENT RECEIVED 04/22/2011		\$359.08
COMMERCIAL POLICY (01/28/2011 - 01/28/2012)	SPP 2442158-05 07/17	\$354.08
SERVICE CHARGE		5.00
MINIMUM DUE 05/28/2011		\$359.08

PAYMENT OPTIONS

OPTION 1 - PAY IN FULL	OPTION 2 - PAY IN INSTALLMENTS	OPTION 3 - E-PAY PAYMENT PLAN
PAY \$2,483.64	PAY \$359.08 Your next bill will be: Amount: \$354.08* Due: 08/28/2011 * A service charge will be added to this bill	ELECTRONIC FUNDS TRANSFER OPTION - Complete the "E-PAY" Payment Plan Authorization Form (See reverse side of billing stub) so we can automatically withdraw future monthly payments from your bank account. PAY \$309.83 now via check

We appreciate the opportunity to serve your insurance needs.

Payment of amount less than minimum due may result in cancellation of policy(ies). (If policy(ies) previously terminated, see important Note on reverse side.)

Your renewal policy will expire at 12:01 a.m. standard time on the renewal effective date shown if the minimum amount due is not received by the due date.

If you have questions concerning account payment status, please call the Payment Services Department at 1-800-444-8960, Ext 5118. Please see important message(s) on reverse side.

PLEASE FOLD AND TEAR ALONG DOTTED LINES

ACCOUNT: CB00402158 AGENT: 00007276 POLICY: SPP 2442158
NAME: TERRATEC INC

DUE DATE	E-PAY DOWN PAYMENT	INSTALLMENT	PAY IN FULL	AMOUNT ENCLOSED
05/28/2011	\$309.83	\$359.08	\$2,483.64	

If we do not receive the amount due by the due date, a late fee will be added to your next bill

0000932004021560010000166000035909

State Auto Insurance Companies
PO Box 182738
Columbus, OH 43218-2738

Pay online at www.StateAuto.com

☐ CHECK HERE TO SELECT "E - PAY PLAN" IF OFFERED ABOVE

ALSO, PLEASE ENCLOSE DOWNPAYMENT AND COMPLETE ENROLLMENT FORM ON REVERSE SIDE.

STATE AUTO WILL NOTIFY YOU IN WRITING REGARDING THE AMOUNT OF YOUR FIRST E-PAY DEDUCTION.

000027 Printed

ROA000505

CCSD Ex 8 pg 030



READY MIXED CONCRETE COMPANY INVOICE

PHONE: (843) 744-3535

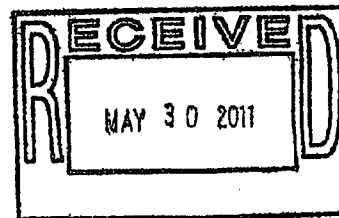
TERRATEC INC
1350 METHODIST PARK
WEST COLUMBIA SC 29170

DATE 05/24/11
INVOICE 896414
ORDER: 51014
ACCOUNT 82346
PROJECT 428234601
P.O. NO.
JOB

SHIPPED TO: RIVERS MIDDLE SCHOOL - RETROFIT

Lot Number

DATE	QTY/UOM	PRODUCT	DESCRIPTION	TICKET#	PLT#	PRICE	EXT PRICE
05/24	4.50cy	50GNF197	5000GROUTNAASH(11.75)	5169459	51	98.00	\$441.00
05/24	4.50ds	R5OZ	5 OZ RETARDER	5169459	51	2.50	\$11.25
05/24	4.50ds	GL4OZ	GLENIUM 4OZ	5169459	51	5.00	\$22.50
05/24	4.50cy	50GNF197	5000GROUTNAASH(11.75)	5169478	51	98.00	\$441.00
05/24	4.50ds	R5OZ	5 OZ RETARDER	5169478	51	2.50	\$11.25
05/24	4.50ds	GL4OZ	GLENIUM 4OZ	5169478	51	5.00	\$22.50



NET 30

9.00 CUBIC YDS Sub Total 949.50
Total Tax 80.71
Total: \$1,030.21

↑ DETACH HERE AND RETURN WITH REMITTANCE ↑

REMIT TO: READY MIXED CONCRETE COMPANY
P.O. BOX 198907
ATLANTA, GA 30384-8907

CUST. NAME TERRATEC INC
CUST. ACCT. NO. 82346
INVOICE NO. 896414
INVOICE DATE May-24-2011
DISC. AVAILABLE \$.00
INVOICE TOTAL \$1,030.21

INVOICE PAST DUE 30 DAYS AFTER DATE OF PURCHASE. ALL INVOICES ARE DUE AND PAYABLE AS STATED ABOVE. THESE SALES ARE EXPRESSLY CONDITIONED ON THE TERMS AND CONDITIONS OF THE STANDARD READY MIXED CONCRETE COMPANY COMMERCIAL CREDIT APPLICATION AND OPEN ACCOUNT AGREEMENT. COPY AVAILABLE UPON REQUEST.

THANK YOU

ROA000506

CCSD Ex 8 pg 031



READY MIXED CONCRETE COMPANY INVOICE

(843) 744-3535

PHONE:

TERRATEC INC
1350 METHODIST PARK
WEST COLUMBIA SC 29170

05/23/11
DATE 896007
INVOICE 51001
ORDER: 82346
ACCOUNT 428234601
PROJECT
P.O. NO.
JOB

SHIPPED TO: RIVERS MIDDLE SCHOOL - RETROFIT

Lot Number

DATE	QTY/AOM	PRODUCT	DESCRIPTION	TICKET #	PLT #	PRICE	EXT. PRICE
05/23	3.50cy	50GNF197	5000GROUTNAASH(11.75)	5169375	51	98.00	\$343.00
05/23	3.50ds	R50Z	5 OZ RETARDER	5169375	51	2.50	\$8.75
05/23	3.50ds	GL4OZ	GLENIUM 4OZ	5169375	51	5.00	\$17.50
05/23	3.50cy	50GNF197	5000GROUTNAASH(11.75)	5169382	51	98.00	\$343.00
05/23	3.50ds	R50Z	5 OZ RETARDER	5169382	51	2.50	\$8.75
05/23	3.50ds	GL4OZ	GLENIUM 4OZ	5169382	51	5.00	\$17.50

NET 30	7.00	CUBIC YDS	Sub Total	738.50
			Total Tax	62.77
			Total:	\$801.27

↑ DETACH HERE AND RETURN WITH REMITTANCE ↑

REMIT TO: READY MIXED CONCRETE COMPANY
P.O. BOX 198907
ATLANTA, GA 30384-8907

CUST. NAME TERRATEC INC
CUST. ACCT. NO. 82346
INVOICE NO. 896007
INVOICE DATE May-23-2011
DISC. AVAILABLE \$.00
INVOICE TOTAL \$801.27

INVOICE PAST DUE 30 DAYS AFTER DATE OF PURCHASE. ALL INVOICES ARE DUE AND PAYABLE AS STATED ABOVE. THESE SALES ARE EXPRESSLY CONDITIONED ON THE TERMS AND CONDITIONS OF THE STANDARD READY MIXED CONCRETE COMPANY COMMERCIAL CREDIT APPLICATION AND OPEN ACCOUNT AGREEMENT. COPY AVAILABLE UPON REQUEST.

THANK YOU

ROA000507

CCSD Ex 8 pg 032



READY MIXED CONCRETE COMPANY INVOICE

PHONE: (843) 744-3535

TERRATEC INC
1350 METHODIST PARK
WEST COLUMBIA SC 29170



DATE 05/19/11
INVOICE 895207
ORDER: 51006
ACCOUNT 82346
PROJECT 428234601
P.O. NO.
JOB

SHIPPED TO: RIVERS MIDDLE SCHOOL - RETROFIT

Lot Number

DATE	QTY/UOM	PRODUCT	DESCRIPTION	TICKET #	PLT #	PRICE	EXT PRICE
05/19	7.00cy	50GNF197	5000GROUTNAASH(11.75)	5169239	51	98.00	\$686.00
05/19	7.00ds	R50Z	5 OZ RETARDER	5169239	51	2.50	\$17.50

NET 30	7.00	CUBIC YDS	Sub Total	703.50
			Total Tax	59.80
			Total:	\$763.30

↑ DETACH HERE AND RETURN WITH REMITTANCE ↑

REMIT TO: READY MIXED CONCRETE COMPANY
P.O. BOX 198907
ATLANTA, GA 30384-8907

CUST. NAME TERRATEC INC
CUST. ACCT. NO. 82346
INVOICE NO. 895207
INVOICE DATE May-19-2011
DISC. AVAILABLE \$.00
INVOICE TOTAL \$763.30

INVOICE PAST DUE 30 DAYS AFTER DATE OF PURCHASE. ALL INVOICES ARE DUE AND PAYABLE AS STATED ABOVE. THESE SALES ARE EXPRESSLY CONDITIONED ON THE TERMS AND CONDITIONS OF THE STANDARD READY MIXED CONCRETE COMPANY COMMERCIAL CREDIT APPLICATION AND OPEN ACCOUNT AGREEMENT. COPY AVAILABLE UPON REQUEST.

THANK YOU

CCSD Ex 8 pg 033

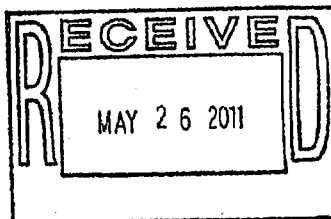
ROA000508



READY MIXED CONCRETE COMPANY INVOICE

PHONE: (843) 744-3535

TERRATEC INC
1350 METHODIST PARK
WEST COLUMBIA SC 29170



DATE 05/18/11
INVOICE 894794
ORDER: 51011
ACCOUNT 82346
PROJECT 428234601
P.O. NO.
JOB

SHIPPED TO: RIVERS MIDDLE SCHOOL - RETROFIT

Lot Number

DATE	QTY/UOM	PRODUCT	DESCRIPTION	TICKET #	PLT #	PRICE	EXT PRICE
05/18	6.00cy	50GNF197	5000GROUTNAASH (11.75)	5169196	51	98.00	\$588.00
05/18	6.00cy	50GNF197	5000GROUTNAASH (11.75)	5169206	51	98.00	\$588.00
05/18	6.00ds	R5OZ	5 OZ RETARDER	5169206	51	2.50	\$15.00

NET 30

12.00 CUBIC YDS Sub Total 1,191.00
Total Tax 101.24
Total: \$1,292.24

↑ DETACH HERE AND RETURN WITH REMITTANCE ↑

REMIT TO: READY MIXED CONCRETE COMPANY
P.O. BOX 198907
ATLANTA, GA 30384-8907

CUST. NAME TERRATEC INC
CUST. ACCT. NO. 82346
INVOICE NO. 894794
INVOICE DATE May-18-2011
DISC. AVAILABLE \$.00
INVOICE TOTAL \$1,292.24

INVOICE PAST DUE 30 DAYS AFTER DATE OF PURCHASE. ALL INVOICES ARE DUE AND PAYABLE AS STATED ABOVE. THESE SALES ARE EXPRESSLY CONDITIONED ON THE TERMS AND CONDITIONS OF THE STANDARD READY MIXED CONCRETE COMPANY COMMERCIAL CREDIT APPLICATION AND OPEN ACCOUNT AGREEMENT. COPY AVAILABLE UPON REQUEST.

THANK YOU

ROA000509

CCSD Ex 8 pg 034



8185 Graphic Dr., NE • Belmont, MI 48308
818-886-0815 • Fax 818-886-1810

INVOICE

CUSTOMER

INVOICE NO.	PAGE
250406	1

HIPTO

TERRATEC PM
1002 KING STREET
CHRIS MORRISON (803) 467-0132
CHARLESTON SC
USA

PLEASE PRINT TO
Dept 77897
P.O. Box 77000
Detroit, MI 48277-0897

DATE 5/16/11
DUE ON 6/15/11

OLD TO

TERRATEC PM
1350 METHODIST PARK ROAD
WEST COLUMBIA SC 29170
USA

EXPORT	CURRENCY
N	
TERMS	
NET 30	
SELLER ID	

CUSTOMER	ORDER	SLS REP	P.O. NUMBER	P.O. REV
1 83785480	CO 187173	531	Charleston, SC - Tes	
SHIP NO	SHIPPING INSTRUCTIONS	SHIP DATE	SHIP WEIGHT	
128434	PPD/DALLAS/LITHIA	5/16/11	8,460.000 LB	

LINE NO.	ITEM NUMBER / DESCRIPTION	U/M	QUANTITY	PRICE	NET SALES AMOUNT
	Carrier . . . : DALLAS & MAVIS PER ROB NET PRICES				
	R711460000RH 150KSI ATB 1-3/4" X 50'0" RH * RIGHT HAND *	EA	18.000 625.140		11,252.52
	R7214RH 150KSI ATB COUP 1-3/4" *RIGHT*	EA	18.000 41.470		746.46
	R7314RHGA 150KSI HEX NUT 1-3/4"*RIGHT*GA	EA	18.000 20.670		372.06
	PPD/DALLAS#3594/LITHIA				1,168.75

SALES	12,371.04	TRADE DISCOUNT	.00
CHARGES	.00	TERMS DISCOUNT	.00
TOTAL	1,168.75		
NET	.00		
			13,539.79

CCSD Ex 8 pg 035

ROA000510

PAYMENT STATEMENT

Return this portion of invoice with payment

Terms are net 30 days from date of invoice.

Terratec, Inc.
1350 Methodist Park Rd.
W. Columbia, SC 29170

Attention: Chris Morrison

Reference: Rivers Education Center
Project Number: 11-6332C
Invoice Number: 32012



Charleston Office
4301 Dorchester Road, Suite A
Charleston, SC 29405
(Office) (843) 763-4093
(Fax) (843) 763-4094

Make Checks Payable to:
GS2 Engineering & Environmental Consultants, Inc.

Remit Payment to:
1200 Veterans Road
Columbia, SC 29209

Credit Card Payments May be Arranged

Invoice Period: 10
Invoice Sub-Total Due: \$2,605.00
Finance Charges (%): \$0.00

Invoice Overall Total Due: \$2,605.00

Keep this portion of invoice for your records



GS2 Engineering & Environmental Consultants, Inc.
Charleston Office - 4301 Dorchester Road, Suite A
Charleston, South Carolina 29405
(843) 763-4093 (843) 763-4094

Project Name: Rivers Education Center
Project No.: 11-6332C

Inv. Date: 05/29/2011
Inv. No.: 32012

INVOICE

For Services Provided From 5/7/11 to 5/20/11

CONTRACT SERVICES

LABOR

Project Management, Engineering and Quality Control

Date	Work Task	Personnel	No. Hours	Unit Fee (per hr.)	Cost
05/10/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
05/11/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
05/13/11	Project Management	Prof. Engineer - GS	1.00	\$55.00	\$55.00
05/16/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
05/17/11	Project Management	Prof. Engineer - GS	6.00	\$55.00	\$330.00
05/18/11	Project Management	Prof. Engineer - GS	13.00	\$55.00	\$715.00
05/18/11	Grout Testing	Sr. Eng. Tech - BS	2.00	\$35.00	\$70.00
05/19/11	Project Management	Prof. Engineer - GS	13.00	\$55.00	\$715.00
				Labor Total	\$2,215.00

TRAVEL, PER DIEM AND LODGING

Date	Personnel	Vehicle	Miles/Trips	Unit Fee (per Mi/Trip.)	Cost
05/17/11	Prof. Engineer	Truck	1	\$10.00	\$10.00
05/17/11	Prof. Engineer	Lodging	1	\$110.00	\$110.00
05/17/11	Prof. Engineer	Per Diem	1	\$25.00	\$25.00

05/18/11	Prof. Engineer	Truck	1	\$10.00	\$10.00
05/18/11	Sr. Engineering Tech	Truck	1	\$10.00	\$10.00
05/18/11	Prof. Engineer	Lodging	1	\$110.00	\$110.00
05/18/11	Prof. Engineer	Per Diem	1	\$25.00	\$25.00
05/19/11	Prof. Engineer	Truck	1	\$10.00	\$10.00
				Travel Total	<u>\$310.00</u>

LABORATORY

<u>Laboratory Test Performed</u>	<u>Number of Tests</u>	<u>Unit</u>	<u>Cost (per test)</u>	<u>Cost</u>
Compressive Strength of Grout Cylinders	4		\$20.00	\$80.00
			Lab Total	<u>\$80.00</u>

CONTRACT SERVICES SUBTOTAL \$2,605.00

* = Depicts Overtime Rates

OVERALL TOTAL DUE \$2,605.00

PAYMENT STATEMENT

Return this portion of invoice with payment

Terms are net 30 days from date of invoice.

Terratec, Inc.
1350 Methodist Park Rd.
W. Columbia, SC 29170

Attention: Chris Morrison

Reference: Rivers Education Center

Project Number: 11-8332C

Invoice Number: 32037



Charleston Office
4301 Dorchester Road, Suite A
Charleston, SC 29405
(Office) (843) 763-4093
(Fax) (843) 763-4094

Make Checks Payable to:
GS2 Engineering & Environmental Consultants, Inc.

Invoice Period: 11
Invoice Sub-Total Due: \$2,567.00
Finance Charges (%): \$0.00

Remit Payment to:
1200 Veterans Road
Columbia, SC 29209

Credit Card Payments May be Arranged

Invoice Overall Total Due: \$2,567.00

Keep this portion of invoice for your records



GS2 Engineering & Environmental Consultants, Inc.
Charleston Office - 4301 Dorchester Road, Suite A
Charleston, South Carolina 29405
(843) 763-4093 (843) 763-4094

Project Name: Rivers Education Center
Project No.: 11-8332C

Inv. Date: 6/11/2011
Inv. No.: 32037

I N V O I C E

For Services Provided From 5/21/11 to 6/3/11

CONTRACT SERVICES

LABOR

Project Management, Engineering and Quality Control

Date	Work Task	Personnel	No. Hours	Unit Fee (per hr.)	Cost
05/23/11	Project Management	Prof. Engineer - GS	10.00	\$55.00	\$550.00
05/24/11	Project Management	Prof. Engineer - GS	10.00	\$55.00	\$550.00
05/24/11	Grout Testing	Sr. Eng. Tech - JC	9.00	\$33.00	\$297.00
05/25/11	Project Management	Prof. Engineer - GS	1.00	\$55.00	\$55.00
05/25/11	Sample Prep Lab (Grout)	Sr. Lab. Tech - RR	1.00	\$45.00	\$45.00
05/26/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00
06/02/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00
06/03/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
Labor Total					\$1,937.00

TRAVEL, PER DIEM AND LODGING

Date	Personnel	Vehicle	Miles/Trips	Unit Fee (per Mi/Trip.)	Cost
05/23/11	Prof. Engineer	Truck	1	\$10.00	\$10.00
05/23/11	Prof. Engineer	Lodging	1	\$110.00	\$110.00
05/24/11	Prof. Engineer	Truck	1	\$10.00	\$10.00

05/24/11	Staff Prof.	Truck	1	\$0	\$10.00	\$10.00
05/24/11	Sr. Eng. Tech	Truck	1	\$10.00	\$10.00	\$10.00
				Travel Total		\$160.00

LABORATORY and DRILLING

<u>Laboratory Test Performed</u>	<u>Number of Tests</u>	<u>Unit</u>	<u>Cost (per test)</u>	<u>Cost</u>
Compressive Strength of Grout Cylinders	24		\$20.00	\$480.00
			Lab Total	\$480.00

CONTRACT SERVICES SUBTOTAL \$2,667.00

OVERALL TOTAL DUE \$2,567.00

PAYMENT STATEMENT

Return this portion of invoice with payment

Terms are net 30 days from date of invoice.

Terratec, Inc.
1350 Methodist Park Rd.
W. Columbia, SC 29170

Attention: Chris Morrison

Reference: Rivers Education Center
Project Number: 11-6332C
Invoice Number: 32067



ENGINEERING & ENVIRONMENTAL
CONSULTANTS, INC.

Charleston Office
4301 Dorchester Road, Suite A
Charleston, SC 29406
(Office) (843) 763-4093
(Fax) (843) 763-4094

Make Checks Payable to:
GS2 Engineering & Environmental Consultants, Inc.

Remit Payment to:
1200 Veterans Road
Columbia, SC 29209

Credit Card Payments May be Arranged

Invoice Period: 12
Invoice Sub-Total Due: \$5,637.50
Finance Charges (%): \$0.00

Invoice Overall Total Due: \$5,637.50

Keep this portion of invoice for your records



GS2 Engineering & Environmental Consultants, Inc.
Charleston Office - 4301 Dorchester Road, Suite A
Charleston, South Carolina 29406
(843) 763-4093 (843) 763-4094

Project Name: Rivers Education Center
Project No.: 11-6332C

Inv. Date: 6/25/11
Inv. No.: 32067

I N V O I C E

For Services Provided From 6/4/11 to 6/17/11

CONTRACT SERVICES

LABOR

Project Management, Engineering and Quality Control

Date	Work Task	Personnel	No. Hours	Unit Fee (per hr.)	Cost
06/05/11	Project Management	Prof. Engineer - GS	1.50	\$55.00	\$82.50
06/06/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00
06/07/11	Project Management	Prof. Engineer - GS	6.00	\$55.00	\$330.00
06/07/11	Pile Load Test	Staff Prof. - BS	9.00	\$30.00	\$270.00
06/07/11	Pile Load Test	Staff Prof. - WC	9.00	\$30.00	\$270.00
06/08/11	Project Management	Prof. Engineer - GS	8.00	\$55.00	\$440.00
06/08/11	Pile Load Test	Staff Prof. - BS	10.00	\$30.00	\$300.00
06/08/11	Pile Load Test	Staff Prof. - WC	10.00	\$30.00	\$300.00
06/09/11	Project Management	Prof. Engineer - GS	8.00	\$55.00	\$440.00
06/09/11	Pile Load Test	Staff Prof. - BS	8.00	\$30.00	\$240.00
06/09/11	Pile Load Test	Staff Prof. - WC	8.00	\$30.00	\$240.00
06/10/11	Pile Load Test	Staff Prof. - BS	3.00	\$30.00	\$90.00
06/10/11	Pile Load Test	Staff Prof. - WC	9.00	\$30.00	\$270.00
06/13/11	Project Management	Prof. Engineer - GS	5.00	\$55.00	\$275.00
06/13/11	Pile Load Test	Staff Prof. - BS	8.00	\$30.00	\$240.00
06/13/11	Pile Load Test	Staff Prof. - WC	8.00	\$30.00	\$240.00

06/14/11	Pile Load Test	Staff Prof. - BS	8.00	\$30.00	\$240.00
06/14/11	Pile Load Test	Staff Prof. - WC	8.00	\$30.00	\$240.00
06/15/11	Project Management	Prof. Engineer - GS	1.00	\$55.00	\$55.00
06/15/11	Pile Load Test	Staff Prof. - BS	3.00	\$30.00	\$90.00
06/15/11	Pile Load Test	Staff Prof. - WC	3.00	\$30.00	\$90.00
06/16/11	Project Management	Prof. Engineer - GS	4.00	\$55.00	\$220.00
06/17/11	Project Management	Prof. Engineer - GS	6.00	\$55.00	\$330.00
				Labor Total	\$5,457.50

TRAVEL, PER DIEM AND LODGING

<u>Date</u>	<u>Personnel</u>	<u>Vehicle</u>	<u>Miles/Trips</u>	<u>Unit</u> <u>Fee (per Mi/Trip.)</u>	<u>Cost</u>
06/07/11	Prof. Engineer - GS	Truck	1	\$10.00	\$10.00
06/07/11	Staff Prof. - BS	Truck	1	\$10.00	\$10.00
06/07/11	Staff Prof. - WC	Truck	1	\$10.00	\$10.00
06/08/11	Prof. Engineer - GS	Truck	1	\$10.00	\$10.00
06/08/11	Staff Prof. - BS	Truck	1	\$10.00	\$10.00
06/08/11	Staff Prof. - WC	Truck	1	\$10.00	\$10.00
06/09/11	Prof. Engineer - GS	Truck	1	\$10.00	\$10.00
06/09/11	Staff Prof. - BS	Truck	1	\$10.00	\$10.00
06/09/11	Staff Prof. - WC	Truck	1	\$10.00	\$10.00
06/10/11	Staff Prof. - BS	Truck	1	\$10.00	\$10.00
06/10/11	Staff Prof. - WC	Truck	1	\$10.00	\$10.00
06/13/11	Prof. Engineer - GS	Truck	1	\$10.00	\$10.00
06/13/11	Staff Prof. - BS	Truck	1	\$10.00	\$10.00
06/13/11	Staff Prof. - WC	Truck	1	\$10.00	\$10.00
06/14/11	Staff Prof. - BS	Truck	1	\$10.00	\$10.00
06/14/11	Staff Prof. - WC	Truck	1	\$10.00	\$10.00
06/15/11	Staff Prof. - BS	Truck	1	\$10.00	\$10.00
06/15/11	Staff Prof. - WC	Truck	1	\$10.00	\$10.00
				Travel Total	\$180.00

CONTRACT SERVICES SUBTOTAL \$5,637.50

OVERALL TOTAL DUE \$5,637.50



KYZER & TIMMERMAN
STRUCTURAL ENGINEERS, LLC

April 30, 2012

Mr. Chris Morrison
Terratec, Inc.
1350 Methodist Park Road
West Columbia, South Carolina 29170

Re: Change Order #2- Back up Info
Rivers Education Center
Charleston, South Carolina

Dear Chris:

The additional time required from my office for Change Order #2 is as follows:

Drafting: Alvin B. 20 hrs at \$60/hr = \$1200.00
Tim P. 17.25 hrs at \$50/hr = 862.50

Design: Ken T. 1 hr at \$125/hr = 125.00

Secretarial: .5 hr at \$25.0/hr = 12.50

TOTAL = \$2,200.

I have included time sheets from my drafting department.

Chris, please give me a call if there are any questions.

Sincerely,

Kenneth W. Timmerman, P.E.

cc: File

580 CHRIS DRIVE • WEST COLUMBIA, SC 29169
(803) 791-4511 • (803) 791-4522 FAX

ROA000517

CCSD Ex 8 pg 042

KYZER & TIMMERMAN

CHECKED BY: _____

WEEKLY TIME SHEET

NAME: *John Palmer*

WEEK ENDING: Friday, May 27, 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	
SAT.						WORK	
DATE:						0	
5/21/2011							
SUN.						0	
DATE:							
5/22/2011							
MON.	R.S.D. - II ELEM. - 19	11 - 128	2.75	8:15	5:00	8.75	
DATE:	CIU - Library Phase II Entrance	10 - 363	1.5				
5/23/2011	Palmetto Custom Creations	11 - 263	2				
	Charleston School Upfit	11 - 158	1				
	ADMINISTRATIVE	11 - 011	1.5				
TUES.	R.S.D. - II ELEM. - 19	11 - 128	3.5	8:30	12:00	7.75	
DATE:	CIU - Library Phase II Entrance	10 - 363	1.5	1:00	5:15		
5/24/2011	Lad Corp - Trench box cert.	11 - 262	2				
	ADMINISTRATIVE	11 - 011	0.75				
WED.	R.S.D. - II ELEM. - 19	11 - 128	2	8:00	5:00	9	
DATE:	EMBASSY SUITES	11 - 265	1				
5/25/2011	Charleston School Upfit	11 - 158	6				
	ADMINISTRATIVE	11 - 011					
THURS.	R.S.D. - II ELEM. - 19	11 - 158	3	8:00	5:00	9	
DATE:	Charleston School Upfit	11 - 158	6				
5/26/2011							
	ADMINISTRATIVE	11 - 011					
FRI.	Charleston School Upfit	11 - 158	7	8:00	5:00	9	
DATE:	TERRATEC - KY, NC JOBS		2				
5/27/2011							
	ADMINISTRATIVE	11 - 011					
SUBTOTALS:						43.5	0

Signature: *John Palmer* 20.00

SUBTOTALS:

43.5 0 0

Timesheets shall be complete with accurate Job Names, Job Numbers, and Hours at the end of each day.

Completed time sheets shall be turned in NO LATER than 10:00 a.m. on the Monday of the following week.

Employees shall use PTO hours for any time lost during normal business hours if they wish to get paid for that time.

Employees are not allowed to use PTO time that they do not have unless approved by upper management.

ALL TOTAL: 43.5

CHECKED BY:

NAME:

WEEK ENDING:

May 13th 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	
SAT. DATE: /						WORK	
SUN. DATE: /							
							PTO
							HOL
MON. DATE: 5/9	office	11-011	.5	8:00	—	9	
	Dawsey Church	10-163	1.0				
	WHS Add.	11-148	7.5		5:00		
TUES. DATE: 5/10	Rivers Education	11-158	1.5	8:15	11:45	7.25	
	Dawsey Church	10-163	1.75	1:15			
	WHS Add.	11-148	6.0		5:00		
WED. DATE: 5/11	WHS Add	11-148	7.25	8:00	11:45	7.25	
				1:30			
					5:00		
THURS. DATE: 5/12	WHS Add	11-148	7.25	8:00	12	8.5	
	Commuter	11-002	1.50	12:30			
	office	11-011	.25		5:00		
FRI. DATE: 5/13	Rivers Education, Calif.	11-158	4.5	8:00	12	8	
	WHS Add.	11-148	3.5	1	5:00		
				SUBTOTALS:			

Signature:

SUBTOTALS:

Timesheets shall be complete with accurate Job Names, Job Numbers, and Hours at the end of each day. ALL
Completed time sheets shall be turned in NO LATER than 10:00 a.m. on the Monday of the following week.
Employees shall use PTO hours for any time lost during normal business hours if they wish to get paid for that time.
Employees are not allowed to use PTO time that they do not have unless approved by upper management.

ALL TOTAL:

4c

KYZER & TIMMERMAN WEEKLY TIME SHEET

CHECKED BY: _____

NAME: Timothy G. Plummer

WEEK ENDING: May 20 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	
SAT. DATE: 1						WORK	
SUN. DATE: 1							
MON. DATE: 5/16							PTO HOL
	Office	11-011	.5	8:00	12:30		
	Rivers Education Ctr.	11-158	1.5	1:15	5:00	8.75	
	Waccamaw Add.	11-148	6.75				
TUES. DATE: 5/17							
	Waccamaw HS Add.	11-148	7.0	7:45	11:45		
	Rivers Education Ctr.	11-158	.5	1:30		7.5	
					5:00		
WED. DATE: 5/18							
	Waccamaw HS Add.	11-148	6.75	8:00	12:30		
	Computer	11-002	1.0	1:15		8.75	
	River Education Ctr.	11-158	1.0		5:00		
THURS. DATE: 5/19							
	Waccamaw HS Add.	11-148	7.0	8:15	11:45		
	Office	11-011	.25	1:15		7.25	
					5:00		
FRI. DATE: 5/20							
	Office Clean	11-003	3.5	8:15	/		
	Waccamaw HS Add.	11-148	5.0	/		8.75	
	Myrtle Beach Admin	11-011	.25		5:00		
Signature: <u>Tim Plummer</u>						13.0	
SUBTOTALS:						40	

Timesheets shall be complete with accurate Job Names, Job Numbers, and Hours at the end of each day.
 Completed time sheets shall be turned in NO LATER than 10:00 a.m. on the Monday of the following week.
 Employees shall use PTO hours for any time lost during normal business hours if they wish to get paid for that time.
 Employees are not allowed to use PTO time that they do not have unless approved by upper management.

ALL TOTAL: 40

CHECKED BY: _____

WEEK ENDING: May 27 2011

Timesheets shall be complete with accurate Job Names, Job Numbers, and Hours at the end of each day. ALL
Completed time sheets shall be turned in NO LATER than 10:00 a.m. on the Monday of the following week.
Employees shall use PTO hours for any time lost during normal business hours if they wish to get paid for that time.
Employees are not allowed to use PTO time that they do not have unless approved by upper management.

ALL TOTAL: 40

KYZER & TIMMERMAN

WEEKLY TIME SHEET

CHECKED BY: _____

NAME: Timothy G. Plumbly

WEEK ENDING: June 10th 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	
SAT. DATE: /						WORK	
SUN. DATE: /							
							PTO HOL
MON. DATE: 6/6	office	11-011	.5	7:45	12:30		
	Michenow	11-273	8.0	1:15	5:00	8.5	
TUES. DATE: 6/7	Michenow	11-273	.5	8:00	12		
	Rivers Education Ctr.	11-158	1.00	1:15		7.75	
	WHS ADD.	11-148	6.25		5:00		
WED. DATE: 6/8	Richard Handlery Resid.	11-236	1.25	8:00	-		
	WHS ADD.	11-148	7.75	-	5:00	9	
THURS. DATE: 6/9	WHS ADD.	11-148	7.75	7:45	-		
	Benedict College	11-191	1.0	-	-	9.25	
	office	11-011	.5	-	5:00		
FRI. DATE: 6/10	WHS ADD.	11-148	7.5	8:00	1:00		
	Common law	11-002	1.0	1:30	5:00	8.5	
Signature: <u>T. Plumbly</u> 11.0						SUBTOTALS:	43

Timesheets shall be complete with accurate Job Names, Job Numbers, and Hours at the end of each day.
 Completed time sheets shall be turned in NO LATER than 10:00 a.m. on the Monday of the following week.
 Employees shall use PTO hours for any time lost during normal business hours if they wish to get paid for that time.
 Employees are not allowed to use PTO time that they do not have unless approved by upper management.

ALL TOTAL: 42

Terratec PM

PLEASE REMIT TO: BLANCHARD MACHINERY CO.
P.O. BOX 402197
ATLANTA, GA 30384-2197

Blanchard



Blanchard Machinery Company

Columbia (803) 791-7100
Greenville (864) 863-3645
Summerville (843) 871-2000
Hilton Head (843) 784-6786
Florence (843) 578-8520
Rockhill (803) 324-9800
Myrtle Beach (843) 399-1992

Blanchard Compact Equipment

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Summerville (843) 798-2000
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Greenville (864) 235-1076
Myrtle Beach (843) 389-1822
Used Parts (803) 778-2523
www.blanchardmachinery.com

SOLD TO

TERRATEC INC.
1350 METHODIST PARK RD.
WEST COLUMBIA SC 29170

SHIP TO

CUSTOMER PICK UP

1488701	06-06-11	833	1.0	0	P14887	05-16-11	1	
0006544	CHRIS	RA	MIT P	EU6020045	94041	CAT		
CUSTOMER CONTACT: CHRIS								
1.0	EQUIPMENT LEASE		FROM 05/16/11 THRU 06/12/11					
	CAT		MODEL 924IT FKS					
	FORKS							
	ID NO: 94041		SERIAL NO: EU60200450					300.00
	FOB: SVL							
* THANKS FOR RENTING FROM THE CAT RENTAL STORE								
INVOICE DUE ON 6/17/11								
SC DEPARTMENT OF REVENUE HAS IMPOSED A RENTAL SURCHARGE TAX.								
SC SALES TAX							18.00	
LOCAL SALES TAX							3.00	
SPECIAL OPTION TAX							3.00	
www.blanchardmachinery.com								

A LEW/MONTHLY (\$10/ANNUAL) WILL BE CHARGE ON BALANCES NOT PAID WITHIN THE TERM STATED. RENTAL RATE BASED ON 40-HOUR/WEK OR 168-HOUR/MONTH. LESSOR IS RESPONSIBLE FOR NORMAL CLEAN UP. LESSEE IS RESPONSIBLE FOR EXCESSIVE CLEAN UP, NORMAL MAINTENANCE & DAMAGES TO MACHINERY. MONTHLY RATE IS BASED ON 24 HAY PERIOD.
Title to the equipment shall remain with the lessor until the purchase price (including all taxes) has been paid, but such title shall remain vested in the seller until all sums due or to become due from the purchaser to the seller (thereof, whether evidenced by note, book account, judgment, or otherwise) shall have been fully paid, at which time ownership shall pass to the purchaser. Purchaser shall assume all liability of damage or destruction to same. At any time after any payment thereon becomes overdue seller may avail himself of any legal remedy including the right to repossess the equipment without notice.
Blanchard Machinery Co., the seller, expressly disclaims all warranties, either expressed or implied, including any implied warranty of merchantability or fitness for any particular use. The seller neither assumes nor authorizes any other person to assume for it any liability in connection with the sale of this equipment. The seller is not responsible for any consequential damages. Only the Manufacturer's Warranty, if any, applies to this sale transaction.

PAY THIS AMOUNT
AMOUNT CREDITED

261366

YOUR SOUTH CAROLINACATERPILLAR DEALER

EXHIBIT C

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

DAVIS & FLOYD, INC.

Review is only for conformance with the design concept of the project and compliance with information given in the Contract Documents. Approval is general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc. necessary for proper fitting and construction of the Work, as required by the Contract, for achieving the results and performance specified and for coordination of the work of all trades.

APPROVED

Todd J. Warren

Reviewed by Todd J. Warren on May 10, 2011

May 10, 2011

Attn: Mr. Scott Spigener
M.B. Kahn Construction Company
2950 Farrow Road
Columbia, South Carolina 29203

803-730-4411 mobile
803-776-4870 office
803-776-5507 fax

Pile Load Test Program Submittal – Revision #3
Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Dear Mr. Spigener:

Please allow this submittal to serve as our proposed Pile Load Test Program for the above referenced project. This program contains details relating to the construction and load testing of test piles that meet the specifications established in the project bid documents, in addition to suggestions from our design and installation team.

Purpose of Load Test Program

It is our understanding that the purpose of the load test program at this site is to determine an acceptable embedment depth to achieve the design working loads of 100 kips in compression and tension for the planned 8 inch diameter micropiles.

Project Background

Based upon our review of the available information, and from our review of the project, we understand that the existing structure was built in the 1930s, and that it is abandoned and no longer in use. Furthermore, we understand that the project at the site is to include the renovation and seismic up-fit of the existing structure, and the construction of a fire pump house, which requires the installation of 627 micropiles. Our review of the geotechnical report, and addendum, prepared by S&MB, that was provided as a portion of the project plans and specifications details anticipated pile capacities to reach the design standards (100 kips axial compression and tension) with the installation of 8 inch diameter micropiles installed to depths ranging from 70 feet to 115 feet, with a mean anticipated installation depth of 78 feet. With the proposed micropile bid depth, and subsequent depths detailed in the geotechnical report, our design team has developed a comprehensive pile load test program that will establish a best fit line detailing the available axial and tensile capacities developed by the 8" micropiles versus their embedment in the Cooper Marl.

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Auxiliary System Measuring Devices: One or more of the following auxiliary measuring systems will be established to measure the deflection of the load testing for this project: 1.) wire, mirror, and scale, 2.) surveyor's level and target rod, or, as an alternative, 3.) electrical or optical levels will be installed on the test pile set up and or reaction frame.

Auxiliary System Option 1 - Wire, Mirror, and Scale: The pile movement will be determined by means of a single strand of wire drawn in front of a graduated scale mounted on a mirror. This scale will be at least 6 in. (150 mm) long and machine-divided in graduations of 1/32 of an inch, and will be mounted on a 3 in. x 6 in. (75 mm x 150 mm) mirror with metal-and-glass bonding adhesive or electrical tape. The mirror will be attached directly to the pile head and oriented so that the mirror face is parallel to the reference beam. The wire will be mounted between the ends of the reference beam, with one end fixed and the other placed over a pulley with a weight to maintain tension. Prior to loading, our personnel will locate the wire so that it is level and within 1" (25.5 mm) of the mirror face.

Auxiliary System Option 2 - Surveyor's Level and Target Rod: As an additional unit of measure we may use a level and leveling rod to determine deflections by readings on the two fixed independent benchmarks on an established scale or fixed point on the pile top.

LOAD TESTING OPERATIONS

This procedure presents uniform procedures for conducting and reporting the results of load testing of a pile in static axial compressive and tensile loading conditions. These tests have three primary objectives: To establish load-deflection relationships in the pile-soil system, to determine capacity of the pile-soil system, and to determine load distribution in the pile-soil system. These tests will confirm design assumptions, or provide information to allow those assumptions, so that the design of the planned production piles may be modified prior to installation.

Load Testing Method

The load testing program proposed for this project will be conducted in general accordance with the minimum requirements established in ASTM D3689 *Standard Test Methods for Deep Foundations Under Static Axial Tensile Load*, unless otherwise altered by the design engineer. At this time we propose that the load testing at the project be modified, as stipulated in subsequent sections of this program, and that the test be conducted as a "Quick-Load" test. This modification is offered based on two principles, that include; 1.) the intended application and support conditions that these piles are designed for will experience relatively quick loading when exposed to seismic conditions, and 2.) the installation of two (2) additional test piles exceeds the project specifications and should establish more than adequate information to alter the design production pile prior to installation, if necessary.

Test Pile Acceptance for Loading Criteria

After Installation of the test pile and reaction piles is complete, the piles will be allowed to set for a minimum of 14 days, prior to the attachment of the load apparatus, while load testing will not be conducted until the pile grout has established a minimum compressive strength of 4,000 psi. Grout specimens sampled during pile installation will be tested in compression prior to the load test being conducted, and the results of these tests will be forwarded to the contractor and the design engineer for approval.

Load Testing Apparatus Set Up and Preparation

As stipulated in previous sections of this program, the load will be applied to the test pile, first in compression and second in tension, by jacking against the two reaction piles with one or more calibrated hydraulic jacks. The load application system arrangement and constructed elements of the load-application system will conform with details provided in this program, and to the following details for compressive and tensile loading:

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Compressive Test Pile Loading Preparation: As stated previously, the test piles will be sleeved and extended an adequate depth to provide ample pile for both loading conditions. Preparation of the pile butt will continue as detailed below;

- 1.) At the appropriate pile elevation, our personnel will cut off the pile butt and cap it to provide a level bearing surface perpendicular to the pile axis. A steel plate, or a neat cement paste, will be placed over the head of the pile to ensure a level surface to place the jack.
- 2.) To distribute load over the pile's entire cross-section, our personnel will install a solid steel billet (bearing plate) of sufficient thickness (1 in. (25 mm) minimum) to prevent bending between the capped pile and the jack base. The size of the solid steel billet shall be not less than the size of the pile butt or less than the area covered by the jack base.
- 3.) Install the load application system (including hydraulic jack, spherical bearing and load cell) between the bearing plate on the pile and the center of the underside of the load beams. The system will be constructed so that all components are centered along the pile's longitudinal axis, to ensure application of a concentric minimal load.
- 4.) To distribute load over the entire width of the load beams, another solid steel billet of sufficient thickness (1 in. (25 mm) minimum) will be placed as a bearing plate between the load beam and the load application system.
- 5.) Immediately before starting the load test, our personnel will verify that at least 1 in. (25 mm) of clear space exists between the upper bearing plate and load beams, or the upper bearing plate and load application system.

Tensile Test Pile Loading Preparation: Upon completion of the compressive loading test, the test piles will be reconfigured to provide adequate exposure of the threaded rod for tensile testing, as detailed below;

- 1.) At the appropriate pile elevation, our personnel will cut off the pile butt and expose an adequate length of the threaded rod to attach the loading mechanism.
- 2.) The threaded rod will be attached to the load jack and cell by double bolting the threaded rod to an adequately thick bearing plate.
- 3.) Install the load application system (including hydraulic jack, spherical bearing and load cell) between the bearing plate on the pile and the center of the underside of the load beams. The system will be constructed so that all components are centered along the pile's longitudinal axis, to ensure application of a concentric minimal load.
- 4.) To distribute load over the entire width of the load beams, another solid steel billet of sufficient thickness (2 in. (50 mm) minimum) will be placed as a bearing plate between the load beam and the load application system.
- 5.) Immediately before starting the load test, our personnel will verify that at least 1 in. (25 mm) of clear space exists between the upper bearing plate and load beams, or the upper bearing plate and load application system.

Pile Loading Procedure

As proposed above, the pile loading is recommended to be applied under the "Quick-Load" test method on the subject test piles, first in compression and second in tension. Based on our understanding of this method, we plan to load the test piles in increments of 5% of the design load (i.e. 200 kips and 200 kips in compression and tension, respectively) until reaching failure or the specified design ultimate loads. Upon reaching design or failure loads, the pile will then be unloaded in 25% increments until the load on the pile equals zero. Magnitude and sequence of load and unload increments are as follows:

Loading Increments: Maintain each load increment for 5 minutes, but no more than 15 minutes, after the measureable deflection in the test pile stabilizes (i.e. as defined by a change in deflection of no more than 0.01 in (0.25 mm)). Maintain the 200% design load for 30 minutes after the measureable deflection in the test pile stabilizes.

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EXHIBIT D

**TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX**

June 14, 2011

Attn.: Mr. Scott Spigener
M.B. Kahn Construction Company
2950 Farrow Road
Columbia, South Carolina 29203

803-730-4411 mobile
803-776-4870 office
803-776-5507 fax

**Report of Pile Load Testing Results
Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina**

Dear Mr. Spigener:

Please allow this submittal to serve as our Report of Pile Load Testing that was conducted in accordance with the approved Pile Load Test Program Submittal, dated May 10, 2011, for the above referenced project. This report summarizes the field activities associated with the installation and testing of the planned test piles, the results of the load testing, and it provides suggestions/alternatives for the installation of the production piles for the project.

Purpose of Load Test Program

It is our understanding that the purpose of the load test program at this site was to determine an acceptable embedment depth to achieve the design working loads of 100 kips in compression and tension for the planned 8 inch diameter micropiles. As established by the provided bid and design documents, Terratec installed and conducted a comprehensive pile load test program that has established a best fit line detailing the available axial and tensile capacities developed by the 8" micropiles versus their embedment in the Cooper Marl.

TEST PILE CONSTRUCTION

As established by the bid and design documents, and the approved submittal, our personnel installed reaction and test micropiles for the established testing program.

Micropile Borehole Construction Methods

As established in our submittal, Terratec explored most practical installation methods and determined that the best method for installation of the micropiles would require the use of drilling equipment to create an adequate borehole to achieve the required 8 inch diameter micropile specified by project documents. The use of other installation

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methods are not anticipated to achieve the required diameter due to borehole cave from the relaxation of the overconsolidated Cooper Marl, which in turn could hinder the establishment of a competent pile.

Therefore, the reaction and test pile boreholes were excavated by advancing an 8" diameter O.D., 4.25" diameter I.D., hollow stem, continuous flight auger to the required pile seating depth. The use of the hollow stem auger allowed for the creation of a stable space to install the required reinforcement and to establish a viable grout injection point, while the continuous flights removed loose soil particles from the borehole excavation by carrying the cuttings to the ground surface.

Micropile Construction Details

As required by the project bid and design documents, and upon completion of each borehole, the reaction and test micropiles were constructed in-place by installing a threaded rod that extended to the micropile tip elevation, which was in turn encapsulated by injected plastic grout. In order to encapsulate the threaded rod, the plastic grout was injected through the annular space of the hollow stem augers, utilizing a grout pump, to the pile injection point at the drill tip of the augers. Injection grouting for each pile was achieved by charging the drill augers with grout prior to the commencement of the removal of the augers, and subsequently injecting additional grout continually as the augers were removed from the borehole. During grouting operations, injection pressures were monitored to range between 600 and 2,000 psi. Additionally, during grouting operations the volume of grout injected was recorded utilizing a calibrated stroke count. Material and installation details for the rod and grout are provided in subsequent paragraphs of this section.

Threaded Rod Details: The threaded rod installed for this project, as stated in our submittal, was comprised of 1.75 inch diameter, 150 grade rod manufactured by Williams Form Engineering Corp. The rod was installed in as many as three sections, and was coupled, where necessary, with a 150 grade coupler that was also manufactured by Williams Form Engineering Corp. Representative mill data for the installed rod and couplers was provided in our submittal.

Plastic Grout Details: The plastic grout utilized for the reaction and test piles, which will subsequently be utilized for the construction of the production piles, was a 5,000 psi @ 28-day compressive strength mix that exceeds the project design requirements of 4,000 psi @ 28-day compressive strength. The grout was comprised of a mixture of Type I Portland cement blended to specified design ratios with a fine sand aggregate, which was supplied by Ready Mixed Concrete Company. The grout mix material specifications and the mix design test data results were provided in our submittal, while detailed grout volume and compressive strength test results for each test pile are provided in the next section of this report.

Test and Reaction Pile Construction Details: A total of four (4) test and five (5) reaction, 8" diameter micropiles were constructed to the project bid and design specifications, in the configuration, indicated in the attached Test Pile Location Plan, which is attached in Appendix A. The test piles were installed to tip depths of 66, 70, 75 and 80 feet below ground surface (bgs), while the reaction piles were installed to depths of 70 to 80 feet bgs. For loading purposes, the test piles were sleeved and extended an adequate depth above ground surface (ags) to allow proper loading. Per the represented configuration, two reaction piles, per test pile, were installed as support for the load reaction frame. The reaction piles were installed at a spacing of 8 times the diameter of the test and reaction piles, measured between the faces of the test pile and reaction piles, as established in our submittal.

A summary of the test pile construction details is included in the table below, while Terratec's installation records are attached in appendix A.

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Table 1. Test Pile Construction Summary

Test Pile #	Test Pile Length, bgs (ft)	Marl Embedment (ft)	Threaded Rod Length (ft)	Theoretical Grout Volume Ratio	Grout Comp. Strength @ 14 days (psi)
TP-1	66	10	67	1.35	7,100
TP-2	70	14	71	1.37	6,690
TP-3	75	19	76	1.20	6,900
TP-4	80	24	81	1.36	6,960

Quality Control: Representatives of GS2 and WPC were present during the reaction and test pile installation process to verify the depth of the borehole, length of threaded rod installed, grout injection procedures and to secure grout specimen for laboratory testing.

LOAD FRAME, LOADING SYSTEM AND MEASUREMENT

Final test pile installation activities were completed on May 24, 2011, and the piles were allowed to cure in-place until adequate compressive strength were achieved, but no less than 14 days from install, prior to the commencement of load testing. Load testing commenced on June 9th, 2011. The following sections detail the load testing apparatus and measurement results obtained during the testing of the micropiles at the project.

Load Frame Details

Terratec utilized a dual I beam load frame that is rated for the transference, for both compressive and tensile loads, with minimal cross-sectional deflection (i.e. < 0.35 inches). The design of the reaction frame is capable of resisting two times the pile design load indicated in the contract documents without undergoing a magnitude of deflection exceeding 75 percent of maximum travel of the jack. Details and specifications of the load frame utilized for this project were presented in our submittal.

Loading System Details

The load application system was comprised of a single calibrated hydraulic jacking system for the compression testing and a dual hydraulic jacking system for the tensile testing, with all jacks having a capacity of at least 100 tons, with a minimum travel of 6 in. (150 mm), but not less than 25 percent of the test pile's maximum cross-section dimension. The selected jack(s) were equipped with spherical bearing plates, that seated firmly and concentrically on the pile bearing plate and load-beam bearing plate. The system will be engaged utilizing a manual load-maintaining pump with manual supplement to control load application. A pressure gage was attached to the system so that the pressure reading corresponding to the pile design load indicated in the contract documents is one-third of the maximum gage pressure. The use of a load cell was eliminated prior to testing by the field engineer in lieu of using the hydraulic jack, pump and gauge system, which was calibrated immediately prior to the commencement of the load testing. A detailed schematic of the loading apparatus was provided in our original submittal, while the calibration of the hydraulic jack, pump and gauge systems is attached in Appendix B.

Loading Measurement Apparatus

Primary System Measuring Devices: The primary instrument package utilized to monitor movement of the pile top consisted of four (4) dial gages having at least 2 in. (50 mm) of travel. The dial gages were aligned parallel to the longitudinal axis of the test pile and the axis of load application. They were attached to simply supported reference beams that were installed completely independent of the test pile and loading apparatus. Care was taken to ensure the load application system did not interfere with any measuring devices during any part of the test.

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Auxiliary System Measuring Devices: Additionally, the auxiliary measuring system utilized for the measurement of the load test included a surveyor's level and target rod.

LOAD TESTING OPERATIONS

The load testing program for this project was conducted in general accordance with the minimum requirements established in ASTM D3689 *Standard Test Methods for Deep Foundations Under Static Axial Tensile Load*, unless otherwise altered by the design engineer of record. The load test, per the results, achieved three primary objectives, that included: 1.) the established load-deflection relationships in the pile-soil system, 2.) the ultimate capacity of the pile-soil system, and 3.) the development of empirical data to allow the for design/modification of the planned production piles prior to installation.

The following sections detail the methods utilized during the load testing activities at the site.

Test Pile Acceptance for Loading Criteria

As stated in previous sections of this report, compression load testing commenced on June 9, 2011, approximately 16 calendar days after the test pile installation was complete. Additionally, prior to the commencement of the load testing activities at the site, our personnel reviewed the available grout strength, as stipulated in our submittal. The recorded and reported grout strength from GS2 and WPC exceeded the design requirements of 4,000 psi.

Load Testing Apparatus Set Up and Preparation

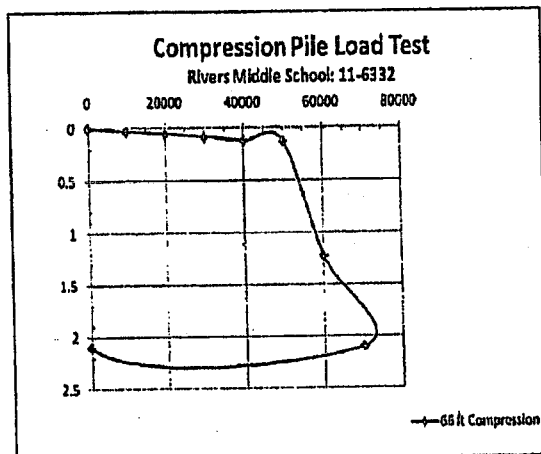
As stipulated in our submittal, the load was applied to the test piles, first in compression and second in tension, by jacking against the two reaction piles with one or more calibrated hydraulic jacks. The load application system arrangement and constructed elements of the load-application system conformed with details provided in the ASTM and with those established in our submittal for both compressive and tensile testing, with the exception of the use of a load cell. As stated previously, the use of the load cell was eliminated prior to testing by the field engineer in lieu of using the hydraulic jack, pump and gauge system, which was calibrated immediately prior to the commencement of the load testing.

Pile Loading Procedure and Measurements

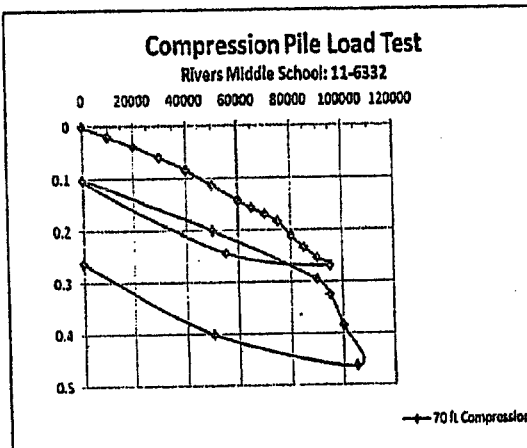
As proposed, the test load was applied under the "Quick-Load" test method on the subject test piles, first in compression and second in tension. During testing, the test piles were loaded to maximum increments of 5% of the design load (i.e. 10,000 pounds), and the load was held constant for a minimum of 5 minutes in order to allow for the pile deflection to normalize (i.e. as defined by a change in deflection of no more than 0.01 in (0.25 mm) and be recorded, which was conducted by representatives of GS2 and WPC. For the compression testing, loading was continued until the test piles had mobilized up to 1/2 of an inch, with the exception of TP-1 which was plunged, in order to minimize the creation of a smear zone between the pile and soil. For the tensile testing, loading was continued until the test piles failed, which was established by the field engineer to be deflection in excess of 1 inch, or the full mobilization of the test pile. Upon reaching failure loads during the compression testing, the piles were then unloaded in maximum increments of 25% (i.e. 50,000 pounds) until the load on the pile equaled zero.

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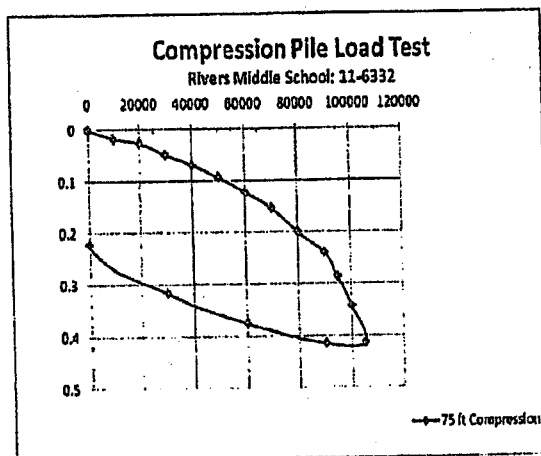
Compression Load Testing Results: As stated above, compression loading was continued until the test piles had mobilized up to 1/2 of an inch (with the exception of TP-1 which was plunged) in order to minimize the creation of a smear zone between the pile and soil. The establishment of this criteria was arrived at in the field during loading, as in all cases the test piles were effectively mobilized, and continued to deflect well beyond the 5 minute wait time, which in turn required the application of additional load to reach a steady loaded state. In summary, test piles TP-2, TP-3, and TP-4 exhibited a mostly elastic deformation, while TP-1 was plunged in excess of 2 inches. The following graphs summarize the compression deflection (ins.) vs. loading (lbs.) relationship for each test pile.



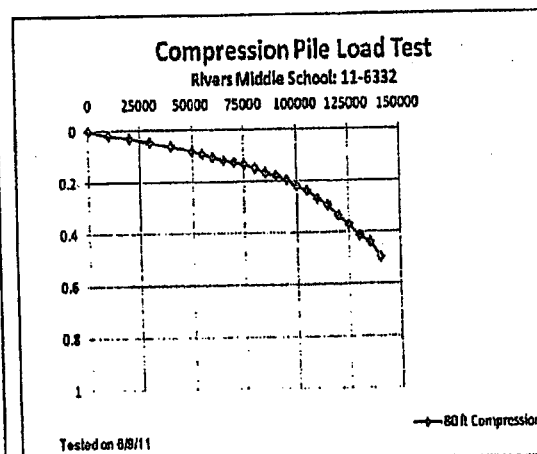
Graph 1: Deflection (in) vs. Load (lbs) - TP-1



Graph 2: Deflection (in) vs. Load (lbs) - TP-2



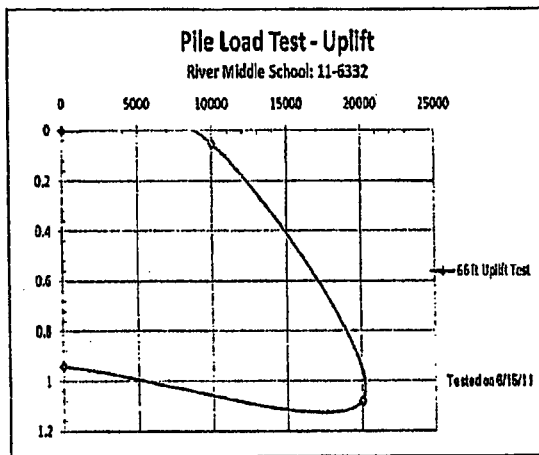
Graph 3: Deflection (in) vs. Load (lbs) - TP-3



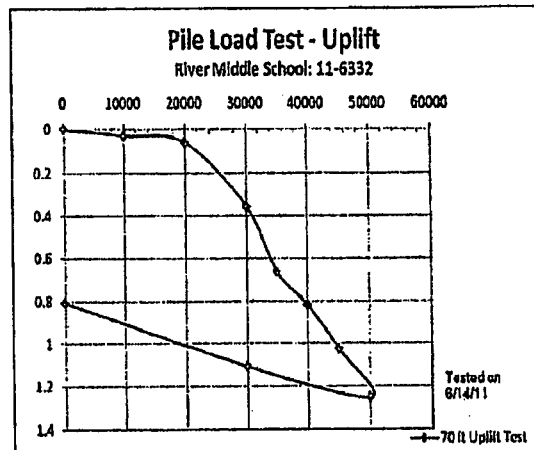
Graph 4: Deflection (in) vs. Load (lbs) - TP-4

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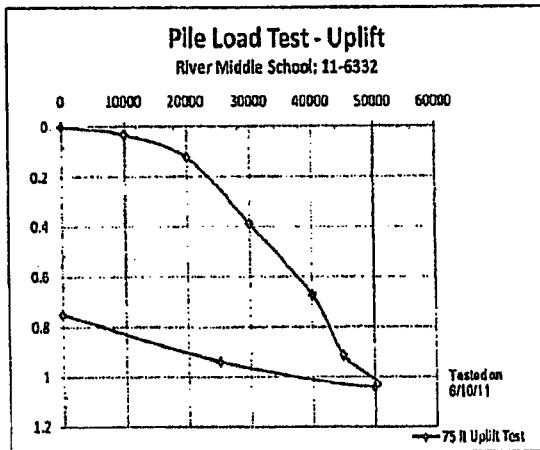
Tension Load Testing Results: As stated above, tension loading was continued until the test piles failed, which was established by the field engineer to be a deflection in excess of 1 inch, or the full mobilization of the test pile. The establishment of this criteria was arrived at in the field during loading, as in all cases the test piles were effectively mobilized, and continued to deflect well beyond the 5 minute wait time, which in turn required the application of additional load to reach a steady loaded state. In summary, the test piles exhibited a failure with axial travel distances in excess of 1 inch. The following graphs summarize the tension deflection (ins.) vs. loading (lbs.) relationship for each test pile.



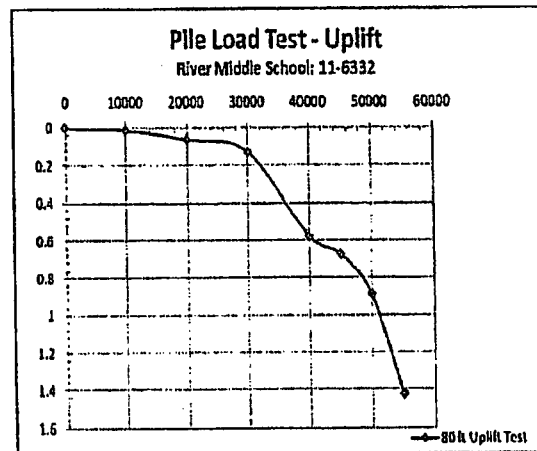
Graph 5: Deflection (in) vs. Load (lbs) - TP-1



Graph 6: Deflection (in) vs. Load (lbs) - TP-2



Graph 7: Deflection (in) vs. Load (lbs) - TP-1



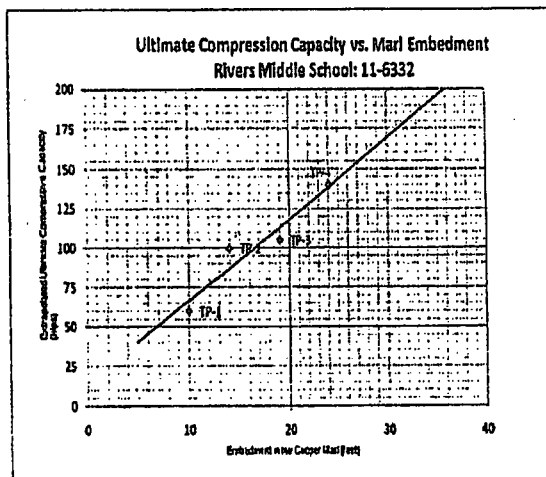
Graph 8: Deflection (in) vs. Load (lbs) - TP-2

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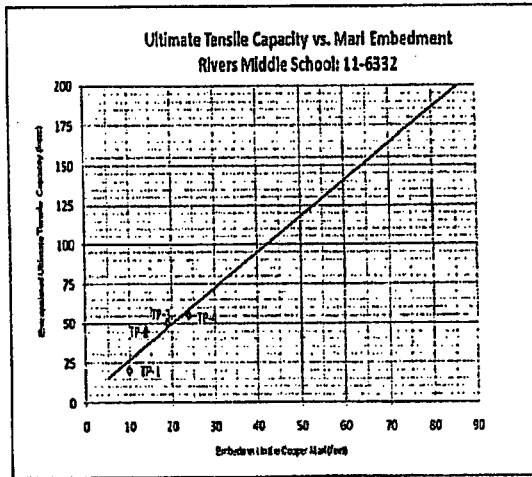
LOAD TESTING RESULTS ANALYSIS

As stated in previous sections of this report, the piles were constructed and the load testing program was conducted in accordance with the requirements established in the bid and design documents and in accordance with ASTM D3689, unless otherwise altered by the design engineer. The load test, per the results, achieved objectives, that included the establishment of; 1.) a load-deflection relationships in the pile-soil system, 2.) the ultimate capacity of the pile-soil system, and 3.) the development of empirical data to allow the for design/modification of the planned production piles prior to installation.

Unfortunately, the test piles did not achieve the required resistance to the design test load of 200,000 pounds, and they exhibited excessive deflection, or signs of excessive deflection, at much lower loads than anticipated. Utilizing the data obtained during installation (i.e. embedment in the Cooper Marl) and the failure load of the individual test piles, we have established a linear relationship between the strength characteristics of the pile-soil interaction, per depth of embedment in the Cooper Marl, which in turn provides an extrapolated anticipated embedment depth required to achieve the ultimate design loads in both compression and tension. From this information, it appears that an extrapolated embedment depths into the Cooper Marl, by purely graphical means, will approach 35 feet and 85 feet for compression and tension, respectively, which will in turn require 8" production pile lengths of approximately 91 and 140 feet bgs. The following graphs summarize the extrapolated Cooper Marl embedment relative to the load carrying capacity of the pile-soil interface for both compression and tension loading conditions.



Graph 9: Deflection (in) vs. Load (lbs) - TP-1



Graph 10: Deflection (in) vs. Load (lbs) - TP-2

Based upon our experience with the load carrying capacities of the Cooper Marl, the strength characteristics of the pile-soil interaction, in both compression and tension, are well below the capacities historically exhibited when seated in competent layers of the Cooper Marl. The low load carrying capacities indicated from the results require a qualitative and quantitative analysis of the test piles, the load testing, and the design parameters. The following sections detail our analysis of each item, while recommendations for additional activities are included in subsequent sections of this report.

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Pile Construction - Qualitative and Quantitative Analysis: As summarized in this report and the attached QC field reports, and as witnessed and recorded by the project's third part QA inspection firm, the test pile construction verification parameters considered include;

- The test pile boreholes were excavated to a diameter of 8 inches and to the seating depths of 66, 70, 75 and 80 feet, as detailed in the project bid and design requirements and verified in our original submittal. Per the bid and design documents, the boring activities encountered the Cooper Marl, as defined by the geotechnical report, at a depth of approximately 56 feet bgs, indicating that the micropiles were seated properly in the strata designated by the geotechnical documents. Excessive soil cuttings were removed from the borehole by the use of continuous flight augers, and were further flushed during grouting operations.
- Upon completion of the excavation, the designed reinforcement (grade 150, 1.75 in diameter threaded rod) was installed to pile tip elevations.
- The specified plastic grout was injected at the drill tip elevation as the hollow stem augers were withdrawn.
- The grout was injected continually at adequate pressure (600 to 2,000 psi) to the ground surface, and sleeved where needed.
- The grout achieved adequate actual to theoretical volume ratios (1.20 to 1.37 times theoretical) as it was injected into the test piles. Based upon the theoretical values, the nominal pile diameter when normalized over the entire test pile lengths were actually greater than 9 inches in diameter.
- Grout strength exceeded design compressive strength requirements of 4,000 psi, with the lowest 14 day strength in all of the test piles recorded to achieve 6,690 psi.

Based upon our analysis, and in particular the theoretical volumes achieved during injection grouting, it appears that the micropiles constructed for the load test were competent.

Load Test - Qualitative and Quantitative Analysis: As summarized in this report and the attached QC field reports, and as witnessed and recorded by the project's third part QA inspection firm, the pile load testing verification parameters considered include;

- As reported, the reaction to test pile spacing approached 9 pile diameters between the test and reaction piles, which meets the intent of the ASTM. In our experience, and based upon the results of the load test, it appears that the reaction piles were installed a safe distance from the test piles in such a manner as to not create additional or reduced test pile resistance during loading.
- The Load Frame utilized for the load test program met or exceeded all requirements established in the ASTM. Also, the load frame was properly supported, per the ASTM, by the reaction piles (i.e. it was leveled and properly billeted on a stable platform), with additional support provided by cribbing. Finally, during loading the load frame was not subjected to a substantial enough load to create the maximum deflection that it is rated for.
- The load jack, pump and gauge system utilized to load the test piles met or exceeded all requirements established in the ASTM, and they were calibrated immediately prior to the commencement of their use. As required in the ASTM, the loading system utilized was able to establish a constant metered load until the pile deflection indicated that the piles had begun to mobilize under the applied load, at which time additional load was applied. Finally, the loading system was not exposed to its maximum loading resistance of 200 kips for which it was calibrated, indicating that inaccuracies due to over stressing of the loading system by excessive loading were non existent.
- Both sets of deflection measurement apparatus utilized met or exceeded the requirements established in the ASTM. During loading, the primary measurements device readings were obtained by both QC and QA personnel, and the readings were verified by the readings obtained by the auxiliary measurement apparatus, indicating accuracy between the two apparatus'.
- Loading was conducted, after the grout was verified to have achieved adequate strength, in compression approximately 16 to 17 days after the test pile installation, while tension loading was commenced approximately 17 to 22 days after the test pile installation, as approved from our submittal. Additionally, the loading increments did not exceed the 5% (10,000 pound) requirement established in the ASTM, and the

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loads were allowed rest for a period of 5 minutes prior to obtaining deflection readings. In order to minimize the "shock" to the test piles due to excessive loading, and in an attempt to obtain more accurate deflection versus loading data, our field engineer adjusted the loading increment to 2.5% (5,000 pounds) where pile mobilization was noted in the majority of the compression and tension testing. This decision was made after the initial test pile, TP-1, was observed to plunge at much lower than anticipated loading conditions.

- Additionally, the deflection data, when graphed against the applied load, yielded the anticipated failure curve for all of the test piles, indicating that the load and load measurement systems were applying load in a consistent linear fashion to model the pile-soil loading interaction and strength parameters.

Based upon our review of the ASTM and further analysis, and in particular the results of the load testing data, it appears that a competent load test was conducted on the subject test micropiles.

Micropile Structural Design - Qualitative and Quantitative Analysis: As summarized in this report and the attached QC field reports, and as witnessed and recorded by the project's third part QA inspection firm, the test piles were installed properly, per the bid and design documents, and strength parameters for each material were recorded to have met the minimum requirements. Therefore, the structural design of the micropile materials parameters considered include;

- The threaded rod utilized in the construction of the micropiles was a 1.75 in, 150 grade rod, with mill data that indicates that the threaded rod's minimum yield strength is 320,000 pounds. When compared to the actual maximum loads applied (160,000 pounds in compression and 60,000 pounds in tension) during load testing, the threaded rod, if it resisted these loads axially and independently, theoretically would exhibit a resistance to ultimate failure by a factor of safety of at least 2.0. Therefore, we can conclude that the design of the rod is substantial to resist the design loads without failure, and that the loads applied during testing would more than likely only stress the rod minimally, with little to no deflection that would more than likely fall within the rod material's low end of its elastic range.
- The design and bid documents required a minimum design strength for the grout to be 4,000 psi, while the plastic grout utilized in the construction of the micropiles was comprised of a 5,000 psi mix that exhibited a minimum compressive strength of 6,690 psi at the time of testing. When normalized axially over the design diameter of 8 inches, the maximum load that the grout, both design and actual, respectively, may be subjected to prior to failure is approximately 200,000 and 336,000 pounds. Again, when compared to the actual maximum load applied (160,000 pounds in compression and 60,000 pounds in tension) during load testing, the micropile grout, if it resisted these loads axially and independently, theoretically would exhibit a resistance to ultimate failure by a factor of safety of at least 1.25 and 2.0 for the design mix and the actual mix utilized, respectively. Therefore, we can conclude that the design of the grout, and the grout that was utilized during the load test program, is substantial to resist the design loads without failure, and that the loads applied during testing would more than likely only stress the grout minimally.
- Finally, no obvious signs of yielding failure were observed in the threaded rod and or grout at the time of testing, and no obvious signs of bond failure between the rod and grout, after the load testing was complete.

Based upon our review of the design documents, and our further analysis of the field data, it appears that the micropile design that was adhered to during construction of the test micropiles is structurally sufficient to resist failure under both the anticipated design and actual loads applied.

Geotechnical Design - Qualitative and Quantitative Analysis: As summarized in this report and the attached QC field reports, and as witnessed and recorded by the project's third part QA inspection firm, the test piles were installed properly, per the bid and design documents, and strength parameters for the pile-soil interaction under loading conditions were tested and recorded within the minimum requirements. Therefore, the geotechnical design of the micropile's pile-soil interaction strength parameters considered include;

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- As stated previously, and per the bid and design documents, the pile installation borings encountered the Cooper Marl, as defined by the geotechnical report, at a depth of approximately 56 feet bgs, indicating that the micropiles were seated properly in the strata designated by the geotechnical documents.
- As indicated in this document, the geotechnical design provided as a part of the bid and design documents indicated that a 200,000 pound pile capacity would be achievable through the installation of an 8" micropile extended to depths of 78 feet (i.e. 23 feet of embedment in the Cooper Marl was designated, which was reported to be present approximately 55 feet bgs). Based upon this information, the load test program was established to install and test piles that ranged in depth from 66 to 80 feet. The pile depths, at that time, were selected to provide the design engineer of record with enough pile-soil interaction strength data at shallower depths to design the most economical micropile piles for production, as we anticipated, per the design documents, the 80 foot pile to easily achieve the required capacity.
- When graphed in comparison to Figure 1 of S&ME's addendum letter that was supplied in the bid documents, the results of the compression load testing on the test piles indicated that an ultimate capacity vs. the seating depth of an 8 inch pile slightly exceeds the "Lower Bound" curve. However, the graph of the results of the tension load testing on the test piles indicated that an ultimate capacity vs. the seating depth of an 8 inch pile falls well below the "Lower Bound" curve. In comparison, the best fit curve of the load test results appear to exhibit similar slopes and changes in inclination to the curves established in the geotechnical documents, indicating that strength gains over depth observed in the load test program are similar to those modeled and represented in the geotechnical document.
- In consideration of the tensile failure load only, the maximum available pile-soil strength (neglecting the weight of the test pile, and the pile-soil resistance for the soils overlying the Cooper Marl) resistance per foot of embedment in the Cooper Marl at the location of the load test area is approximately 2,500 pounds per linear foot, while the pile design presented as the "Best Estimate" would require approximately 8,700 pounds per linear foot of a 23 feet total embedment to achieve the 200,000 pound load test requirements. Historical data indicates that competent Cooper Marl would offer approximately 9,200 pounds per linear foot, which exceeds the design ultimate loading requirements with a small factor of safety.
- The test borings that were conducted as a function of the geotechnical exploration were conducted closer to the building, with the closest boring conducted over 150 feet away from the area of the load test. This lends some probability that the soil conditions in the area of the load test, [i.e. 1.) the depth of the Cooper Marl, 2.) the load carrying capacity of the Cooper Marl, if present at 56 feet bgs, etc.], vary from the soil conditions encountered to have been represented in the geotechnical documents.
- The test borings conducted for the geotechnical exploration were conducted utilizing a CPT drill rig. Unfortunately, the CPT drill rig does not allow for the recovery of soil samples, and only provides correlated subsurface data. Therefore, no actual physical testing has been completed to verify the presence, depth or strength characteristics of the Cooper Marl at the subject site.

Based upon our analysis of the available project data with consideration of the design geotechnical information, it appears that the subsurface soil conditions within the area of the load test do not exhibit the typical pile-soil interaction strength characteristics that are typical of a competent Cooper Marl. In fact, strength characteristics of the soils supporting the test micropiles provide approximately 1/4 of the loads anticipated from a similar pile supported by a competent layer of Cooper Marl. This information lends credibility that varying soil conditions between the those reported to have been encountered at the boring locations, exist at the load test area. The potential for variations may include; 1.) the presence of weakened layers of Cooper Marl, 2.) the absence or misclassification of the Cooper Marl, or 3.) the existence of a subsurface anomaly. Unfortunately, boring data within the proximity of the load test area, and physical soil property test data of the subsurface soils for the entire site, do not exist, therefore, the determination for the reason for the sub-par pile-soil resistance to loading cannot be determined at this time.

CONCLUSIONS AND RECOMMENDATIONS

As stated throughout this document, and as witnessed by QA/QC personnel, we have concluded that the micropiles constructed for the load test program were competent, that the load testing program was conducted in accordance with the ASTM and design documents, and that the structural design and integrity of the micropiles was adequate for the anticipated application. We have further concluded that, due to the absence of subsurface soil data within the area of the load test program, and due to the absence of actual physical soil property test results, that the final determination of the reason for the sub-par pile-soil resistance to loading cannot be determined at this time.

Further, while we do not anticipate that the micropiles will need to be extended to depths of 140 feet to support the tension loading requirements (tension design requirements will control over compression requirements), the depth of the production piles will be directly dependent upon the load carrying capacity of the Cooper Marl, and more specifically the exact depth of the Cooper Marl, as the micropiles are still anticipated to only require 25+/- feet of embedment in the Marl to develop adequate compression and tension resistance to the ultimate design loads. Again, the absence of physical soil property test data limits the ability to verify the depth of competent subsurface support stratum at the site.

At this stage in the project, another load test may be warranted, however, it is unclear from the project documents on whether the soil layer encountered at the load test area are prevalent throughout the entire project site, and if the next set of test micropiles should be extended to greater depths to encounter a competent layer of subsurface support soils. We therefore recommend that additional borings be conducted, (at least two, one in the area of the load test and one adjacent to a CPT boring conducted within the vicinity of the structure), utilizing conventional drilling methods that will allow for the recovery of both disturbed (SPT) and undisturbed (Shelby tube) soil samples. We further recommend that physical soil property tests, (i.e. soils classification, tri-axial, direct shear, etc.), be conducted on the recovered soils samples. The physical property results will identify the strength carrying capacity of the soils in the area of the load test, provide more accurate data to correlate the results of the previously conducted CPT borings, and allow for an updated geotechnical design of the ultimate compression and tension capacities of the 8" micropiles that will be installed for the next load test and the future production piles. We further ask that our personnel be present to witness the boring activities at the site, and that we be allowed to secure representative samples for testing at an alternate laboratory.

In the event that the poor pile-soil capacities displayed at the load test site are attributable to unforeseen subsurface anomalies, then the second load test should be conducted in an area that is more representative of the conditions that will be utilized to support the production piles for the project. Alternately, if the subsurface conditions in the area of the load test are consistent with those that will be utilized for the support of the structure, then an alternate deep foundation design may be considered. Alternate deep foundation designs may include; extending the 8" micropiles to greater depths, increasing the diameter of the micropiles, or the use of alternate deep foundations that are more adept to generating greater resistance to uplift design loads at more shallow depths.

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CLOSING

In closing, we are very disappointed that the load test did not produce favorable support conditions for the 8" micropiles at the project. Our personnel and design team will be made available to aid in the design of a more competent pile system, and we will be ready to mobilize within 1 week of the final results to install the next round of test piles at the locations deemed viable by the design professionals. Please do not hesitate to contact us with any questions, comments or future direction.

Sincerely,

Chris Morrison, Vice President
Terratec

Reviewed on behalf of Terratec, by;

George A. Sembos, P.E.
GS2 Engineering & Environmental Consultants, Inc.

Ken Timmerman, P.E.
Kyzer & Timmerman, LLC.

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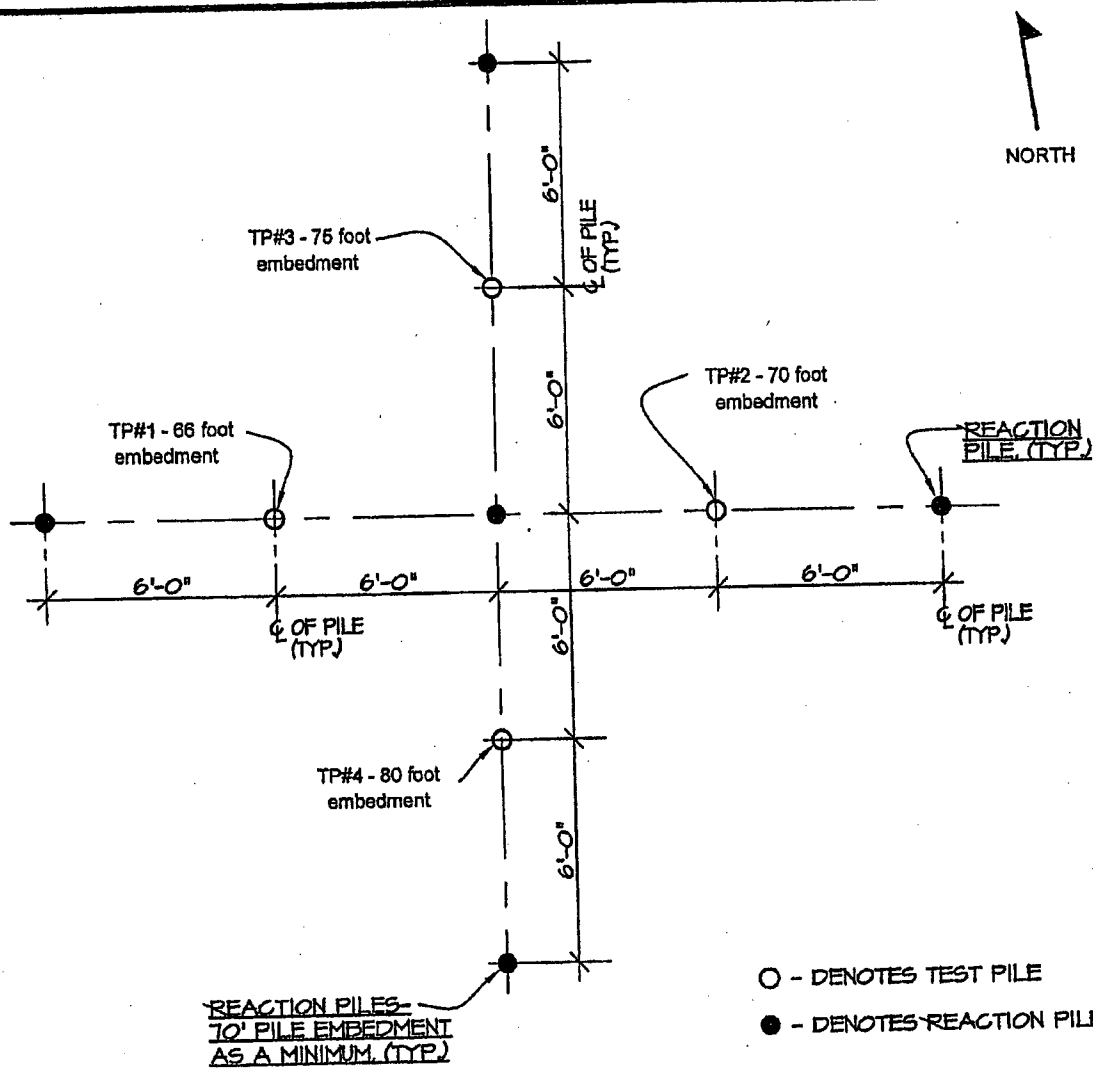
APPENDIX A - TEST PILE CONSTRUCTION DATA

Test Pile Location Plan

Test Pile Installation Logs

Grout Pump Calibration Record

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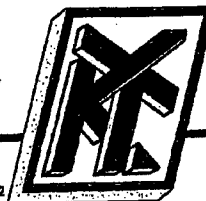
TEST PILE CONFIGURATION

SCALE: 1/4" = 1'-0"

**KYZER &
TIMMERMAN**

STRUCTURAL ENGINEERS

690 Chris Drive, West Columbia S.C. 29169 Ph. 803.781.4511 Fax 803.781.4522



JOB:

TEST PILE CONFIGURATION

JOB NUMBER:

11-15B

DATE:

APRIL 7TH, 2011

SHEET: 5101

PILE# IP#

FIELD DATA — 'MICRO PILE' INSTALLATION						
BATTER		DEPTH TO MARL	MARL EMBEDMENT	PILE LENGTH	ROD	
REQ'D.	INSTALLED				PROJECTION	LENGTH
0 degrees	0 degrees	58 feet	10 feet	58 feet	6 inches	67 feet

FIELD DATA — 'MICRO PILE' INSTALLATION (CONT.)					
QUANTITY OF COUPLERS	GROUT VOLUME (cyds)		GROUT INSTALL STROKES	GROUT (4000 PSI) 14 DAY BREAK	INSTALL DATE
	THEORET.	INSTALLED			
2	0.812 cyds	1.10 cyds = Install Ratio of 1.36 times the theoretical volume.	94 strokes	7,100 psi	6/24/2011

FIELD DATA — 'MICRO PILE' INSTALLATION (CONT.)					
INSTALLER	INSTALL TIME		GROUT QUALITY CONTROL		INSPECTOR
	START	FINISH	QC	QA	
Kevin Thomas	9:30 AM	1:30 PM	GS2	WPC	Ted - WPC

ADDITIONAL INFORMATION: Grout Pump was a Tiger BV35, with a calibrated stroke volume of 0.272 cubic feet per stroke (0.010 cubic yards).

PILE #

TP#2

FIELD DATA -- 'MICRO PILE' INSTALLATION						
BATTER		DEPTH TO MARL	MARL EMBEDMENT	PILE LENGTH	ROD	
REQ'D.	INSTALLED				PROJECTION	LENGTH
0 degrees	0 degrees	55 feet	14 feet	70 feet	6 inches	71 feet

FIELD DATA -- 'MICRO PILE' INSTALLATION (CONT.)					
QUANTITY OF COUPLERS	GROUT VOLUME (cyds)		GROUT INSTALL STROKES	GROUT (4000 PSI) 14 DAY BREAK	INSTALL DATE
	THEORET.	INSTALLED			
2	0.861 cyds	1.18 cyds = Install Ratio of 1.37 times the theoretical volume.	110 strokes	6,580 psi	6/24/2011

FIELD DATA -- 'MICRO PILE' INSTALLATION (CONT.)					
INSTALLER	INSTALL TIME		GROUT QUALITY CONTROL		INSPECTOR
	START	FINISH	QC	QA	
Brian Winchester	9:00 AM	12:20 PM	GS2	WPC	Ted - WPC

ADDITIONAL INFORMATION:

Grout Pump was a Tiger BV35, with a calibrated stroke volume of 0.272 cubic feet per stroke (0.010 cubic yards).

PILE #

IP#3

FIELD DATA -- 'MICRO PILE' INSTALLATION						
BATTER		DEPTH TO MARL	MARL EMBEDMENT	PILE LENGTH	ROD	
REQ'D.	INSTALLED				PROJECTION	LENGTH
0 degrees	0 degrees	55 feet	19 feet	75 feet	6 inches	75 feet

FIELD DATA -- 'MICRO PILE' INSTALLATION (CONT.)					
QUANTITY OF COUPLERS	GROUT VOLUME (cyds)		GROUT INSTALL STROKES	GROUT (4000 PSI) 14 DAY BREAK	INSTALL DATE
	THEORET.	INSTALLED			
2	0.323 cyds	1.11 cyds = Install Ratio of 1.20 times the theoretical volume.	111 strokes	6,900 psi	8/24/2011

FIELD DATA -- 'MICRO PILE' INSTALLATION (CONT.)					
INSTALLER	INSTALL TIME		GROUT QUALITY CONTROL		INSPECTOR
	START	FINISH	QC	QA	
Al Large	3:05 PM	6:00 PM	OS2	WPC	Mike - WPC

ADDITIONAL INFORMATION:

Grout Pump was a Tiger BV35, with a calibrated stroke volume of 0.272 cubic feet per stroke (0.010 cubic yards).

PILE #

TP#4

FIELD DATA -- 'MICRO PILE' INSTALLATION						
BATTER		DEPTH TO MARL	MARL EMBEDMENT	PILE LENGTH	ROD	
REQ'D.	INSTALLED				PROJECTION	LENGTH
0 degrees	0 degrees	58 feet	24 feet	80 feet	6 inches	81 feet

FIELD DATA -- 'MICRO PILE' INSTALLATION (CONT.)					
QUANTITY OF COUPLERS	GROUT VOLUME (cyds)		GROUT INSTALL STROKES	GROUT (4000 PSI) 14 DAY BREAK	INSTALL DATE
	THEORET.	INSTALLED			
2	0.884 cyds	1.34 cyds = Install Ratio of 1.36 times the theoretical volume.	134 strokes	8,980 psi	5/24/2011

FIELD DATA -- 'MICRO PILE' INSTALLATION (CONT.)					
INSTALLER	INSTALL TIME		GROUT QUALITY CONTROL		INSPECTOR
	START	FINISH	QC	QA	
Ramie Williamson	3:00 PM	6:20 PM	GB2	WPC	Mike - WPC

ADDITIONAL INFORMATION: Grout Pump was a Tiger BV35, with a calibrated stroke volume of 0.272 cubic feet per stroke (0.010 cubic yards).

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

May 23, 2011

Attn.: Mr. Scott Spigener
M.B. Kahn Construction Company
2950 Farrow Road
Columbia, South Carolina 29203

803-730-4411 (mobile)
803-776-4870 (office)
803-776-5507 (fax)

Pump Calibration Submittal
Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Dear Mr. Spigener:

Please allow this submittal to serve as our pump calibration for the above referenced project. This letter contains details relating to the on-site calibration of the Tiger BY35 grout pump currently being utilized to install the test piles and will continue to be utilized for production pile installation.

On-Site Pump Calibration Information

Our personnel were on site on May 23, 2011 to calibrate the grout pump for the above referenced project. The pump was observed to be a ball and steel, three piston, Tiger BV35 pump. The pump pressure range was set between 500 and 800 pounds per square inch (psi) for grouting. The grout used for the calibration was supplied by Redi Mixed Concrete Company, which is also the contracted grout supplier for the project. The calibration vessel utilized was a standard 55-gallon drum. The drum took approximately 27 strokes to fill. Based on the subsequent volume calculations the pump output was approximately 0.272 cubic feet per stroke (0.010 cubic yards per stroke). We plan on periodically rechecking our pump calibration thru out the pile installation process.

Closing

Once again we appreciate the opportunity to provide our services for your project needs. If there are any questions, or if additional information becomes available, please feel free to contact us at (803) 791-8888.

Sincerely,
Terratec, Inc.

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CCSD Ex 8 pg 072

ROA000547

APPENDIX B - LOAD TESTING APARATUS

Load Jack, Pump and Gauge Calibration Data

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CCSD Ex 8 pg 073

ROA000548



ENGINEERING & ENVIRONMENTAL
CONSULTANTS, INC.

Load Calibration 100 Ton Capacity Jack

Serial No.: HSR10087

Date Calibrated : 6-8-11

Applied Load (Lbs)	Gauge Reading (PSI)
5,000	N/A
10,000	600
15,000	800
20,000	1,050
25,000	1,300
30,000	1,550
35,000	1,800
40,000	2,000
45,000	2,250
50,000	2,500
55,000	2,800
60,000	3,050
65,000	3,300
70,000	3,500
75,000	3,750
80,000	4,000
85,000	4,250
90,000	4,500
95,000	4,750
100,000	5,000

Applied Load (Lbs)	Gauge Reading (PSI)
105,000	5,200
110,000	5,500
115,000	5,800
120,000	6,000
125,000	6,250
130,000	6,500
135,000	6,800
140,000	7,000
145,000	7,250
150,000	7,500
155,000	7,800
160,000	8,000
165,000	8,250
170,000	8,500
175,000	8,750
180,000	9,000
185,000	9,250
190,000	9,500
195,000	9,750
200,000	10,000

Calibration Performed by:

W. Chico

Calibration Checked by:

[Signature]



ENGINEERING & ENVIRONMENTAL
CONSULTANTS, INC.

Load Calibration 100 Ton Capacity Jack (split)

Serial No.: Enerpac #2 and #4

Date Calibrated : 8-13-11

Applied Load (Lbs)	Gauge Reading (PSI)
10,000	500
15,000	800
20,000	900
25,000	1,100
30,000	1,300
35,000	1,600
40,000	1,900
45,000	2,100
50,000	2,300
55,000	2,600
60,000	2,800
65,000	3,100
70,000	3,300
75,000	3,500
80,000	3,800
85,000	4,000
90,000	4,200
95,000	4,500
100,000	4,800

Applied Load (Lbs)	Gauge Reading (PSI)
105,000	5,000
110,000	5,200
115,000	5,500
120,000	5,700
125,000	6,000
130,000	6,200
135,000	6,500
140,000	6,700
145,000	6,900
150,000	7,200
155,000	7,400
160,000	7,600
165,000	7,900
170,000	8,100
175,000	8,400
180,000	8,600
185,000	8,800
190,000	9,100
195,000	9,300
200,000	9,600

Calibration Performed by:

W. Oliver

Calibration Checked by:

[Signature]

ACCU-CAL, INC.
PO BOX 515
DAHLONEGA, GA 30533

(888) 869-0801 (706) 867-7751 FAX: (706) 867-9203

All loads have been temperature corrected, this Calibration performed in accordance with ASTM E4-08. Instrumentation used certified traceable to NIST standards are as follows:
 600K LBF Load Cell, SN# 880420D, Class A: 98,669 LBF, Cal Due: 3/9/2011, NIST# 19259
 60K LBF Load Cell, SN# 880420C, Class A: 4326 LBF, Cal Due: 9/14/2011, NIST# SCC-27820
 10K LBF Load Cell, SN# 644168, Class A: 632 LBF, Cal Due: 9/24/2010, NIST# 18618
 LOAD CELLS VERIFIED BY: PRECISION STANDARDS INTERNATIONAL, JACKSONVILLE, FL
 & NATIONAL SCALE TECHNOLOGY, HUNTSVILLE, AL

INSTRUMENTATION	FORNEY CONCRETE	MODEL:	QC-400C-D2/DR2001
CALIBRATED:	COMPRESSION MACHINE	SERIAL NUMBER:	89129
RANGE OF CALIBRATION:	4K-400K LBF	RESOLUTION:	1 LBF
LOCATION:	GS2 ENGINEERING	TEMPERATURE:	78F
CITY, STATE:	NORTH CHARLESTON, SC		

0 = 0 **RUN #1**

<MACHINE READING>	<CALIBRATION READING>	READING ERROR> LBF	% ERROR
4000	4005	-5	-0.12%
10000	10035	-35	-0.35%
15000	15060	-60	-0.40%
25000	25110	-110	-0.44%
50000	50170	-170	-0.34%
75000	75210	-210	-0.28%
100000	100260	-260	-0.26%
125000	125280	-280	-0.22%
150000	150205	-205	-0.14%
200000	200305	-305	-0.15%
300000	300210	-210	-0.07%
400000	400115	-115	-0.03%

0 = 0 **RUN #2**

<MACHINE READING>	<CALIBRATION READING>	READING ERROR> LBF	% ERROR
4000	4010	-10	-0.25%
10000	10030	-30	-0.30%
15000	15045	-45	-0.30%
25000	25095	-95	-0.38%
50000	50155	-155	-0.31%
75000	75180	-180	-0.24%
100000	100250	-250	-0.25%
125000	125280	-280	-0.21%
150000	150185	-185	-0.12%
200000	200275	-275	-0.14%
300000	300190	-190	-0.06%
400000	400090	-90	-0.02%

FINAL ZERO READING: 0 CALIBRATED BY: BEN E. JAMES JR DATE: 8-24-2010

This certificate attests that this instrument has been calibrated under the stated conditions of NIST traceable standards. Evidence of traceability is on file at our metrology laboratory. Calibration interval assignment and adjustment are the responsibility of end user. This certificate may not be reproduced, except in full, without the written approval of ACCU-CAL, INC. 888-869-0801 706-867-7751 FAX: 706-867-9203

EXHIBIT E

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

DAVIS & FLOYD, INC.

Review is only for conformance with the design concept of the project and compliance with information given in the Contract Documents. Approval is general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc. necessary for proper fitting and construction of the Work, as required by the Contract, for achieving the results and performance specified and for coordination of the work of all trades.

APPROVED

Todd J. Warren

Reviewed by Todd J. Warren on May 10, 2011

May 10, 2011

Attn.: Mr. Scott Spigener
M.B. Kahn Construction Company
2950 Farrow Road
Columbia, South Carolina 29203

803-730-4411 mobile
803-776-4870 office
803-776-5507 fax

Pile Load Test Program Submittal - Revision #3
Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Dear Mr. Spigener:

Please allow this submittal to serve as our proposed Pile Load Test Program for the above referenced project. This program contains details relating to the construction and load testing of test piles that meet the specifications established in the project bid documents, in addition to suggestions from our design and installation team.

Purpose of Load Test Program

It is our understanding that the purpose of the load test program at this site is to determine an acceptable embedment depth to achieve the design working loads of 100 kips in compression and tension for the planned 8 inch diameter micropiles.

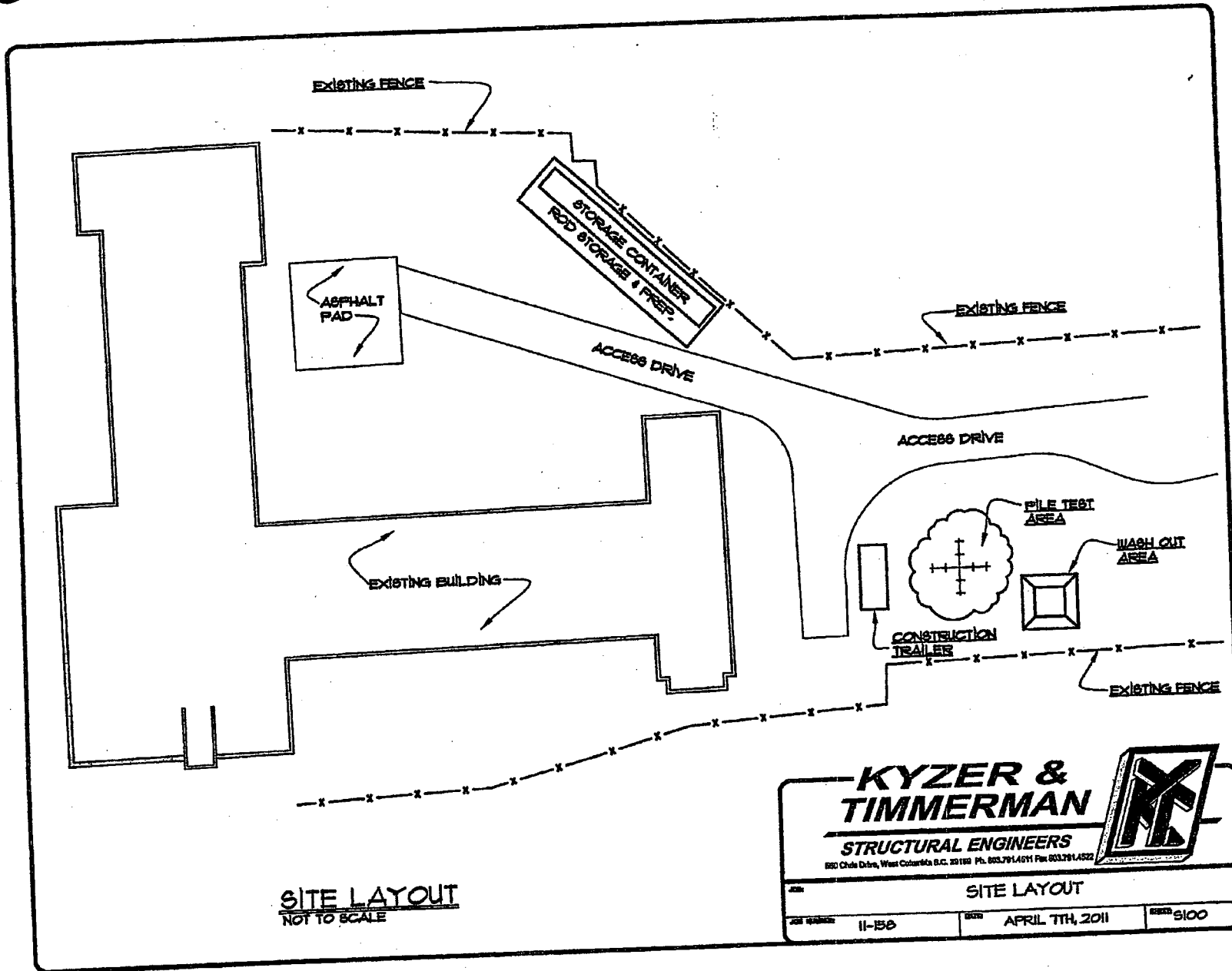
Project Background

Based upon our review of the available information, and from our review of the project, we understand that the existing structure was built in the 1930s, and that it is abandoned and no longer in use. Furthermore, we understand that the project at the site is to include the renovation and seismic up-fit of the existing structure, and the construction of a fire pump house, which requires the installation of 627 micropiles. Our review of the geotechnical report, and addendum, prepared by S&ME, that was provided as a portion of the project plans and specifications details anticipated pile capacities to reach the design standards (100 kips axial compression and tension) with the installation of 8 inch diameter micropiles installed to depths ranging from 70 feet to 115 feet, with a mean anticipated installation depth of 78 feet. With the proposed micropile bid depth, and subsequent depths detailed in the geotechnical report, our design team has developed a comprehensive pile load test program that will establish a best fit line detailing the available axial and tensile capacities developed by the 8" micropiles versus their embedment in the Cooper Marl.

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ROA000554

CCSD Ex 8 pg 079



SITE LAYOUT
NOT TO SCALE

KYZER & TIMMERMAN

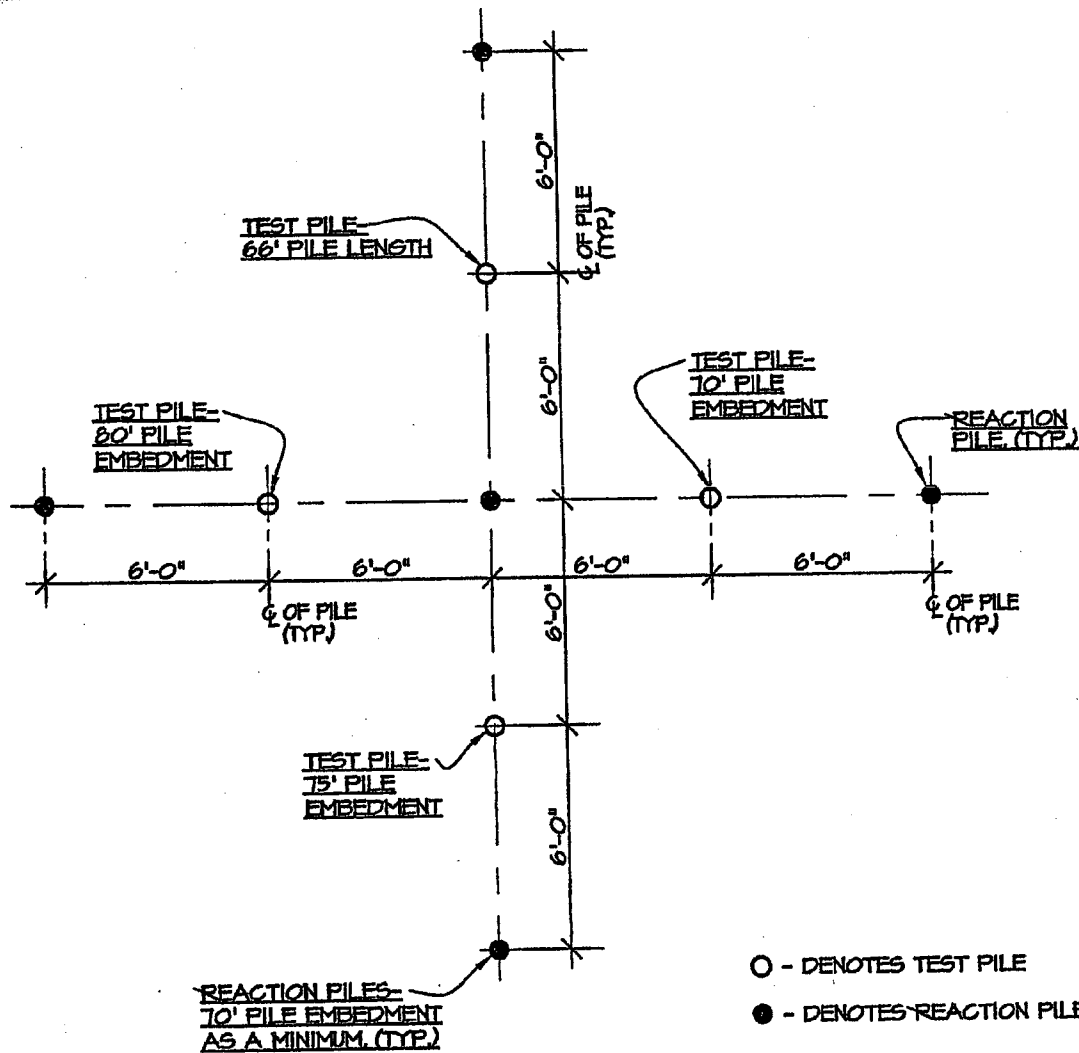
STRUCTURAL ENGINEERS

550 Chiles Drive, West Columbia, S.C. 29169 Ph. 803.791.4511 Fax 803.791.4522



SITE LAYOUT

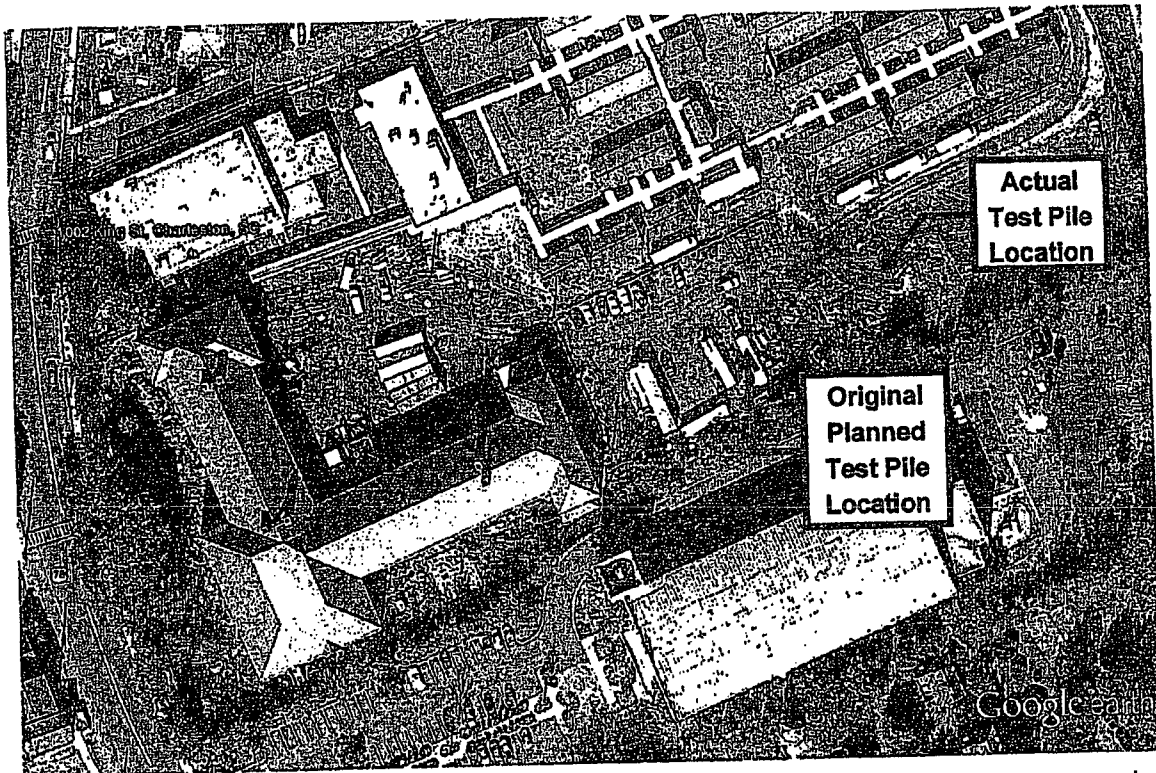
JOB NUMBER	11-158	DATE	APRIL 11TH, 2011	SHEET	9100
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TEST PILE CONFIGURATION
 SCALE: 1/4" = 1'-0"

KYZER & TIMMERMAN STRUCTURAL ENGINEERS 580 Chris Drive, West Columbia S.C. 29169 Ph. 803.791.4511 Fax 803.791.4522		
JOB: TEST PILE CONFIGURATION		
JOB NUMBER: 11-158	DATE: APRIL 7TH, 2011	SHEET: SI01

EXHIBIT F



Google earth

feet
meters 100 400



HEERY**Change Proposal Review Form**To: Robert CorbinProject: Rivers Education Center - Main BuildingFrom: Kevin KellyProject No.: 5648Date: May 9, 2012Proposal No.: CW-048Contractor: MB Kahn ConstructionContract: General Contractor

(GENERAL CONTRACTOR) (ARCHITECT) (ENGINEER) (OTHER)

Description of work to be performed: Delay requested due to failure of initial program

A - Customer Requested Change

B - Code/Regulatory Agency Required Change

C - Errors and Omissions

D - Replacing Unsuitable Soils

"Reject"☒ E - Soils Related Change Other than De-Mucking

F - Unforeseen Conditions

G - Time Related Change

H - Liquidated Damages

I - Value Engineering Change

J - Exercising Pre-Priced Option

K - Accounting Error

Justification: Design and special inspection team recommend disapproval test program clearly defined in project manual and bid documents.Days requested June 15 - July 15

(Indicate Reason for Change Proposal)

Attachments: ☒ Recommendation Letter from A/E☐ OSF Approval (life safety & structural related change proposals)☐ Independent Cost Estimate☐ Cost Estimate From Atlanta (Cost is Expected to Exceed \$10,000)☐ Pre-Negotiation Position (PNP)☒

Change Proposal Request from Contractor with Detailed Backup

Proposal Cost: \$49,749.96Contingency Status: \$545,369.21Time Extension Requested: 30 DaysTime Extension Recommended: 0 DaysSpecial Circumstances: Memorandums from Davis & Floyd - WPC attached for reference.

Consequence of Rejection:

Comments by Supervisor:

Change Order 007 addressed length and test pile program.Approved: ☒ (NO) ☐ (YES)
(Circle One)Robert Corbin, Heery International

Decision needed by:

May 18, 2012☒ (NO) ☐ (YES)
(Circle One)Larry Lufre, Charleston County School District☒ (NO) ☐ (YES)
(Circle One)William Lewis, Charleston County School District

April 20, 2012

Charleston County School District
c/o Heery International, Inc.
3125 Ashley Phosphate
North Charleston, SC 29418



Attn: Mr. Kevin Kelly
E: kkelly@heery.com
Mr. John Orvin, PE
E: jorvin@davisfloyd.com

Re: Response to Terratec's Change Order Requests No. 2, No. 3 and No. 4 dated September 1, 2011
Rivers Education Center
Charleston County, South Carolina
WPC Project Number: EN111014

Dear Mr. Kelly:

At your request, WPC has reviewed Terratec's Change Order Requests No. 2, No. 3, and No. 4 dated September 1, 2011 concerning their load tests performed at the site. The following comments are offered:

Change Order Request No. 2:

1. Section 1.2.2 of the project specifications indicate, "The test borings as shown on the boring location plan and logs of borings as described in the Geotechnical Report, located in Appendix A, are believed to be representative of the conditions likely to be encountered on the site, and are to be used as the basis for micropile design in conjunction with the *appropriate levels of engineering judgment and experience*". Based on normal geotechnical engineering practice, it is the subcontractor's and their engineer's responsibility to determine the soil conditions within the test area, prior to pile load testing.
2. Soil conditions at Test Program Location #1 in comparison to Test Program Location #2 do not represent anomalies within the Cooper Marl Formation (CMF). It is common within the Charleston Peninsula for the CMF to vary two to five feet within relatively small areas, such as this project site.

WPC, A Terracon Company 1450 Fifth Street West North Charleston, SC 29405
P [843] 884 1234 F [843] 884 9234 wpceng.com terracon.com

Geotechnical

Environmental

Construction Materials

Facilities

ROA000559

CCSD Ex 9 pg 002

Response to Terratec's Change Order Requests No. 2, No. 3 and No. 4
Rivers Education Center * Charleston County, Charleston, SC
April 20, 2012 * WPC Project # EN111014



3. It remains our opinion that the multiple failures at Test Program Location #1 are due to installation procedures and lack of significant grout volumes beyond the theoretical volume.
4. Our attached letter dated June 21 2011, indicates problems with the Test Program #1 system that was due to the subcontractor's and their engineer's choices.
5. Based on the project specifications, item 3.4.2.d states, "Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install another pile at his expense."

Change Order Request #3

1. As indicated in our response to Change Order Request #2, our responses 1 through 5 are pertinent for this request as well.

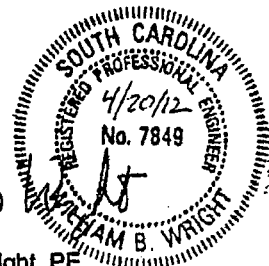
Change Order Request #4

1. The two "hollow bar" test piles were the actual micropile type specified for the project in the geotechnical report and project specifications.
2. The load tests of these micropiles were approximately 25% greater in capacity when compared to the subcontractor's augercast piles at similar depths and at significantly less strain.
3. This comparison clearly indicates the reduced performance of their design. Even with this data, the subcontractor chose to provide an augercast type pile.

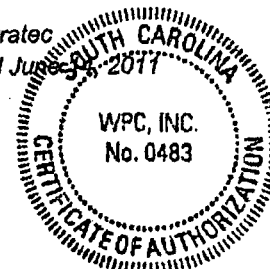
Sincerely,
WPC, A Terracon Company

Thomas C. Smoak, III, EIT
Project Manager

William B. Wright, PE
Senior Principal Engineer



Attached: Change Order Request No. 2, No. 3, No. 4 from Terratec
WPC's Report in Response to Terratec Letter Dated June 3, 2011



2

CHANGE ORDER REQUEST

No. 2

TERRATEC

1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170

MAR 12 2012 803-791-8888 - OFFICE

803-791-1050 - FAX

M.B. KAHN
CONSTRUCTION CO., INC.

Date: September 1, 2011

Attn: Mr. Scott Spigener

Proj.: Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Ref: Schedule Delay - Tier 1, June 25, 2011 - Load Test No.1 Change Order Request

Dear Mr. Spigener:

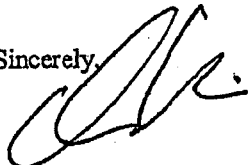
As we identified in our June 25, 2011 Notification, per contract documents, Terratec experienced a substantial schedule delay in the execution of the load test program, due to the presence of a subsurface anomaly that was encountered at the initial load test location.

Verification of this anomaly was exacted initially by the conductance of a soil boring completed on June 24, 2011. It was further verified upon the successful completion of load testing on similar piles at the alternate load test location. A summary of the soil boring data was provided in our original Notification, while the results of the most recent load test has been submitted in the Pile Load Test Results Report, dated August 24, 2011.

As recorded in the soil boring, the soil conditions recorded at the first test pile location undeniably did not match the soil conditions represented to exist by the design and contract documents under which we conducted our initial design for the test piles. Alternately, the soil conditions at the second test pile location more closely resembled the subsurface conditions represented as the "Best Estimate" in the design and contract documents. Further, the performance of the test piles during load testing were markedly improved at the second load test location. In comparison, the 78 foot pile at the second load test location undeniably outperformed the 78 foot pile at the initial load test location, and the projected pile length at the second test pile location was 9 feet shallower than the shortest projected production pile length established at the initial load test location.

As a result of the varying subsurface conditions in which the test piles were installed, and due to the fact that the design and construction team selected the test pile location (e.g. the test pile location was not specified on the bid documents), we are requesting a Change Order be made to our existing contract to cover our costs associated with the initial load test due to conditions beyond our control (e.g. unforeseen subsurface conditions and test pile location directive). The amount of this Change Order follows the fee established under our schedule of values for load testing (e.g. \$65,000.00). A pay application is attached. Please contact us with any questions or comments.

Sincerely,



Chris Morrison, Vice President
Terratec

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CCSD Ex 9 pg 004

ROA000561

CHANGE ORDER REQUEST

No. 3

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

Date: September 1, 2011

Attn: Mr. Scott Spigener

Proj.: Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Ref: Schedule Delay - Tier 1, June 25, 2011 - Load Test No.1 Delay and Design Change Order Request

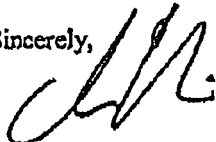
Dear Mr. Spigener:

As we identified in our June 25, 2011 Notification, per contract documents, Terratec experienced a substantial schedule delay in the execution of the load test program, due to the presence of a subsurface anomaly that was encountered at the initial load test location. Verification of this anomaly was exacted initially by the conductance of a soil boring completed on June 24, 2011. It was further verified upon the successful completion of load testing on similar piles at the alternate load test location. A summary of the soil boring data was provided in our original Notification, while the results of the most recent load test has been submitted in the Pile Load Test Results Report, dated August 24, 2011.

The presence of the subsurface anomaly created an unnecessary financial burden on Terratec that would have been averted if the bid and design conditions actually existed at the initial test pile location. In particular, this burden included the conductance of field drilling and sampling at two locations, additional design fees, and excessive administrative fees associated with the determination for failure and the submission of multiple subsequent submittals for the second load test. Additionally, Terratec was burdened financially with additional insurance fees and ongoing lease payments for equipment that was secured specifically for this project.

As a result of the varying subsurface conditions in which the test piles were installed, and due to the fact that the design and construction team selected the test pile location (e.g. the test pile location was not specified on the bid documents), we are requesting a Change Order be made to our existing contract to cover our costs associated with these unnecessary design and delay oriented costs due to conditions beyond our control (e.g. unforeseen subsurface conditions and test pile location directive). The amount of this Change Order request is on the order of \$46,143.27. A detailed breakdown of the costs incurred and a pay application are attached. Please contact us with any questions or comments.

Sincerely,



Chris Morrison, Vice President
Terratec

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CHANGE ORDER REQUEST No. 4

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

Date: September 1, 2011

Attn.: Mr. Scott Spigener

Proj.: Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Ref: Work Directive - July 5, 2011 - Installation of Hollow Bar Test Piles

Dear Mr. Spigener:

As MB Kahn directed in several conversations and in an emailed directed to Terratec personnel, dated July 5, 2011, we installed two hollow bar test piles, and conducted Load testing on these piles at the alternate load test location.

As agreed, we are requesting a Change Order be made to our existing contract to cover our costs associated with the installation of these test piles. The amount of this Change Order request is \$37,436.30. A detailed breakdown of the costs incurred and a pay application are attached. Please contact us with any questions or comments.

Sincerely,



Chris Morrison, Vice President
Terratec

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ROA000563

CCSD Ex 9 pg 006

June 21, 2011

Charleston County School District
c/o Heery International, Inc.
3125 Ashley Phosphate
North Charleston, SC 29418



Attn: Mr. Kevin Kelly
E: kkelly@heery.com
Mr. John Orvin, PE
E: jorvin@davisfloyd.com

Re: Report in Response to Terratec Letter Dated June 14, 2011
Rivers Education Center Chapter 17 Inspections
Charleston County, South Carolina
WPC Project Number: EN111014

Dear Mr. Kelly:

As requested by Mr. Orvin, WPC has reviewed Terratec's report dated June 14, 2011 concerning their load tests performed at the site. The following comments are offered:

- During load testing, it was discovered that submitted calibration sheets for load cells and jacks (gauges) were more than 1 year old. According to ASTM D 1143 and others, calibrations cannot be more than 1 year old.
- Also, the calibrations for the load cell(s) was only to 45 Kips and not to full 200 Kips plus 20% overage. This resulted in a different load system being used and not using a load cell. According to ASTM's for compression testing, a test over 100 Tons must have a load cell.
- Further, the spacing for reaction piles from the test pile is based on pile size. However, ASTM D 1143 clearly indicates the minimum spacing is 8 feet.
- The choice of micropile type is the subcontractors. In this case, a pile inserted via a hollow stem auger was thought to be the most efficient pile by the subcontractor. Based on 30+ years of geotechnical experience in Charleston and the Cooper Marl Formation, this is definitely not the case. The augered pile creates a uniform skin friction against a remolded side wall. This results in a reduced capacity (Adhesion factor of 50% to 75% of the normal cohesion available in the Cooper Marl). Thus, the type of pile chosen by the subcontractor



historically has limitations and can easily be limited to 50% of other micropile types in the same formation. Poor installation techniques and improper testing methods can also severely limit the ultimate strength of the micropile.

- The fact that all four compression tests plotted near the lower boundary of the geotechnical report (50% strength) is a clear indication that chosen micropile type and installation resulted in a consistently poorly performing pile.
- Table 1 indicates a theoretical grout volume ratio of 1.2 to 1.37. This appears to be incorrect based on our calculations. The grout volume ratio was less than 1 on two piles and slightly greater than 1 on the two piles (less than 10% above). This strongly indicates no significant grout pressure reached the insertion point.
- We observed that during the compressive load tests for 3 of the four piles, the tester was concerned that reaction piles were moving upward and wisely stopped these tests after he observed a clear start of failure.
- Based on load test results, our back calculations of the Cooper Marl capacity indicates a normal historic range of capacity in skin friction of 2.4 to 2.6 ksf with an adhesion factor of about 75% for a net unit skin friction of 1 ¾ to 2 ksf.
- Results of past micropile tests throughout the Charleston area with the Titan rods and their installation systems indicate a normal minimum cohesion of 2.6 ksf with no adhesion reduction factor. We strongly urge the team members to review ongoing projects and their test results in similar soil conditions.
- Since each compression test has failed, the tension tests are not considered valid or reliable information and should not be used to develop tension capacity calculations.
- It appears the structural components of the micropile (steel bar and concrete) are a satisfactory part of the design. However, the soil to pile portion of the design is not realistic based on the micropile type and the chosen installation method.
- As a side note, the report submitted by Terratec was an engineering report based on conclusions and recommendations. South Carolina requires a COA stamp by the engineering company and stamped and dated signatures of the engineers providing the report. This does not appear to be the case since the two engineers were signing as reviewers and not engineers of record.

Report in Response to Terratec Letter Dated June 14, 2011
Rivers Education Center - Charleston County Charleston, SC
June 21, 2011 - WPC Project # EN111014

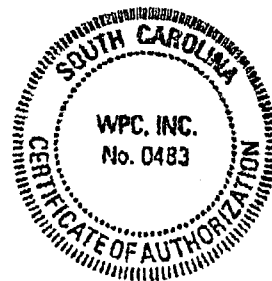
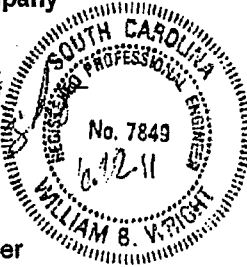


- In closing, we strongly urge the micropile contractor be qualified with specific projects in the Charleston area and tested results. If not qualifiable, a qualified micropile installer should be chosen and used.

Sincerely,
WPC, A Terracon Company

A handwritten signature in black ink, appearing to read 'William B. Wright'.

William B. Wright, PE
Senior Principal Engineer



September 12, 2011

Mr. Kevin P. Kelly
Heery International Inc.
3125 Ashley Phosphate Road, Suite 130
North Charleston, SC 29418

RE: **White Paper on Micropile Design-Contract Document Requirements**
Rivers Education Center-Phase I: Seismic Retrofit, Exterior Restoration, & Core Utilities
Charleston County School District

Dear Mr. Kelly:

As directed by the Charleston County School District, Davis & Floyd has composed this white paper to clearly explain the relationship between the relevant parts of the Contract Documents (drawings, specifications, and geotechnical report) to demonstrate how a micropile subcontractor would gather the necessary information to design and subsequently construct micropiles to meet the design intent. The relevant information from the Contract Documents required for the micropile design is presented below.

Drawings

A. Structural drawing, S-000, Micropile Notes:

- a. Note 1 states that micropiles shall be designed by the Contractor for the loads indicated and in accordance with the requirements in Specification Section 02369 and that the micropiles are to be designed by a professional engineer currently licensed in South Carolina.
- b. Note 2 states that prior to installation of production piles, two (2) static load tests shall be performed on sacrificial non-production piles to confirm production pile length, and that the load test set-up is to consist of a test pile and two adjacent piles used as reaction piles. It also states that the Geotechnical Engineer of Record and Contractor shall monitor and evaluate the load tests to confirm production pile length.
- c. Note 3 states that the load tests are to be performed in accordance with ASTM D3689-07, Standard Test Methods for the Deep Foundations under Static Axial Tensile Load and that a safety evaluation must be completed for the test set-up prior to loading.
- d. Note 4 states that the tensile reinforcing steel in the test piles shall be designed so that the resulting stresses from the maximum ultimate test load does not exceed 80% of the yield stress of the reinforcing steel.

B. Structural drawing, S-100 is the overall foundation plan which shows the location of all of the new pile caps containing the micropiles. Each of the pile caps is noted with PC and a number. The number corresponds to the number of micropiles contained in each of the pile caps. For example, PC-12 means that the pile cap contains 12 micropiles. Note 2 on S-100 states that enlarged pile cap plans are shown on sheets S-400 and S-401. The enlarged pile cap plans on sheets S-400 and S-401 show the locations of each of the micropiles within the pile caps and which piles are to be installed either at a 30 degree batter or installed vertically. From the foundation plans the total number of battered and vertical micropiles required can be determined by simply counting the piles.

C. Structural drawing, S-402, Micropile Foundation Notes:

- a. Note 1 states that new deep foundations shall be the drilled and grouted variety of micropiles designed by the contractor and approved by the Engineer of Record. It also states to see Specification Section 02369 for the design and load testing requirements.
- b. Note 2 states that each micropile for the new deep foundations shall have a minimum ultimate load capacity of 200 kips in compression and tension.
- c. Note 3 states that the new deep foundations shall be designed by a professional engineer currently licensed in South Carolina and to submit signed and sealed calculations for approval by the Engineer of Record.

D. Structural drawing, S-402 also shows sections through each of the pile caps and grade beams. The sections show that the distance of the top of the pile caps below the top of the ground for exterior pile caps is 1'-4" and the distance of the top of the pile caps from the bottom of the first floor slab for those pile caps supporting new interior shear walls is 4'-11". The sections also show the thickness of each of the pile caps and grade beams (i.e. 3'-6", 4'-0", 2'-0", or 2'-6") and that the top of the micropiles is to extend 4 inches into the bottom of the pile cap. S-402 also shows a typical elevation of a micropile. It is noted on this pile detail that the required elevation of the pile tips is -66 feet and that the elevation of the top of the marl is -43 feet.

From these elevations given on sheet S-402 and the ground elevation of 12 feet (NAVD 88 Datum) given on the site plan shown on CS102 and the elevation of the bottom of the first floor slab of 14.91 feet (NAVD 88 Datum) given in Section 1 on S-100, the lengths of each of the micropiles can be determined. For the exterior micropiles, the elevation of the top of the micropiles can be determined using the ground elevation of 12 feet and the dimensions shown in the typical section thru exterior pile caps. The elevation of the top of these piles is $12' - 1.33' - 3.5' + 0.33' = 7.5'$. The total length of the vertical exterior piles can be determined by subtracting the pile top and bottom pile tip elevations. The length of the vertical exterior piles is $7.5' - (-66') = 73.5'$. The length of the 30 degree batter piles can similarly be determined as $73.5' / \cos 30 \text{ degrees} = 84.9'$. For micropiles supporting new interior shear walls, their top elevations can similarly be determined as $14.91' - 4.91' - 4' + 0.33' = 6.33'$. The length of the vertical interior piles is $6.33' - (-66) = 72.33'$ and the length of the 30 degree batter piles is $72.33' / \cos 30 \text{ degrees} = 83.5'$.

Specifications Section 02369-Micropiles

- A. Specification paragraph 1.2.1. "General" states that the work shall consist of furnishing all materials, products, accessories, tools, equipment, services, transportation, labor, supervision, design, installation, and testing of micropiles and pile top attachments.
- B. Specification paragraph 1.2.2. "Ground Conditions" states that the borings contained in the Geotechnical Report, located in Appendix A, are believed to be representative of the conditions on site and are to be used as the basis of micropile design in conjunction with the appropriate levels of engineering judgment and experience.
- C. Specification paragraph 2.6.1. states that reinforcing steel shall be deformed bars in accordance with ASTM A615 Grade 60 or Grade 75 or ASTM A722 Grade 150.
- D. Specification paragraph 2.7.1. states that if permanent pipe casing is to be relied upon to carry loads or reduce deflections then it shall meet the tensile strength requirements of ASTM A252 Grade 3 or be new Structural Grade.
- E. Specification paragraph 2.8.1 states that structural steel plates and shapes for pile top attachments shall conform to ASTM A36 or ASTM A572 Grade 50.
- F. Specification paragraph 3.1.1. states that the micropiles shall be designed to meet the specified loading as shown on the drawings and sealed by an Engineer licensed in the State of South Carolina and the calculations and drawings required from the Contractor shall be submitted to the Engineer of Record for review and acceptance.
- G. Specification paragraph 3.1.2. and 3.1.3. provide equations for the Contractor to use in designing the micropiles.
- H. Specification paragraph 3.1.4. states that the micropile top attachment shall effectively distribute the design load to the concrete pile cap, such that the concrete bearing stress does not exceed the design bearing strength as specified in ACI 318-05 and that the bending stress in the steel bearing plate does not exceed the design flexural strength as specified in the AISC Manual of Steel Construction, Thirteenth Edition.
- I. Specification paragraph 3.4.2.d. states that the Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install and test another pile at his expense.

Geotechnical Report

The project geotechnical report is located in Appendix A of the Project Manual. As stated in Specification Section 02369 Micropiles paragraph 1.2.2. the borings contained in it are to be used as the basis of micropile design by the micropile subcontractor along with the appropriate levels of engineering judgment and experience. The three SCPT sounding logs given in the report contain data that can be used to estimate soil properties and soil strengths needed for the Contractor's micropile design. It is also stated on page 9 of the report that micropiles should

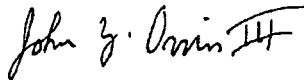
Mr. Kelly
September 12, 2011
Page 4

bear in the Cooper Marl, which was encountered at a depth of 55 feet below the ground surface. Addendum #1 to the Geotechnical Report in Appendix B of the Project Manual shows that 8 inch micropiles are anticipated to achieve the specified 200 kip ultimate resistance with a pile tip depth of 78 feet below grade. This 78 foot depth coincides with the pile tip elevation of -66 feet indicated on sheet S-402 of the drawings.

All of the above referenced items are complimentary and are intended to be used as a whole by the Contractor to perform the micropile design. Therefore, the intent of the Contract Documents was to require the micropile subcontractor to design and install an 8 inch micropile to the depth of 78 feet below the ground surface (El. -66 feet NAVD 88) that would achieve a minimum capacity of 200 kips.

Very truly yours,

DAVIS & FLOYD, INC.



John Y. Orvin, III, P.E.
Senior Structural Engineer

September 12, 2011

Mr. Kevin P. Kelly
Heery International Inc.
3125 Ashley Phosphate Road, Suite 130
North Charleston, SC 29418

RE: **White Paper on Micropile Load Test Program Failure**
Rivers Education Center-Phase I: Seismic Retrofit, Exterior Restoration, & Core Utilities
Charleston County School District

Dear Mr. Kelly:

As directed by the Charleston County School District, Davis & Floyd has composed this white paper detailing the requirements of the Contract Documents what actually occurred during the micropile subcontractor's first test pile program in order to explain the causes for its failure. The relevant paragraphs from Specifications Section 02369 Micropiles pertaining to the load testing program are given below.

1. Paragraph 3.4.2.a. requires that two static load tests be performed on sacrificial non-production piles to confirm production pile length. The load test set-up shall consist of a center test pile and two adjacent piles used as reaction piles. The loads tests shall be performed before the installation of production piles. The load tests shall be evaluated by the Micropile Contractor and Engineer to assure compliance with the job performance requirements.
2. Paragraph 3.4.2.b. requires that the load tests be performed in accordance with ASTM D3689-07, Standard Test Methods for Deep Foundations Under Static Axial Tensile Load. A safety evaluation must be completed for the set-up prior to loading.
3. Paragraph 3.4.2.c. requires that the tensile reinforcing in the test piles shall be designed so that the resulting stress from the maximum ultimate tensile test load does not exceed 80 percent of the yield stress of the reinforcing steel.
4. Paragraph 3.4.2.d. requires that the Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install and test another pile at his own expense.

The first load test program was performed by the micropile subcontractor, Terratec, on June 9, 2011. In accordance with Terratec's Pile Load Test Program Submittal dated May 10, 2011, the load test program consisted of four 8" diameter auger cast test piles with lengths of 66, 70, 75, and 80 feet below the ground surface. A Report of Pile Load Testing Results dated June 14, 2011 was submitted by Terratec following the unsuccessful pile load test program. All four of the test piles failed to achieve the specified ultimate loading of 200 kips. In this report, Terratec concluded that their test piles constructed were competent and that the load test program was conducted in accordance with

Mr. Kelly
September 12, 2011
Page 2

ASTM procedures.

As required by paragraph 3.4.1. of the above referenced micropile specification, WPC, who is employed by CCSD as the independent third party IBC Chapter 17 Special Inspector for the project, observed the pile load tests and provided a report of the results.

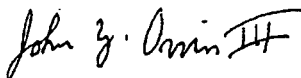
In their letter dated June 21, 2011, WPC reported that ASTM procedures were not followed during the load testing and that the construction of two of the four test piles was not competent. WPC reported the following results that were contrary to those reported by Terratec:

- The spacing of reaction piles of 6 feet is less than 8 foot minimum spacing indicated by ASTM procedures.
- The calibration sheets for the load cells and jacks (gauges) were more than 1 year old. According to ASTM procedures the calibration sheets cannot be more than 1 year old.
- Calibrations for the loads cells were only for 45 kips not the 200 kips plus 20% overage. Therefore the load cells were not used. ASTM procedures require that for tests of over 100 tons a load cell must be used.
- The measured grout volumes were less than 1 on two piles and only slightly larger than 1 (less than 10%) for the other two test piles. Grout volumes less than the theoretical grout volumes indicate a pile that is not sound.
- All of the test piles were failed in compression before the tension tests were conducted, therefore the tension test results reported are invalid.

The cause of the failure of the first test pile program was due to the inadequacy of the micropile subcontractor's pile design. Also contributing to the unacceptable test results were poor quality control during test pile construction and failure to follow the specified ASTM procedures. Therefore, in accordance with paragraph 3.4.2.d. of the micropile specification referenced above the Contractor was required to modify their pile design and install additional test piles at their own expense.

Very truly yours,

DAVIS & FLOYD, INC.



John Y. Orvin, III, P.E.
Senior Structural Engineer

CHANGE PROPOSAL FORM

Project: Charleston County School District
 Contract: Rivers Education Center
 Contractor: M. B. Kahn

Change Proposal Date: 5/8/2012
 Proposal #: 48
 Project #: _____
 Contractor #: 2229

Description of change:

Load Test No. 1 Delay and Design Change Order Request (see Terratec CO Request # 3)

Materials (Attach list with Qty, Item, Unit \$, Unit MH, Total MH, OT MH, Total \$)				SUBTOTALS	
1 Total Direct Cost of Materials			\$0.00		
2 Overhead & Profit on Item 1.			\$0.00		
3 Sales Tax			\$0.00		
4 Shipping & Transportation			\$0.00		\$0.00
Labor					
5 Total Man-hours:	0 MH @	\$25.00 /hr.	\$0.00		
6 Overhead & Profit on Item 5.			\$0.00		
7 Payroll Taxes & Insurance	31.2%		\$0.00		\$0.00
Equipment Rental (Include quotes)					
8 Equipment Rental			\$0.00		
9 Overhead & Profit on Item 8.			\$0.00		\$0.00
Subcontractors (Include quotes with material & equipment backup)					
10 Subcontractors			\$46,143.27		
11 Overhead & Profit on Item 10.			\$3,230.03		
12 Sub Bond	1.2%		\$55.37		\$49,428.67
Subtotal of Proposal				\$49,428.67	
13 P&P Bond (% of subtotal of proposal)	0.65%			\$321.29	
TOTAL OF CHANGE PROPOSAL					\$49,749.96

Time Extension Requests: ____ day(s) Schedule Activity # Affected: _____

Contractor's Signature: *M. B. Kahn* Date: 5/8/12
 Approval Recommended by Design Consultant: _____ Date: _____
 Owner's Representative Approval: _____ Date: _____

TERRATEC, INC.
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - Office
803-791-1050 - FAX

RECEIVED
MAY 08 2012
M.B. KAHN
CONSTRUCTION CO., INC.

May 7, 2012

Dear Scott,

This letter is written in response to your letter dated April 16, 2012 regarding Change Order Request #3 submitted by Terratec. This letter is intended to address all of M.B. Kahn's concerns regarding Change Order Request #3, and also provide backup documentation. I will attempt to address each of the concerns separately.

M.B. Kahn alleges that the Change Order Request #3 was not submitted in a timely fashion, however this is incorrect. Notice of the delay from the soil conditions was provided on June 25, 2011 (See letter attached hereto as Exhibit A). Notice was filed in a timely manner; however, we were unable to place an exact dollar amount on the costs at that time. This together with the "accelerated" work schedule tied up the majority of our resources, making it impossible to respond at the time. We proceeded with work in good faith that our notice was preserved, per a conversation between you and me.

As requested, I have attached detailed costs and supporting documents to substantiate the request for Change Order Request #3 (see Exhibit B). The Change Order Request #2 and Change Order Request #3 are each associated with a specific period of time, as summarized in the breakdown tables presented therein. As these times do not overlap, the costs presented are not, and have not been assessed in duplicate, as they fall within separate time frames.

With regard to the specific concerns of M.B. Kahn in its April 16, 2012 letter, please see below:

1. Dates and time exhausted by the Terratec Project Management staff, along with costs, have been attached in Exhibit B.
2. Backup for Terratec's insurance charges is attached as a portion of Exhibit B.
3. We have attached the proper GS2 invoices for the period of time that was associated with Change Order Request #3 as a portion of Exhibit B. The wrong invoice was attached by accident to the original Change Order; however, the proper invoices have now been included, and should address the mathematical discrepancy.

While the SPT borings were conducted by GS2 Engineering at the direction of Terratec, this was only done as a result of disagreement of the parties as to the soil conditions. The actual geotechnical conditions at the initial load test site were unknown because of the CPT drilling method employed by S&ME and WPC. The SPT soil boring was performed to bring to conclusion the debate on the consistency of the underlying soil strata. Otherwise, M. B. Kahn and Terratec would not have been accurately apprised of the actual subsurface soil conditions at the load test site.

M.B. Kahn's allegations mischaracterize the responsibility of Terratec. Terratec would have absorbed the cost of the SPT borings if Terratec had been proven wrong about the soil conditions. However, as documented by ALL parties that conducted soil (CPT and/or SPT) borings the marl was NOT at the depth designated in the bid and construction geotechnical document published by S&ME. We do not understand the absolute denial of this fact, even with the physical data recorded by WPC, S&ME and GS2. However, the borings documented undeniably that the soil layer represented to be at 55' was much deeper. In summary, the SPT borings were conducted by GS2 in order to give M.B Kahn and Terratec the information that was necessary to move forward with the project. (See Exhibits C & D)

4. Backup for K&T's invoice is attached as a portion of Exhibit B.
5. We do not agree with M.B. Kahn's assertion that the ICE LA-3 should have been covered in the original test pile program. The fact that the LA-3 sat for a period of 30 days during the posturing and debate is not Terratec's fault. It is the result of the posturing by all parties that did not allow the team to resolve the disputes. The second load test debunked all of WPC and S&ME's assertions on why the piles did not pass at the initial location, as recorded in the June 22, 2011 meeting minutes, because we were able to install passing test piles at the second load test location. The soils data collected at the initial site helped to verify this. The load test results from the initial load test indicate that if Terratec had installed the test piles to a depth of 95 feet, (approximately 10 feet deeper than the production piles established in the second load test), then the test would have achieved the required capacities. Coincidentally, the marl was 10 feet deeper at the first test pile site.
6. Backup for Blanchard Equipment is attached as a portion of Exhibit B.

M.B. Kahn next alleges that Terratec was involved in the selection of the original test pile site. The location of the test piles were not stipulated in the project documents. The original location was established with Terratec's input in a meeting several weeks prior to the actual installation at the site specified in Exhibit E. Upon arrival on May 10, 2011, the Terratec installation crew was directed by the field superintendent, Shamrock Thompson with M.B. Kahn, presumably at the

direction of the design team, to install the test piles at the location indicated on Exhibit F, approximately 110 feet further away from the building than the location presented in our submittal.

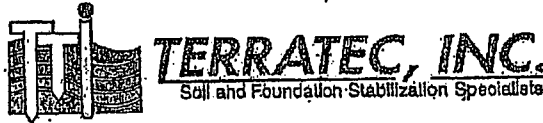
Terratec was not involved in selecting the final location for the original test pile site. We participated in establishing the location shown in the submittal, however, the location was changed and we were directed by M.B Kahn personnel to install the piles at the actual test pile location without our input. To this point, the establishment of the test pile location is beyond our scope of work in almost all applications, as it is widely accepted that the design team (e.g. Davis & Floyd and S&ME) are responsible for the designation of the test pile location.

In summation, I believe this letter should clarify all issues with Change Order Request #3 and provide all of the documentation that M.B Kahn requires to approve the Change Order Request #3 and submit it to the Owner. I look forward to M.B Kahn's prompt attention to this matter and submission to the Owner.

Sincerely,


Chris Morrison

EXHIBIT A



June 25, 2011

Mr. Scott Spigener
M.B. Kahn Construction Company
2950 Farrow Road
Columbia, South Carolina 29203

Re: Rivers Educational Center Seismic Retrofit
and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Dear Scott:

This memo will serve as notification that Terratec, Inc. anticipates the submittal of a formal request for a substantial delay. We respectfully forward this memo as required in the contract documents for your use.

As you know, there are differences concerning the soil conditions and the results of the load tests. We are in the process of gathering information to assist the design team in resolving the issues pertaining to the deep foundations for this project. Hopefully, these issues can be resolved quickly.

It is our goal to provide the design team with supplemental data and at the same time continue to move forward with the project.

Sincerely,

Chris Morrison

cc: File

1350 Methodist Park Road • West Columbia, SC 29170 • (803) 791-8888 • Fax (803) 791-1050
Charlotte (704) 529-4114 • (888) 845-1492 • www.terratecinc.com

ROA000578

CCSD Ex 9 pg 021

EXHIBIT B

ITEMIZED - CHANGE ORDER No. 3

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
8037918888 OFFICE
8037911050 FAX

Proj.: Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Ref: Schedule Delay - Tier 1, June 25, 2011 - Load Test No.1 Delay and Design Change Order Request

A summary of the conditions surrounding the itemized breakdown detailed below is attached to the cover sheet.

Change Order Work Task Description - Load Test No. 1 Delay and Design

Work Task	% Complete	Start and Complete Dates	Reason for Change Order	Schedule of Values	Schedule of Values Fee	Non-Schedule Cost	Markup	Delay Accrued (days)	CO Request Amount
Tenates - Project Management	100%	June 15 - July 15, 2011	Unforeseen Site Conditions	No	\$0.00	\$10,000.00	0%	30	\$10,000.00
Tenates - Insurance	100%	June 15 - July 15, 2011	Unforeseen Site Conditions	No	\$0.00	\$4,753.87	0%	30	\$4,753.87
GS2 - SPT Drilling and Geotechnical Consultation	100%	June 15 - July 15, 2011	Unforeseen Site Conditions	No	\$0.00	\$13,710.00	10%	30	\$15,081.00
K&T - Structural Design and Consultation	100%	June 15 - July 15, 2011	Unforeseen Site Conditions	No	\$0.00	\$9,500.00	10%	30	\$10,450.00
ICB LA-3 Rental	100%	June 15 - July 15, 2011	Unforeseen Site Conditions	No	\$0.00	\$5,000.00	10%	30	\$5,500.00
Blanchard Rental	100%	June 15 - July 15, 2011	Unforeseen Site Conditions	No	\$0.00	\$324.00	10%	30	\$356.40

Total Change Order Request **\$46,143.27**

Drilling and Pile Installation Labor

<u>Date</u>	<u>Activity</u>	<u>Employee</u>	<u>Hours</u>	<u>Hourly Rate</u>	<u>Cost</u>
06/18/11	Project Management	Sr. Project Manager - CM	5.00	\$55.00	\$275.00
06/19/11	Project Management	Sr. Project Manager - CM	5.00	\$55.00	\$275.00
06/20/11	Project Management	Sr. Project Manager - CM	3.00	\$55.00	\$165.00
06/21/11	Project Management	Sr. Project Manager - CM	4.00	\$55.00	\$220.00
06/22/11	Project Management	Sr. Project Manager - CM	5.00	\$55.00	\$275.00
06/23/11	Project Management	Sr. Project Manager - CM	12.00	\$55.00	\$660.00
06/24/11	Project Management	Sr. Project Manager - CM	14.00	\$55.00	\$770.00
06/24/11	Project Management	Sr. Project Manager - PM	4.00	\$55.00	\$220.00
06/25/11	Project Management	Sr. Project Manager - CM	9.00	\$55.00	\$495.00
06/25/11	Project Management	Sr. Project Manager - PM	4.00	\$55.00	\$220.00
06/26/11	Project Management	Sr. Project Manager - CM	3.00	\$55.00	\$165.00
06/27/11	Project Management	Sr. Project Manager - CM	4.00	\$55.00	\$220.00
06/28/11	Project Management	Sr. Project Manager - CM	6.00	\$55.00	\$330.00
06/29/11	Project Management	Sr. Project Manager - CM	6.50	\$55.00	\$357.50
06/30/11	Project Management	Sr. Project Manager - CM	2.00	\$55.00	\$110.00
07/01/11	Project Management - Meeting	Sr. Project Manager - CM	8.00	\$55.00	\$440.00
07/01/11	Project Management	Sr. Project Manager - PM	4.00	\$55.00	\$220.00
07/01/11	Project Management	Sr. Project Manager - HM	4.00	\$55.00	\$220.00
07/04/11	Project Management	Sr. Project Manager - CM	3.00	\$55.00	\$165.00
07/04/11	Project Management	Sr. Project Manager - PM	4.00	\$55.00	\$220.00
07/04/11	Project Management	Sr. Project Manager - HM	4.00	\$55.00	\$220.00
07/05/11	Project Management	Sr. Project Manager - CM	2.00	\$55.00	\$110.00
07/06/11	Project Management	Sr. Project Manager - CM	6.00	\$55.00	\$330.00
07/06/11	Project Management	Sr. Project Manager - PM	4.00	\$55.00	\$220.00
07/07/11	Project Management	Sr. Project Manager - CM	1.00	\$55.00	\$55.00
07/11/11	Project Management	Sr. Project Manager - CM	6.00	\$55.00	\$330.00
07/12/11	Project Management	Sr. Project Manager - CM	3.00	\$55.00	\$165.00
07/13/11	Project Management	Sr. Project Manager - CM	11.00	\$55.00	\$605.00
07/13/11	Project Management	Sr. Project Manager - PM	8.00	\$55.00	\$440.00
07/14/11	Project Management	Sr. Project Manager - CM	6.00	\$55.00	\$330.00
07/15/11	Project Management	Sr. Project Manager - CM	4.00	\$55.00	\$220.00
					<u>\$9,047.50</u>

Reimbursables

<u>Date</u>	<u>Employee</u>	<u>Description</u>	<u>Billable Unit</u>	<u>Unit Cost</u>	<u>Cost</u>
06/22/12	Sr. Project Manager - CM	Per Diem	1	\$25.00	\$25.00
06/22/12	Sr. Project Manager - CM	Lodging	1	\$110.00	\$110.00
06/23/12	Sr. Project Manager - CM	Per Diem	1	\$25.00	\$25.00
06/23/12	Sr. Project Manager - CM	Lodging	1	\$110.00	\$110.00
06/24/12	Sr. Project Manager - CM	Lodging	1	\$110.00	\$110.00
06/24/12	Sr. Project Manager - CM	Per Diem	1	\$25.00	\$25.00
06/25/12	Sr. Project Manager - CM	Lodging	1	\$110.00	\$110.00
06/25/12	Sr. Project Manager - CM	Per Diem	1	\$25.00	\$25.00
06/30/12	Sr. Project Manager - CM	Lodging	1	\$110.00	\$110.00
06/30/12	Sr. Project Manager - CM	Per Diem	1	\$25.00	\$25.00
07/01/12	Sr. Project Manager - CM	Lodging	1	\$110.00	\$110.00
07/01/12	Sr. Project Manager - CM	Per Diem	1	\$25.00	\$25.00
6/15-7/15-11	Support Truck - CM	Support Truck - Per Day	6	\$40.00	\$240.00
					<u>\$1,050.00</u>

TOTAL In-House Cost \$10,097.50

Davis-Garvin Agency, Inc. - SC
PO Box 21627 * Columbia, SC 29221-1627

-----INVOICE-----

Terratec, Inc.
1350 Methodist Park Road
West Columbia, SC 29170

Invoice Date 05/20/11
Invoice No. 341171
Bill-To Code TERRATEC
Client Code TERRATEC
Inv Order No. 110*488514

Named Insured: Terratec, Inc.

Amount Remitted: \$

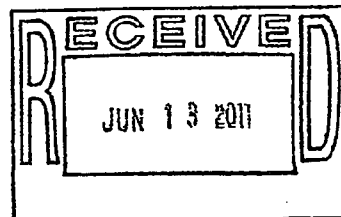
Please return this portion with your payment.

Make checks payable to: Davis-Garvin Agency, Inc. - SC

Effective Date	Policy Period	Coverage Description	Transaction Amount
05/18/11	05/17/11 to 01/26/12	Torus National Insurance Co. Policy No. 10887B110ALI *New - Commercial Umbrella Policy Fees - Fees Invoice Number: 341171	5,234.00 500.00 Amount Due: 5,734.00
*Premiums Due and Payable on Effective Date			

PREMIUM FINANCING SPECIALISTS CORP
 A DIVISION OF IPFS CORPORATION (IPFS)
 1122 LADY ST. # 940
 COLUMBIA, SC 29201
 (803)217-7927 - FAX: (803)771-8710

NOTICE OF PAYMENT DUE		
DATE MAILED	ACCOUNT NUMBER	DUE DATE
06/06/11	SCC-232914	06/28/11



IF ANY QUESTIONS, PLEASE CALL: (800)217-7927

IMPORTANT

To protect your account please make sure that your payment is made on or before the payment due date shown. Your payment for the insurance premiums we are budgeting for you is due on the date indicated. **MAKE CHECK OR MONEY ORDER PAYABLE to PREMIUM FINANCING SPECIALISTS CORP** and return the payment and this notice to the address shown on coupon.

INSURED
 TERRATEC, INC
 ATTN: MARGARET C. MORRISON, PRES.
 1350 METHODIST PARK RD
 W COLUMBIA, SC 29170-2842

CURRENT BALANCE	PAYMENT DUE
\$12,441.45	\$2,577.14

TERRATEC, INC.

Premium Financing Specialists

General Liability SCC-232914

6/27/2011

10257

2,577.14

First Citizens Cash Ac SCC-232914

2,577.14

ROA000583

Make Checks Payable To:

Appalachian Underwriters, Inc.
C/O PayGo Billing
PO Box 800
Oak Ridge, TN 37831-0800

Payment Due By:	7/10/2011
Amount Due Now:	\$1,024.16
Amount Enclosed:	
Check Number:	

Policy Number: AWC18858-10
Worker's Compensation - Specialty
Insured: TERRATEC INC

AWC18858-10

Please Tear and Enclose Payment Stub

Pay by Credit Card

Contact ITP at 866-984-3123. A convenience fee of \$14.95 will be added to your credit card.
Please note that credit card payments over \$3,000.00 are not accepted.

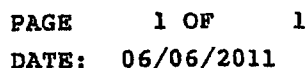
Pay by Check

1. Print the payment stub above and include with your check.
2. Make check payable to 'Appalachian Underwriters, Inc.'
3. Write your policy number in the MEMO line of your check.
4. Mail your payment to:

Appalachian Underwriters, Inc.
C/O PayGo Billing
PO Box 800
Oak Ridge, TN 37831-0800

OR overnight to:

Appalachian Underwriters, Inc.
C/O PayGo Billing
800 Oak Ridge Turnpike
Suite A-1000
Oak Ridge, TN 37830



NOTICE OF PAYMENT DUE

PHONE: 803-732-0080

SC

TERRATEC INC
1350 METHODIST PARK RD
WEST COLUMBIA SC 29170

ACCOUNT # CB00402159

RECEIVED
JUN 17 2011

PAYMENT OPTIONS		
OPTION 1: PAY IN FULL	OPTION 2: PAY IN INSTALLMENTS	OPTION 3: "E-PAY" PAYMENT PLAN
PAY \$5,781.85	PAY \$867.82 Your next bill will be: Amount: \$862.82* Due: 07/26/2011 * A service charge will be added to this bill	ELECTRONIC FUNDS TRANSFER OPTION - Complete the "E-PAY" Payment Plan Authorization Form (See reverse side of billing stub) so we can automatically withdraw future monthly payments from your bank account. PAY \$825.27 now via check

If you have questions concerning account payment status, please call the Payment Services Department at 1-800-444-9950, Ext. 5118. Please see important messages on reverse side.

PLEASE FOLD AND TEAR ALONG DOTTED LINES

AGENT: 00007276 POLICY: BAP 2187219

DATE	EASY DOWN PAYMENT	INSTALLMENT	PAY IN FULL	AMOUNT ENCLOSED
05/27/2013	\$25.27	\$67.32	\$67.32	

If we do not receive the amount due by the due date, a late fee will be added to your next bill

0000932004021590010000178000096782

State Auto Insurance Companies
PO Box 182738
Columbus, OH 43218-2738

Pay online at www.StateAuto.com

☐ CHECK HERE TO SELECT "E - PAY PLAN" IF OFFERED ABOVE

CHECK HERE TO SELECT E-PAY PLAN IF OFFERED ABOVE
ALSO, PLEASE ENCLOSE DOWNPAYMENT AND COMPLETE ENROLLMENT FORM ON REVERSE SIDE.

STATE AUTO WILL NOTIFY YOU IN WRITING REGARDING THE AMOUNT OF YOUR FIRST E-PAY DEDUCTION.

000083 **Pinto**

CCSD Ex 9 pg 028

ROA000585

Equipment



PAGE 1 OF 1

DATE: 06/06/2011

NOTICE OF PAYMENT DUE

AGENT: DAVIS-GARVIN AGENCY INC

PHONE: 803-732-0060

SC

000296

TERRATEC INC
1350 METHODIST PARK RD
WEST COLUMBIA SC 29170

ACCOUNT # CB00402158

DESCRIPTION	POLICY NUMBER	CURRENT DUE
LAST PAYMENT RECEIVED 06/28/2011		\$359.09
COMMERCIAL POLICY 10/1/2011 - 01/28/2012	SPP 2442158 05 07 07	\$354.09
SERVICE CHARGE		5.00
MINIMUM DUE 06/27/2011		\$359.09

PAYMENT OPTIONS

OPTION 1: PAY IN FULL	OPTION 2: PAY IN INSTALLMENTS	OPTION 3: E-PAY PAYMENT PLAN
PAY \$2,129.55	PAY \$359.09 Your next bill will be: Amount: \$354.08* Due: 07/28/2011 * A service charge will be added to this bill	ELECTRONIC FUNDS TRANSFER OPTION - Complete the "E-PAY" Payment Plan Authorization Form (See reverse side of billing stub) so we can automatically withdraw future monthly payments from your bank account. PAY \$303.81 now via check

We appreciate the opportunity to serve your insurance needs.

Payment of amount less than minimum due may result in cancellation of policy(ies). (If policy(ies) previously terminated, see Important Note on reverse side.)

Your renewal policy will expire at 12:01 a.m. standard time on the renewal effective date shown if the minimum amount due is not received by the due date.

If you have questions concerning account payment status, please call the Payment Services Department at 1-800-444-9950, Ext. 5118. Please see important message(s) on reverse side.

PLEASE FOLD AND TEAR ALONG DOTTED LINES

ACCOUNT: CB00402158
NAME: TERRATEC INC

AGENT: 00007276 POLICY: SPP 2442158

DATE	E-PAY DOWN PAYMENT	INSTALLMENT	PAY IN FULL	AMOUNT ENCLOSED
06/27/2011	\$303.81	\$359.09	\$2,129.55	

If we do not receive the amount due by the due date, a late fee will be added to your next bill

0000932004021580010000168000035909

State Auto Insurance Companies
PO Box 182738
Columbus, OH 43218-2738

Pay online at www.StateAuto.com

☐ CHECK HERE TO SELECT "E - PAY PLAN" IF OFFERED ABOVE
ALSO, PLEASE ENCLOSE DOWNPAYMENT AND COMPLETE ENROLLMENT FORM ON REVERSE SIDE.

STATE AUTO WILL NOTIFY YOU IN WRITING REGARDING THE AMOUNT OF YOUR FIRST E-PAY DEDUCTION.

CCSD Ex 9 pg 029

ROA000586

PAYMENT STATEMENT

Return this portion of invoice with payment

Terms are net 30 days from date of invoice.

Terratec, Inc.
1350 Methodist Park Rd.
W. Columbia, SC 29170

Attention: Chris Morrison

Reference: Rivers Education Center
Project Number: 11-8332C
Invoice Number: 32093



Charleston Office
4301 Dorchester Road, Suite A
Charleston, SC 29405
(Office) (843) 763-4093
(Fax) (843) 763-4094

Make Checks Payable to:
GS2 Engineering & Environmental Consultants, Inc.

Remit Payment to:
1200 Veterans Road
Columbia, SC 29209

Invoice Period: 13
Invoice Sub-Total Due: \$11,085.00
Finance Charges (%): \$0.00

Credit Card Payments May be Arranged

Invoice Overall Total Due: \$11,085.00

Keep this portion of invoice for your records



GS2 Engineering & Environmental Consultants, Inc.
Charleston Office - 4301 Dorchester Road, Suite A
Charleston, South Carolina 29405
(843) 763-4093 (843) 763-4094

Project Name: Rivers Education Center
Project No.: 11-8332C

Inv. Date: 7/11/11
Inv. No.: 32093

I N V O I C E

For Services Provided From 6/18/11 to 7/11/11

CONTRACT SERVICES

LABOR

Project Management, Engineering and Quality Control

Date	Work Task	Personnel	No. Hours	Unit Fee (per hr.)	Cost
06/18/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00
06/19/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00
06/20/11	Project Management	Prof. Engineer - GS	4.00	\$55.00	\$220.00
06/21/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
06/22/11	Project Management	Prof. Engineer - GS	4.00	\$55.00	\$220.00
06/23/11	Project Management	Prof. Engineer - GS	5.00	\$55.00	\$275.00
06/23/11	On-Site Classification for SPT	Staff Prof. - SE	10.00	\$30.00	\$300.00
06/23/11	On-Site Classification for SPT	Staff Prof. - BS	6.00	\$30.00	\$180.00
06/24/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
06/24/11	On-Site Classification for SPT	Staff Prof. - SE	12.00	\$30.00	\$360.00
06/24/11	On-Site Classification for SPT	Staff Prof. - WC	12.00	\$30.00	\$360.00
06/25/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
06/25/11	On-Site Classification for SPT	Staff Prof. - SE	6.00	\$30.00	\$180.00
06/25/11	On-Site Classification for SPT	Staff Prof. - WC	6.00	\$30.00	\$180.00
06/26/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
06/27/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00

06/28/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00
06/29/11	Project Management	Prof. Engineer - GS	7.00	\$55.00	\$385.00
06/30/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00
07/01/11	Project Management - Meeting	Prof. Engineer - GS	6.00	\$55.00	\$330.00
07/01/11	Project Management - Meeting	Staff Prof. - SE	5.00	\$30.00	\$150.00
07/01/11	Project Management - Meeting	Staff Prof. - BS	5.00	\$30.00	\$150.00
				Labor Total	\$4,555.00

Drilling Labor for SPT Borings

<u>Date</u>	<u>Work Task</u>	<u>Personnel</u>	<u>No. Hours</u>	<u>Unit Fee (per hr.)</u>	<u>Cost</u>
06/23/11	SPT Borings (Crew #1)	Drilling Supervisor - RW	9.00	\$50.00	\$450.00
06/23/11	SPT Borings (Crew #1)	Drilling Tech - BW	9.00	\$30.00	\$270.00
06/23/11	SPT Borings (Crew #1)	Drilling Tech - AL	9.00	\$30.00	\$270.00
06/23/11	SPT Borings (Crew #1)	Drilling Tech - CF	9.00	\$30.00	\$270.00
06/24/11	SPT Borings (Crew #1)	Drilling Supervisor - RW	9.00	\$50.00	\$450.00
06/24/11	SPT Borings (Crew #1)	Drilling Tech - BW	9.00	\$30.00	\$270.00
06/24/11	SPT Borings (Crew #1)	Drilling Tech - AL	9.00	\$30.00	\$270.00
06/24/11	SPT Borings (Crew #1)	Drilling Tech - CF	9.00	\$30.00	\$270.00
06/25/11	SPT Borings (Crew #1)	Drilling Supervisor - RW	9.00	\$50.00	\$450.00
06/25/11	SPT Borings (Crew #1)	Drilling Tech - BW	9.00	\$30.00	\$270.00
06/25/11	SPT Borings (Crew #1)	Drilling Tech - AL	9.00	\$30.00	\$270.00
06/25/11	SPT Borings (Crew #1)	Drilling Tech - CF	9.00	\$30.00	\$270.00
				Labor Total	\$3,780.00

TRAVEL, PER DIEM AND LODGING

<u>Date</u>	<u>Personnel</u>	<u>Vehicle</u>	<u>Miles/Trips</u>	<u>Unit Fee (per MI/Trip.)</u>	<u>Cost</u>
06/23/11	Drill Crew #1	Drill Rig Mobilization	1	\$350.00	\$350.00
06/23/11	Drill Crew #1 - RW, BW, AL, CF	Per Diem	4	\$25.00	\$100.00
06/23/11	Drill Crew #1	Support Truck - Mob	2	\$20.00	\$40.00
06/23/11	Drill Crew #1	Lodging (2) Rooms	1	\$220.00	\$220.00
06/23/11	Staff Prof. - BS and SE	Truck	2	\$10.00	\$20.00
06/24/11	Drill Crew #1 - RW, BW, AL, CF	Per Diem	4	\$25.00	\$100.00
06/24/11	Drill Crew #1	Support Truck - Mob	2	\$20.00	\$40.00
06/24/11	Drill Crew #1	Lodging (2) Rooms	1	\$220.00	\$220.00
06/24/11	Staff Prof. - WC and SE	Truck	2	\$10.00	\$20.00
06/25/11	Staff Prof. - WC and SE	Truck	2	\$10.00	\$20.00
				Travel Total	\$1,130.00

SPT Borings

<u>Boring #</u>	<u>Footage (feet drilled)</u>	<u>Unit Cost Per foot</u>	<u>Cost</u>
SPT#1	80	\$9.00	\$720.00
SPT#2	100	\$9.00	\$900.00
			Total
			\$1,620.00

* = Depicts Overtime Rates

CONTRACT SERVICES SUBTOTAL \$11,085.00

OVERALL TOTAL DUE \$11,085.00

PAYMENT STATEMENT

Return this portion of invoice with payment

Terms are net 30 days from date of invoice.

Terratec, Inc.
1350 Methodist Park Rd.
W. Columbia, SC 29170

Attention: Chris Morrison

Reference: Rivers Education Center

Project Number: 11-8332C

Invoice Number: 32136



Charleston Office
4301 Dorchester Road, Suite A
Charleston, SC 29405
(Office) (843) 763-4093
(Fax) (843) 763-4094

Make Checks Payable to:
GS2 Engineering & Environmental Consultants, Inc.

Invoice Period: 14
Invoice Sub-Total Due: \$2,625.00
Finance Charges (%): \$0.00

Remit Payment to:
1200 Veterans Road
Columbia, SC 29208

Credit Card Payments May be Arranged

Invoice Overall Total Due: \$2,625.00

Keep this portion of invoice for your records



GS2 Engineering & Environmental Consultants, Inc.
Charleston Office - 4301 Dorchester Road, Suite A
Charleston, South Carolina 29405
(843) 763-4093 (843) 763-4094

Project Name: Rivers Education Center
Project No.: 11-8332C

Inv. Date: 7/24/2011
Inv. No.: 32136

I N V O I C E

For Services Provided From 7/2/11 to 7/15/11

CONTRACT SERVICES

LABOR

Project Management, Engineering and Quality Control

Date	Work Task	Personnel	No. Hours	Unit Fee (per hr.)	Cost
07/04/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00
07/05/11	Project Management	Prof. Engineer - GS	3.00	\$55.00	\$165.00
07/06/11	Project Management	Prof. Engineer - GS	4.00	\$55.00	\$220.00
07/07/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
07/11/11	Project Management	Prof. Engineer - GS	4.00	\$55.00	\$220.00
07/12/11	Project Management	Prof. Engineer - GS	5.00	\$55.00	\$275.00
07/13/11	Project Management	Prof. Engineer - GS	10.00	\$55.00	\$550.00
07/14/11	Project Management	Prof. Engineer - GS	6.00	\$55.00	\$330.00
07/14/11	Mix Design	Staff Prof. - BS	3.00	\$30.00	\$90.00
07/15/11	Project Management	Prof. Engineer - GS	2.00	\$55.00	\$110.00
Labor Total					\$2,235.00

TRAVEL, PER DIEM AND LODGING

Date	Personnel	Vehicle	Miles/Trips	Unit Fee (per Mi/Trip.)	Cost
------	-----------	---------	-------------	-------------------------	------

07/14/11

Staff Prof. - BS

Truck

1

\$10.00
Travel Total

\$10.00
\$10.00

Lab Testing

Laboratory Test Performed
Compressive Strength of Grout Cylinders
Shrinkage Testing for Grout

Number of Tests
4
1

<u>Unit</u>	<u>Cost (per test)</u>	<u>Cost</u>
	\$45.00	\$180.00
	\$200.00	\$200.00
Total		\$380.00

CONTRACT SERVICES SUBTOTAL \$2,625.00

* = Depicts Overtime Rates

OVERALL TOTAL DUE \$2,625.00



KYZER & TIMMERMAN
STRUCTURAL ENGINEERS, LLC

April 30, 2012

Mr. Chris Morrison
Terratec, Inc.
1350 Methodist Park Road
West Columbia, South Carolina 29170

Re: Change Order #3- Back up Info
Rivers Education Center
Charleston, South Carolina

Dear Chris:

The additional time required from my office for Change Order #2 is
as follows:

Drafting: Alvin B. 39.5 hrs at \$60/hr = \$2370.00
Tim P. 1.75 hrs at \$50/hr = 87.50

Design: Ken T. 56 hr at \$125/hr = 7,000.00

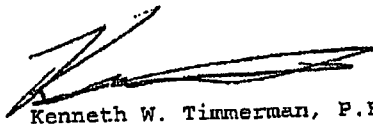
Secretarial: 1.7 hr at \$25.0/hr = 42.50

TOTAL = \$9,500.

I have included time sheets from my drafting department.

Chris, please give me a call if there are any questions.

Sincerely,



Kenneth W. Timmerman, P.E.

cc: File

580 CHRIS DRIVE • WEST COLUMBIA, SC 29169
(803) 791-4511 • (803) 791-4522 FAX

CCSD Ex 9 pg 035

ROA000592

KYZER & TIMMERMAN

CHECKED BY: _____

NAME: *Steve Portman* WEEKLY TIME SHEET

WEEK ENDING: Friday, June 24, 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	
SAT.						WORK	
DATE:						0	
6/18/2011							
SUN.						0	
DATE:							
6/19/2011							
MON.	City Center Parking Garage	11 - 282	3	8:30	12:00	7.5	
DATE:	Charleston School Upfit	11 - 158	3	1:00	5:00		
6/20/2011							
	ADMINISTRATIVE	11 - 011	1.5				
TUES.	Myrtle Beach Airport	09 - 341	2.5	8:00	12:00	8	
DATE:	Embassy Suites	11 - 265	3	1:00	5:00		
6/21/2011							
	ADMINISTRATIVE	11 - 011	2.5				
WED.	WBS Restroom Add.	10 - 398	1.5	8:00	5:00	9	
DATE:	City Center Parking Garage	11 - 282	6.5				
6/22/2011							
	ADMINISTRATIVE	11 - 011	1				
THURS.	Natchitoches National Fish Hatch	11 - 297	3.5	8:15	5:00	8.75	
DATE:	Embassy Suites	11 - 265	1.5				
6/23/2011	Charleston School Upfit	11 - 158	2				
	ADMINISTRATIVE	11 - 011	1.75				
FRI.	Charleston School Upfit	11 - 158	4.5	8:15	12:00	8	
DATE:	Embassy Suites	11 - 265	2	1:00	5:15		
6/24/2011							
	ADMINISTRATIVE	11 - 011	1.5				
SUBTOTALS:						41.25	0

Signature: *Steve Portman*

9.5

SUBTOTALS:

ALL TOTAL: 41.25

Timesheets shall be complete with accurate Job Names, Job Numbers, and Hours at the end of each day.

Completed time sheets shall be turned in NO LATER than 10:00 a.m. on the Monday of the following week.

Employees shall use PTO hours for any time lost during normal business hours if they wish to get paid for that time.

Employees are not allowed to use PTO time that they do not have unless approved by upper management.

KYZER & TIMMERMAN

CHECKED BY: _____

NAME: *John P. Palmer*

WEEKLY TIME SHEET

WEEK ENDING: _____

Friday, July 01, 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	
SAT.						WORK	
DATE:						0	
6/25/2011							
SUN.						0	
DATE:							
6/26/2011							
MON.	Natchitoches National Fish Hatch	11 - 297	3	8:00	12:00	8	
DATE:	Charleston School Upfit	11 - 158	3	1:00	5:00		
6/27/2011							
	ADMINISTRATIVE	11 - 011	2				
TUES.	Myrtle Beach Airport	09 - 341	3.5	8:00	5:00	9	
DATE:	Natchitoches National Fish Hatch	11 - 297	1.5				
6/28/2011	Charleston School Upfit	11 - 158	2				
	ADMINISTRATIVE	11 - 011	2				
WED.	CIU - Site Visit	10 - 363	3	8:00	12:00	8	
DATE:	Charleston School Upfit	11 - 158	4	1:00	5:00		
6/29/2011							
	ADMINISTRATIVE	11 - 011	1				
THURS.	WBS Restroom Addition	11 - 398	2	7:30	10:30	8	
DATE:	City Center Parking Garage	11 - 282	2	12:00	5:00		
6/30/2011	Charleston School Upfit	11 - 158	3				
	ADMINISTRATIVE	11 - 011	1				
FRI.	Charleston School Upfit	11 - 158	7	8:15	5:00	8.75	
DATE:	On Ken		0.25				
7/1/2011	City Center Parking Garage	11 - 282	1.5				
	ADMINISTRATIVE	11 - 011					
						41.75	0

Signature: *John P. Palmer*

19.0

SUBTOTALS:

ALL TOTAL:

41.75

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KYZER & TIMMERMAN

CHECKED BY: _____

NAME: *Steve Palmer* WEEKLY TIME SHEET

WEEK ENDING: Friday, July 08, 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS		
SAT.						WORK		
DATE:						0		
7/2/2011								
SUN.						0		
DATE:								
7/3/2011							PTO	HOL
MON.								
DATE:	4th of July Holiday!!!!!!	11 - 008	8					8
7/4/2011								
TUES.	Charleston School Upfit	11 - 158	4	8:30	5:00	8.5		
DATE:	St. James HS. Reno. & Add.	10 - 315	1.5					
7/5/2011								
	ADMINISTRATIVE	11 - 011	3					
WED.	Little River Medical Center	11 - 277	7	8:45	5:00	8.25		
DATE:								
7/6/2011								
	ADMINISTRATIVE	11 - 011	1.25					
THURS.	Little River Medical Center	11 - 277	4.5	8:00	1:30	8		
DATE:	Suggs & Kelly Winnesboro		2.5	2:30	5:00			
7/7/2011								
	ADMINISTRATIVE	11 - 011	1					
FRI.	Charleston School Upfit	11 - 158	2	8:00	12:00	8		
DATE:	Little River Medical Center	11 - 277	4	1:00	5:00			
7/8/2011								
	ADMINISTRATIVE	11 - 011	2					
SUBTOTALS:						32.75	0	8

Signature: *Steve Palmer*

6.0

SUBTOTALS:

ALL TOTAL: 40.75

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KYZER & TIMMERMAN

CHECKED BY: _____

WEEKLY TIME SHEET

NAME: *Steve Palmer*

WEEK ENDING: Friday, July 15, 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	
SAT.						WORK	
DATE:						0	
7/9/2011							
SUN.						0	
DATE:							
7/10/2011							
MON.	Embassy Suites	11 - 265	5.5	8:00	12:00	8	
DATE:	Charleston School Upfit	11 - 158	1.5	1:00	5:00		
7/11/2011							
	ADMINISTRATIVE	11 - 011	1				
TUES.	Embassy Suites	11 - 265	6.5	7:30	5:00	9.5	
DATE:	Marion Street PO.	10 - 388	1.5				
7/12/2011							
	ADMINISTRATIVE	11 - 011	1.5				
WED.	Security Federal - (fire safe)	11 - 309	4	8:00	4:45	8.75	
DATE:	Marion Street PO.	10 - 388	3				
7/13/2011							
	ADMINISTRATIVE	11 - 011	1.75				
THURS.	Marion Street PO.	10 - 388	5	9:00	5:00	9	
DATE:	Charleston School Upfit	11 - 158	2				
7/14/2011							
	ADMINISTRATIVE	11 - 011	2				
FRI.	Embassy Suites	11 - 265	3.5	8:30	12:00	8.5	
DATE:	Palmetto Club	11 - 306	1.5	1:00	5:15		
7/15/2011	Charleston School Upfit	11 - 158	1.5				
	ADMINISTRATIVE	11 - 011	2				

Signature: *Steve Palmer*

5.0

SUBTOTALS:

43.75

0

0

ALL TOTAL:

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KYZER & TIMMERMAN

WEEKLY TIME SHEET

CHECKED BY: _____

NAME: Timothy G. Plouffe

WEEK ENDING: June 24th 200

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	
SAT. DATE: /						WORK	
SUN. DATE: /							
MON. DATE: 6/20	office	11-011	1.25	7:45	12:30		
	Chesterfield	11-285	7.5	1:15	5:15	8.75	
TUES. DATE: 6/21	Chesterfield	11-285	8.25	7:45	11:45		
	Whole Foods Site	11-272	1.5	1:15	7:00	9.75	
WED. DATE: 6/22	Chesterfield	11-285	8.5	7:45			
	Trinity PC	10-357	1.0		5:45		
	WHS Acd.	11-148	1.5	9:00	10:00	11	
THURS. DATE: 6/23	Chesterfield	11-285	7.0	7:45			
	Red Cross Annex Trust Repair	11-295	1.75				
	WHS Acd.	11-148	1.25		5:45	10	
FRI. DATE: 6/24	Chesterfield	11-285	8.5	7:45			
	River Education Cntr.	11-158	.25				
	Computer	11-002	1.0		5:30	9.75	
Signature: <u>Timothy G. Plouffe</u> 1.25						SUBTOTALS:	49.75

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ALL TOTAL: 44.25

KYZER & TIMMERMAN

WEEKLY TIME SHEET

CHECKED BY: _____

NAME: Timothy C. Plunkley

WEEK ENDING: July 1st 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	
						WORK	
SAT. DATE: 1							
SUN. DATE: 6/24	Chesterfield	11-285	1.5			1.5	
MON. DATE: 6/27	Office	11-011	.25	7:45	12		
	Chesterfield	11-285	10.75	12:30	6:45	11.5	
	Rivers Educational	11-158	.5	9:00	10:00		
TUES. DATE: 6/28	Chesterfield	11-285	5	7:45	12:45	5	
WED. DATE: 6/29	PTO						8
THURS. DATE: 6/30	PTO						8
FRI. DATE: 7/1	PTO						6
SUBTOTALS:							

Signature: Tim Plunkley

1.5

SUBTOTALS:

ALL TOTAL: _____

Timesheets shall be complete with accurate Job Names, Job Numbers, and Hours at the end of each day.
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KYZER & TIMMERMAN

WEEKLY TIME SHEET

CHECKED BY: _____

NAME: Timothy C. Plumley

WEEK ENDING: July 8th 2011

DATE	JOB NAME	JOB NUMBER	HOURS	IN	OUT	HOURS	PTO	HOL
SAT. DATE: 1						WORK		
SUN. DATE: 1								
MON. DATE: 7/14	Holiday 4 th	11-008	8					8
TUES. DATE: 7/15	office Chesterfield	11-011 11-285	.5 7.5	7:45 1:15	11:45 5:15	8		
WED. DATE: 7/16	Chesterfield	11-285	9.25	8:00 —	— 5:15	9.25		
THURS. DATE: 7/17	office Chesterfield Rivers Education Ctr.	11-011 11-285 11-158	.25 7.0 1.0	8:15 1:15 7:00	11:45 5:00 8:00	8.25		
FRI. DATE: 7/18	Chesterfield Chesterfield	11-285 11-002	7.5 .75	7:45 1	12 5:00	8.25		
SUBTOTALS:						33.75	8	

Signature: Timothy C. Plumley

1.0

SUBTOTALS:

33.75

8

Timesheets shall be complete with accurate Job Names, Job Numbers, and Hours at the end of each day. Completed time sheets shall be turned in NO LATER than 10:00 a.m. on the Monday of the following week. Employees shall use PTO hours for any time lost during normal business hours if they wish to get paid for that time. Employees are not allowed to use PTO time that they do not have unless approved by upper management.

ALL TOTAL: 41.75



International Construction Equipment Inc.

Specializing in Foundation Construction Equipment
301 Warehouse Drive Matthews, North Carolina, 28104
Phone: (888) ICE-USA1 (704) 821-8200 Fax: (704) 821-8201
Remit Payment to: PO Box 402494, Atlanta, GA 30384-2494

AR Invoice

Invoice Date	Page
7/20/2011	1
Invoice Number	
IN112814	

SOLD TO:

Terratec, Inc
1350 Methodist Park Rd
West Columbia, SC 29170

This includes two months rent, we, at this time, are only asking for 1 month.

SHIP TO:

Terratec, Inc
Charleston, SC

PO Number KEVIN THOMAS			S/P# 0053	Ship Via LNDSTR	Ship From ICE Sayreville, NJ	Ship Date 6/18/2011	Order No. SO112825	Customer ID TER	Terms Net 30 Days
Qty. Ord.	Qty. Shp.	Qty. B/O	Item Number	Description			Unit Price	UOM	Extended Price
2.00	2.00	0.00	/R308	LA3 Drill Idle/Rate Rental 5/19-7/18/11 308167 ***Attn : Chris Morrison *** ***Payment terms: Due upon receipt***			5,000.00	MONTH	10,000.00
Comments: PLEASE REMIT INVOICE NUMBER WITH PAYMENT IN US DOLLARS All applicable taxes are the responsibility of the customer. Freight includes all shipping and handling charges.							Subtotal:		10,000.00
							Discount:		0.00
							Total SalesTax:		750.00
							Amount Due:		10,750.00

PLEASE REMIT TO LOCK BOX:

BLANCHARD MACHINERY CO.
P.O. BOX 402197
ATLANTA, GA 30384-2197

BLANCHARD MACHINERY CO.
151 Farmington Road
Summerville, SC 29483

Phone: (843) 871-2000
Fax: (843) 821-1229

www.blanchardmachinery.com

Blanchard



25



TERRATEC INC PM
1350 METHODIST PARK RD
WEST COLUMBIA SC 29170-2842

CUSTOMER PICK UP

INVOICE NO.	DATE	SLM	CM	T	BR	MILES/HOURS	AGREEMENT NO.	DATE	PAGE
P1488703	07-28-11	833	10	R	82	.0	P14887	05-16-11	1
CUSTOMER NO.	CUST. ORDER NO.	MAKE	MODEL	SERIAL NUMBER	EQ-NO	SHIP VIA			
0008544	CHRIS	AA	924IT FK	EU6020045	94041	CAT			
QTY.	DESCRIPTION					TOTAL			
1.0	CUSTOMER CONTACT: CHRIS EQUIPMENT LEASE FROM 07/11/11 THRU 08/07/11 CAT MODEL 924IT FKS FORKS ID NO: 94041 SERIAL NO: EU6020045 FOB: SVL * THANKS FOR RENTING FROM THE CAT RENTAL STORE * INVOICE DUE ON 8/9/11 SC DEPARTMENT OF REVENUE HAS IMPOSED A RENTAL SURCHARGE TAX. SC SALES TAX LOCAL SALES TAX SPECIAL OPTION TAX					300.00 18.00 3.00 3.00 324.00			
ALL BILLS ARE PAYABLE BY 10TH OF MONTH FOLLOWING DATE OF INVOICE. STOCK ITEMS RETURNED WITHIN 90 DAYS - FULL CREDIT. AFTER 90 DAYS, UP TO 365 DAYS - 85% CREDIT. AFTER 365 DAYS - NO CREDIT. NON-STOCK ITEMS RETURNED WITHIN 90 DAYS - 85% CREDIT. AFTER 90 DAYS - NO CREDIT. WE ARE UNABLE TO ACCEPT NON-STOCK, NON RETURNABLE PARTS. THESE ARE IDENTIFIED BY AN (*) ON SHIPPING LIST. BLANCHARD'S COMPLETE RETURN POLICY IS AVAILABLE AT OUR PARTS DEPARTMENT OR MAY BE ACCESSED ON OUR WEBSITE. Out Sourced items accepted for return only if authorized by the vendor. We will allow credit less freight and restock fees. We reserve the right to change all or any part of this policy without prior notice. Invoices and charges not paid in full by the 20th of the month following purchase are subject to a time-price differential of 1.5% per annum on the unpaid balance each month of fraction thereof remaining unpaid. Blanchard Machinery Co. the Seller, expressly disclaims all warranties, either expressed or implied, including any implied warranty of merchantability or fitness for any particular use. The Seller neither assumes nor authorizes any other person to assume for it any liability in connection with the sales of this item/items. The Seller is not responsible for any consequential damages. Only the Manufacturers' Warranty, if any, applies to this sales transaction.						PAY THIS AMOUNT → 324.00 AMOUNT CREDITED →			

WE APPRECIATE YOUR BUSINESS !

REMITTANCE DOCUMENT

To insure proper credit, please detach this portion and return with remittance

BLANCHARD MACHINERY CO.
PO BOX 402197
ATLANTA GA 30384-2197



CUSTOMER NUMBER	INVOICE NUMBER
0008544	P1488703
INVOICE DATE	AMOUNT ENCLOSED
07-29-11	

EXHIBIT C

1. NRC & SAME DID NOT INDICATE AN ISSUE EXISTED W/ THE TEST PILES STRUCTURAL INTEGRITY.

2.1 GSE2 DISAGREED THAT THE DIFFERENCE BETWEEN THE TWO SETS CPTs WERE SIGNIFICANTLY DIFFERENT WITH REGARDS TO VARIABILITY IN DEPTH. [SOIL PROFILES ARE VERY SIMILAR OTHERWISE]. EACH FOOT DEEP IS A CO.

2.2 THE COMMENT WAS MADE BY GSE2 THAT THE REMOVAL OF 9 FEET OF BEARING IN THE MARL COULD REDUCE THE LOAD CARRYING CAPACITY BY AS MUCH AS 90,000 LBS.

~~2.2~~ GSE2 DISAGREES WITH THE COMMENT ABOUT BEARING / SKIN FRICTION IN THE SANDS, AS A DIFFERENT GROUP DESIGN WOULD HAVE BEEN USED (E.G. NEAT CEMENT) IF THE SANDS WERE DOCUMENTED IN ORDER TO IMPROVE THE PILE / SOIL BOND. [TP-1 WAS INSTALLED TO BEAR DIRECTLY IN THESE SANDS AT 66 FEET, AND IT WAS "PLUNGED" AND FOUND TO BE THE WEAKEST PILE TESTED, ALL OTHERS WERE SEATED BELOW SANDS]

2.4 [SAND WAS FOUND AT THE TEST SITE
BUT WELL BELOW THE 64' DEPTH.]

3.0 TERRACE & CISZ DISAGREE, AS THERE
WAS NO PROOF TO DESCRIBE REASONS
FOR LOW CAPACITY AT THE TIME. ~~CISZ~~
~~STATED THAT ALL ABOVE~~

4.0 NO COMMENT

5.0 SOME ALSO STATED THE FOLLOWING:

(A) "WE HAVE ENOUGH DATA ON THE
PENINSULA THAT WE DO NOT NEED
TO DO ANY MORE SPT DATA."

(B) ASZ INSISTED ON DOING BORINGS, AND
SOME & WPC INSISTED 3 TO 4 TIMES
THAT DOING SPT BORINGS WOULD
BE A WASTE OF TIME; AND SOME
STATED "THAT ALL YOU NEED TO DO
IS MAKE SURE SOIL IS GREEN AND
YOU ARE IN THE COOPER MAREL."

(C) SOME & WPC BOTH INSISTED THAT
THE COOPER MAREL WAS AT 64'.

6.0 UNSURE THAT CISZ CAN LEGALLY SERVE
AS THE DOR AND WORK DIRECTLY
FOR THE CONTRACTOR.

- 7.0.1 AS2 MADE THE DECISION ON BEHALF OF TT TO ELIMINATE THE LOAD CELL TO PROVIDE THE MOST ACCURATE RESULTS.
- 7.2 THE SPACING DEVIATION WAS APPROVED BY D&F PRIOR TO COMMENCEMENT.
- 7.3 USE OF A LOAD CELL IS NOT MANDATED BELOW A LOAD OF 200 KIIPS $\pm 20\%$. THE ACTUAL MAX LOAD WAS 160 KIIPS WHICH DOES NOT EXCEED THE PERMISSIBLE ALLOWABLE IN THE ASTM, THEREFORE ASTM WAS FOLLOWED.

8.0 AS2 WITH D&F DISAGREES THAT THIS ENTIRE SECTION IS SPECULATION AND THAT THERE IS ABSOLUTELY NO PROOF OF A SMCAR ZONE, AND NO STATISTICAL SMC SPECIFIC DATA THAT PROVES THE 50 TO 75% STRENGTH REDUCTIONS.

8.1 IF SOME KNEW, THEN WHY DID D&F/SOME ALLOW FOR AUGER CAST PILES IN SECTION 3.2.1.

8.2 IF THEY KNEW AUGER CAST PILES WOULD NOT WORK, WHY DID THEY NOT STOP THE ENTIRE LOAD TEST PROGRAM IN THE BEST INTEREST OF THE PROJECT.

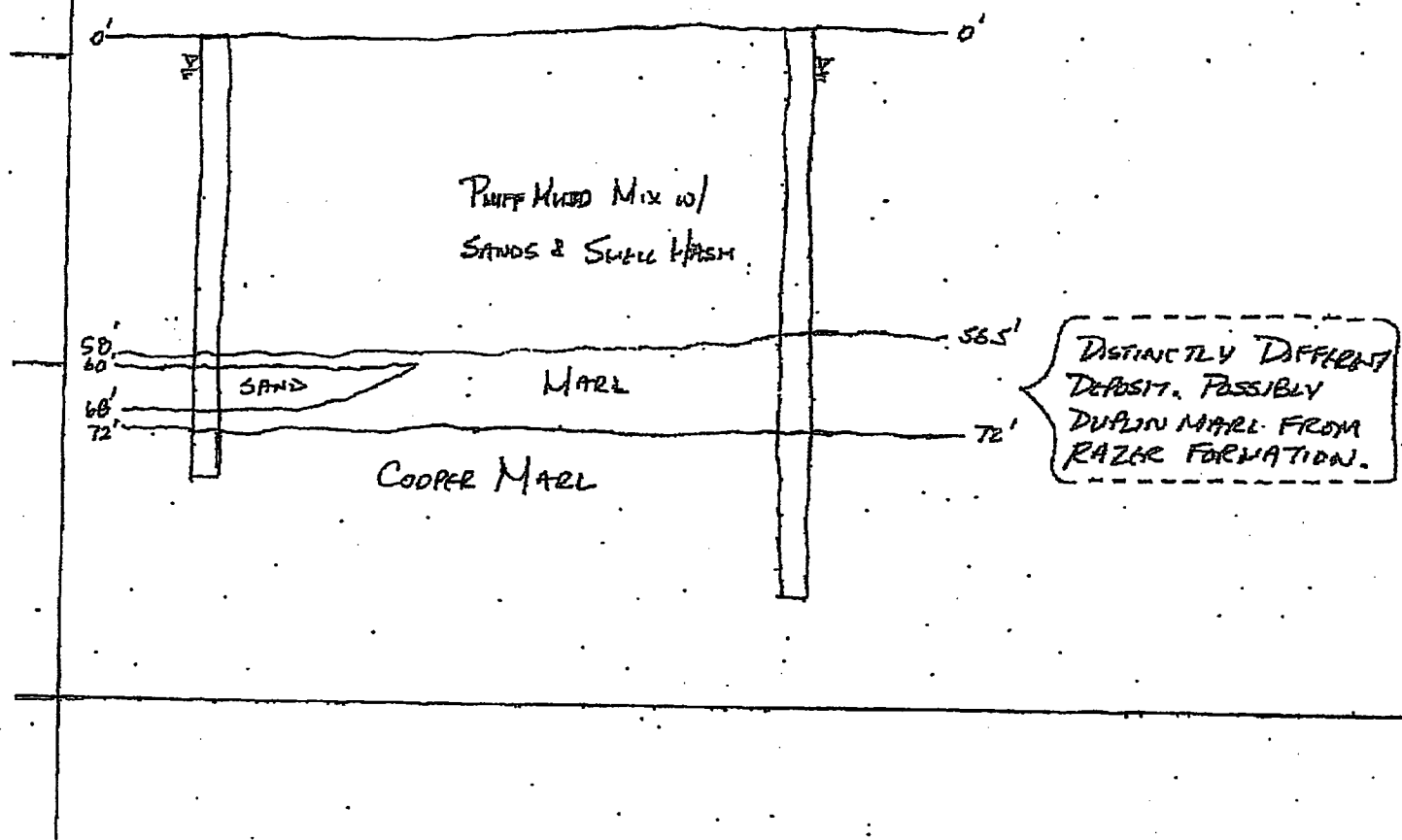
- 8.3 THE NEED FOR AN ALTERNATE PILE TYPE IS NOT JUSTIFIED.
- 8.4 GSE INQUIRED ~~IF~~ ^{ON HOW} THE USE OF A LARGER DIAMETER PILE WOULD IMPACT THE PILE CAP DESIGN, AS ALTERNATE DRILLING/PILE INSTALLATION METHODS (E.G. TITAN) WILL CREATE LARGER IN-PLACE PILES THAT WILL ENCRUSH ON 3" DIAMETER PILE SPACING.
- 9.0 SEE 8.3, TT WILL DEFINATELY CONSIDER ALTERNATE DESIGNS AFTER THE COMPLETION OF THE BORINGS AND LAB TEST.
- 10.0 SEE 8.3 & 9.0

(A00)

- 8.5 WPC ALSO STATED THAT THERE WAS A REASON TO ALLOW 14 TO 16 DAYS FOR RESTRIKE ON DRIVEN PILES IN ORDER TO ALLOW FOR THE VENEER OF DISTURBED MATERIAL AROUND THE PILE TO READHERE. GSE STATED THAT A SIMILAR PRACTICE WAS EMPLOYED PRIOR TO TESTING THE MICROPILES, WHICH ^{SHOULD} MINIMIZE THE IMPACT OF THE SMAR ZONE

8.6 WPC & SMT STATED THAT THE
COOPER MATEL WAS NOT AN OVERCONSOLIDATED
MATERIAL, AND EXPERIENCES NO RELAXATION
WHEN UNLOADED.

RIVER EDITION SEISMIC RETROFIT
 - ROUTINE CROSSSECTION
 - NO LAB DATA



05/27/2011 11:27 8037514522

KYZER TOWERMAN COLA

PAGE 07

ROA000608

CCSD Ex 9 pg 051

EXHIBIT D

DAVIS & FLOYD

Engineering
Architecture
Environmental & Laboratory Services

Davis & Floyd, Inc • PO Box 61599 Charleston, SC 29419 • 3229 West Montague Avenue • Charleston, SC 29418 • (843) 554-8602 (office) (843) 747-6485 (fax)

MEETING MEMO

Meeting Date: June 22, 20011

Location: M.B. Kahn Construction Trailer at Rivers Site

Project: Rivers Education Center-Phase I: Seismic Retrofit,
Exterior Restoration, & Core Utilities

Subject: Micropile Load Test Results

Attendees:

Scott Spigener	M.B. Kahn
Shamrock Thompson	M.B. Kahn
Michael Myjak	M.B. Kahn
Chris Morrison	Terratec
George Sambos	GS2
Bill Wright	WPC
Jeremy Grady	WPC
Forest Foshee	S&MB
Aaron Goldberg	S&MB
Kevin Kelly	Heery International
Ed Dempster	Heery International
Rhett Reidenbach	Davis & Floyd
John Orvin	Davis & Floyd

The meeting was held to discuss the Report of Pile Load Testing Results prepared by the micropile subcontractor, Terratec. All four of the test piles have failed to reach the ultimate axial load capacity of 200 kips specified in the Contract Documents. Following is a summary of the items discussed and decisions that were made in an effort to resolve the problems with micropile program and eliminate any further delays in the construction schedule:

1. M.B. Kahn presented the four following components/potential issues of the test pile program that they believed needed to be addressed in order to determine what was the cause of the failure of the micropile load tests:

- i. Installation of test piles
- ii. Possible variability in soil properties
- iii. Geotechnical anomaly at test pile location
- iv. Test procedure - Was there an error in the procedure that would cause poor results?

2. The findings of the supplemental CPT's taken by S&MB at the existing test pile location and proposed new test pile location were recapped by Heery International. All CPT's taken at the project site to date have shown basically the same soil profile. The CPT taken at existing test pile location encountered the Cooper Marl at a depth of 64 feet. The CPT's taken at all other areas of the project site encountered the Cooper Marl at a depth

Opinion, baseless,
and the test results
between the test
pile locations
prove otherwise.

Again, opinion,
baseless, and the
SPT borings and
test results
between the test
pile locations
prove otherwise.

of about 55 to 57 feet. M.B. Kahn asked if the difference in the top of the marl at the test pile site and the rest of the site affects the total capacity of the test piles. S&ME explained that in their opinion the 7 to 9 foot difference of the depth of the top of the Cooper Marl at the existing load test site as compared to the rest of the site would not cause a dramatic reduction in pile axial capacity. This is due to the test piles having a longer embedment in the dense sand layer directly above the marl at the load test site.

3. WPC discussed that because micropiles are a type of cast in place concrete pile, and in contrast to driving a precast concrete pile, the choice of micropile type/installation method selected by the contractor is the major factor which limits the ultimate strength of a micropile.

4. Terratec and GS2 presented data in their report to show that the integrity of the installed test piles is competent based on their grout volume readings and drilling depths measured for the test piles. GS2 concluded that the low pile capacities were caused by either embedment in Cooper Marl that is not competent or there is a possible anomaly present at the test pile site. They also recommended that SPT's should be also performed at the load test sites to collect soil samples and laboratory tests conducted to verify the soil data gathered by the CPT's.

Again, opinion,
debate-able issues
at best. Again, the
SPT borings and
test results
between the test
pile locations
prove otherwise.

5. Both WPC and S&ME strongly disagreed with the statement that the marl is not competent at the project site. They discussed that the CPT data collected at the site shows that the marl strength is comparable to the historic strengths of the Cooper Marl shown from data collected from other areas in Charleston. S&ME also explained that the CPT data collected at the test pile site does not support the idea of an anomaly being present and if one was present that it is more likely to be found using a CPT than a SPT. S&ME also disagreed with GS2's statement that CPT's only provide correlated data not real soil data. They explained that a CPT directly measures the true in situ soil properties every 2 centimeters of depth; therefore they have provided the best data available.

6. It was agreed upon by all parties that because GS2 is the geotechnical engineer of record for the pile design and if they will feel more comfortable with SPT's and laboratory testing that they can perform the additional borings and testing at their own expense. WPC, acting as the special inspector for CCSD, and S&ME, as Davis & Floyd's geotechnical consultant, will be present during the performance of the borings and will also review the lab test results to confirm that data is consistent with the soil conditions indicated by the CPT soundings.

7. Bill Wright with WPC presented some of the issues that WPC observed during their special inspection of the micropile load testing. Bill Wright stated that Terratec did not strictly follow the ASTM procedures specified for the load testing. Some of these issues were:

- a. Submitted calibration sheets for load cells and jacks were more than 1 year old. ASTM D 1143 requires that calibrations cannot be more than 1 year old.
- b. Calibration for the load cell was only 45 kips and not the full 200 kips plus 20%

This is the
compression
test method, not
the tension test
method, that
"was not"
specified.

This is the
compression test
method, not the
tension test method,
that "was not"
specified.

overage required. Therefore no load cell was used. ASTM requires that a load cell is used for compression testing of over 100 tons.

- c. The spacing of the reaction piles was less than the minimum spacing of 8 feet indicated by ASTM D 1143.
- d. Test piles were failed in compression before they were tested in tension, therefore the tension test results are not considered valid.

Although the load test did not strictly follow the specified ASTM procedures, Bill Wright stated that in his opinion this did not cause the poor load test results. He also stated that any new load tests conducted should strictly follow the ASTM procedures to help eliminate potential dispute of test results.

Again, opinion,
debate-able issues
at best. Again, the
SPT borings and
test results
between the test
pile locations
prove otherwise.

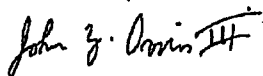
- 8. Bill Wright with WPC presented that in his opinion the micropile design/installation method selected by Terratec is the cause of the low micropile capacities exhibited by the test piles. He stated that he learned 25 years ago that an angled cast type pile, as selected by Terratec, will not work in the Charleston area. He explained that an angled cast type pile creates a uniform skin friction against the pile side wall which results in a reduced capacity of 50% to 75% of the normal cohesion available in the Cooper Marl. Bill Wright suggested that Terratec modify their pile design/installation methods looking at methods that have been used successfully in the Charleston area. One of the methods suggested was a wet-holed rotary drilled method, such as the Titan IBO (injection bore system). S&ME also agreed that it is their opinion that the micropile design/installation method selected by the Terratec for the test piles is not appropriate for the Charleston area.

- 9. Terratec agreed to modify their pile design considering the Titan system. They will submit the new pile design/installation method for review by D&F, WPC, and S&ME.
- 10. Terratec stated that they have experience with the Titan system, but have not installed any piles in the Charleston area. Terratec was asked to submit their qualifications installing piles with the Titan system for review by D&F, WPC, and S&ME. These qualifications are required to be submitted as outlined in sections 1.4.1.a and 1.4.1.b in the micropile technical specification of the contract documents.

This concludes my meeting minutes please contact me with any revisions or corrections that you may have.

Very truly yours,

DAVIS & FLOYD, INC.



John Y. Orvin, III, P.E.
Senior Structural Engineer

EXHIBIT E

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

DAVIS & FLOYD, INC.

Review is only for conformance with the design concept of the project and compliance with information given in the Contract Documents. Approval is general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc. necessary for proper fitting and construction of the Work, as required by the Contract, for achieving the results and performance specified and for coordination of the work of all trades.

APPROVED

Todd J. Warren

Reviewed by Todd J. Warren on May 10, 2011

May 10, 2011

Attn: Mr. Scott Spigener
M.B. Kahn Construction Company
2950 Farrow Road
Columbia, South Carolina 29203

803-730-4411 mobile
803-776-4870 office
803-776-5507 fax

Pile Load Test Program Submittal - Revision #3
Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Dear Mr. Spigener:

Please allow this submittal to serve as our proposed Pile Load Test Program for the above referenced project. This program contains details relating to the construction and load testing of test piles that meet the specifications established in the project bid documents, in addition to suggestions from our design and installation team.

Purpose of Load Test Program

It is our understanding that the purpose of the load test program at this site is to determine an acceptable embedment depth to achieve the design working loads of 100 kips in compression and tension for the planned 8 inch diameter micropiles.

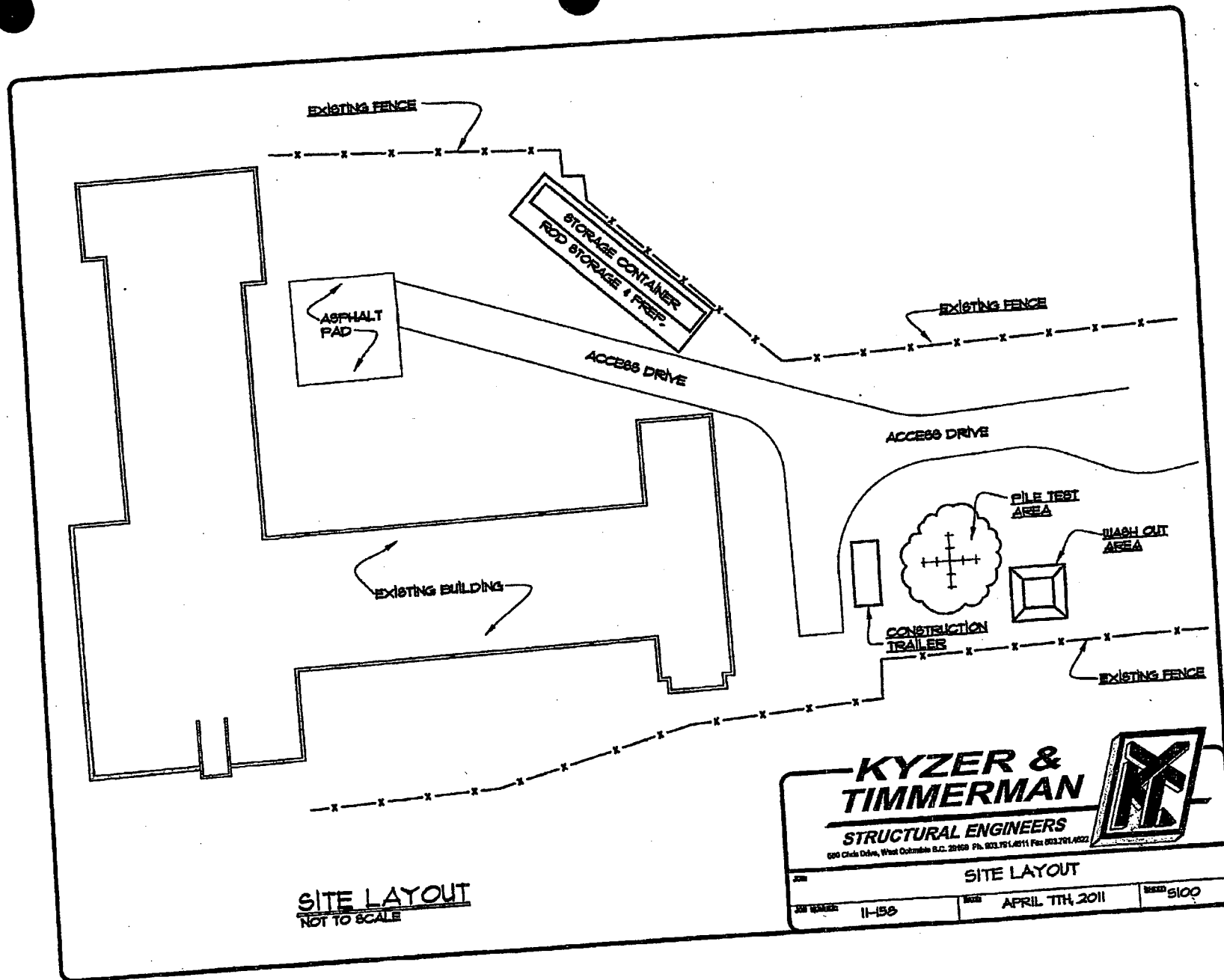
Project Background

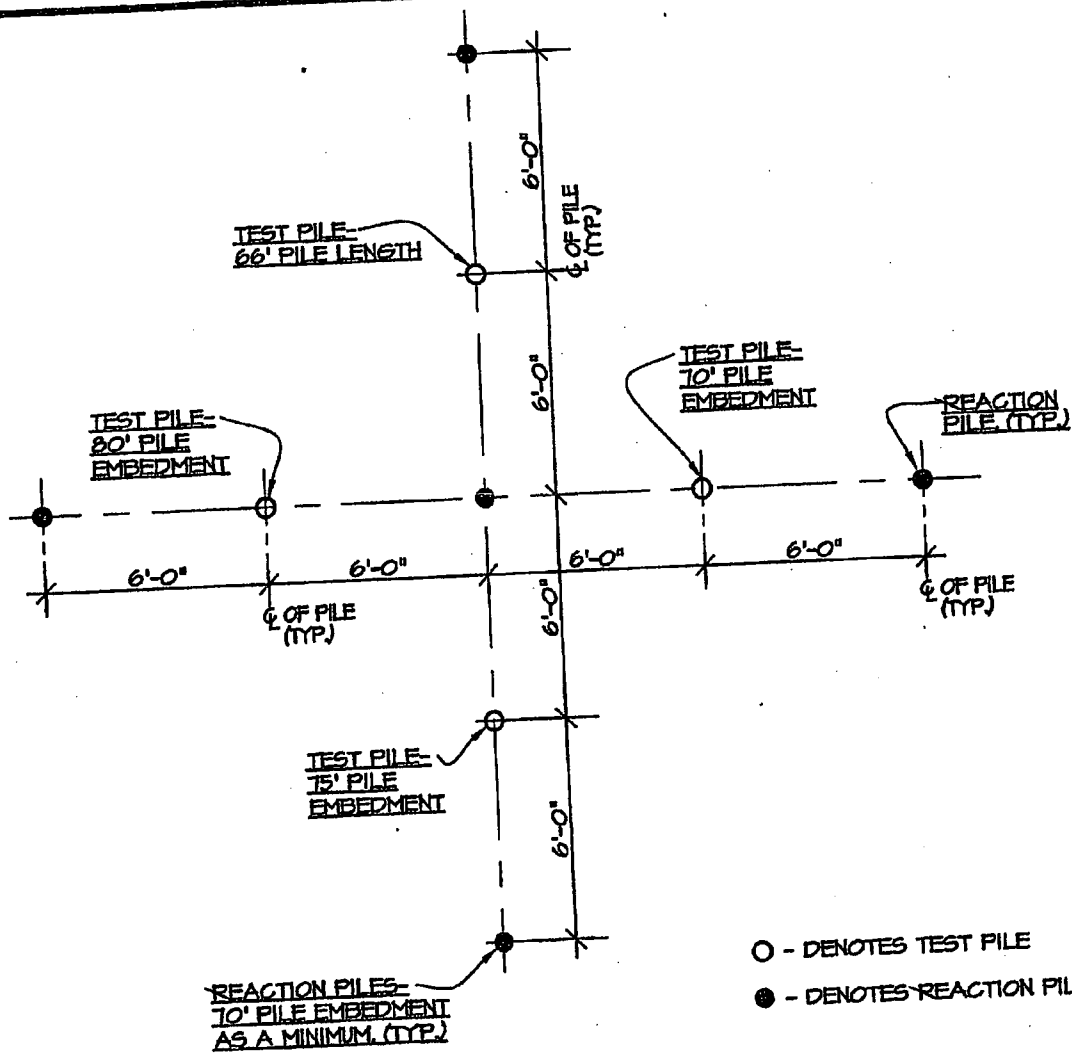
Based upon our review of the available information, and from our review of the project, we understand that the existing structure was built in the 1930s, and that it is abandoned and no longer in use. Furthermore, we understand that the project at the site is to include the renovation and seismic up-fit of the existing structure, and the construction of a fire pump house, which requires the installation of 627 micropiles. Our review of the geotechnical report, and addendum, prepared by S&ME, that was provided as a portion of the project plans and specifications details anticipated pile capacities to reach the design standards (100 kips axial compression and tension) with the installation of 8 inch diameter micropiles installed to depths ranging from 70 feet to 115 feet, with a mean anticipated installation depth of 78 feet. With the proposed micropile bid depth, and subsequent depths detailed in the geotechnical report, our design team has developed a comprehensive pile load test program that will establish a best fit line detailing the available axial and tensile capacities developed by the 8" micropiles versus their embedment in the Cooper Marl.

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ROA000615

CCSD Ex 9 pg 058





TEST PILE CONFIGURATION
SCALE: 1/4" = 1'-0"

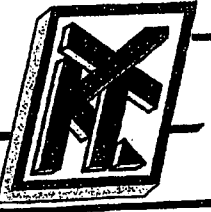
KYZER & TIMMERMAN		
STRUCTURAL ENGINEERS		
550 Chate Drive, West Columbia S.C. 29169 Ph. 803.791.4511 Fax 803.791.4522		
TEST PILE CONFIGURATION		
JOB NUMBER	11-158	DATE
APRIL 7TH, 2011		DRAWN
		SLO

EXHIBIT F

CHANGE ORDER REQUEST No. 4

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

Date: September 1, 2011

Attn.: Mr. Scott Spigener

Proj.: Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

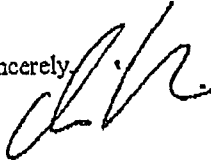
Ref: Work Directive - July 5, 2011 - Installation of Hollow Bar Test Piles

Dear Mr. Spigener:

As MB Kahn directed in several conversations and in an emailed directed to Terratec personnel, dated July 5, 2011, we installed two hollow bar test piles, and conducted Load testing on these piles at the alternate load test location.

As agreed, we are requesting a Change Order be made to our existing contract to cover our costs associated with the installation of these test piles. The amount of this Change Order request is \$37,436.30. A detailed breakdown of the costs incurred and a pay application are attached. Please contact us with any questions or comments.

Sincerely,



Chris Morrison, Vice President
Terratec

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ROA000618



M.B. Kahn Construction Co., Inc.
P.O. BOX 1179 / COLUMBIA, SC 29202 / PHONE (803) 736-2950 / FAX (803) 699-6413

KAHN
CORPORATION
CULLUM
DIVISION

October 29, 2012

Kevin Kelly
Heery International, Inc
3125 Ashley Phosphate Rd
Suite 130
North Charleston, SC 29418

**RE: Rivers Education Center
Terratec, Inc. Request for Dispute Resolution Board**

Dear Kevin:

Attached is a request from Terratec, Inc. for a Dispute Resolution Board to be convened. Please let me know how M. B. Kahn Construction Co., Inc. can assist in this matter and how we will proceed.

Sincerely,
M. B. KAHN CONSTRUCTION CO., INC.
KAHN CORPORATION "C" DIVISION

SCOTT SPIGENER
Senior Project Director

cc: Tim Cullum w/a
Dave Petty w/a
File w/a



COLUMBIA, SC / GREENVILLE, SC / MYRTLE BEACH, SC / ATLANTA, GA / RICHMOND, VA / HUNTSVILLE, AL

ROA000619

TERRATEC, INC.
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 – Office
803-791-1050 – FAX

RECEIVED
OCT 29 2012
M.B. KAHN
CONSTRUCTION CO., INC.

October 26, 2012

Scott Spigener
Senior Project Direction
M.B. Kahn Construction Company, Inc.
Post Office Box 1179
Columbia, South Carolina 29202

Dear Mr. Spigener,

Please let this letter serve as Terratec, Inc.'s formal request for a Dispute Resolution Board (DRB) to be convened. Please let me know who will serve as the Chairman of the DRB so that I may submit Terratec's complaint to him/her. This request is made without prejudice to any of Terratec's rights.

Please let me know if you have questions.

Sincerely,

Chris Morrison by DCD w/permission
Chris Morrison

ROA000620

AIA® Document G704/CMa™ – 1992

Certificate of Substantial Completion Construction Manager-Adviser Edition

PROJECT:*(Name and address):*

Rivers - Seismic Retrofit, Exterior
Restoration and Core Utilities
1002 King Street
Charleston, South Carolina, 29403

TO OWNER:*(Name and address):*

Charleston County School District
3999 Bridgeview Drive
North Charleston, SC 29405

PROJECT NUMBER: 5648/**CONTRACT FOR:** General Construction**CONTRACT DATE:** March 28, 2011**TO CONTRACTOR:***(Name and address):*

M.B. Kahn Construction Company, Inc.
101 Flintlake Road
Columbia, SC 29223

OWNER: ☒CONSTRUCTION MANAGER: ☒ARCHITECT: ☒CONTRACTOR: ☒FIELD: ☐OTHER: ☐**DATE OF ISSUANCE:** June 29, 2012**PROJECT OR DESIGNATED PORTION SHALL INCLUDE:**

Rivers Education Center - Seismic Retrofit, Exterior Restoration and Core Utilities

The Work performed under this Contract has been reviewed and found, to the Construction Manager's and Architect's best knowledge, information and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion thereof designated above is hereby established as June 29, 2012 which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

Warranty

June 29, 2013

Date of Commencement

June 29, 2012

A list of items to be completed or corrected is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Heery International, Inc.

CONSTRUCTION MANAGER

BY

DATE

Davis & Floyd, Inc.

ARCHITECT

BY

DATE

The Contractor will complete or correct the Work on the list of items attached hereto within 30 days from the above date of Substantial Completion.

M.B. Kahn Construction Company,
Inc.

CONTRACTOR

BY

DATE

The Owner accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof at 12:00am (time) on June 30, 2012 (date).

Charleston County School District

OWNER

BY

DATE

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User Notes:

(1211584865)

ROA000621





January 17, 2013

Mr. Scott Spigener
MB Kahn Construction Company, Inc.
P.O. Box 1179
Columbia, SC 29202

Architect
Engineer
Interior Design
Program Management
Construction Management
Facilities Management

Reference: Rivers Education Center
Seismic Retrofit, Exterior Restoration and Core Utilities
Dispute Resolution Board

Dear Scott,

This letter is indented to provide you with information for the upcoming Dispute Resolution Board (DRB). The DRB will specifically address the claims under the contract that have arisen from the following MB Kahn sub-contractors:

- Terratec, Inc.
- Cooper River Contracting
- Carolina Concrete Systems.

The purpose of the DRB is to provide a fair and equitable resolution to claims under the contract previously evaluated and denied by the designer of record, Davis & Floyd. The DRB shall hear the facts, review relevant documents and make a formal written recommendation to the parties in an effort to reach resolution for each claim. Sub-contractors listed above shall plan to present their relevant facts via company employees most knowledgeable and familiar with the issues (owner, project manager, estimator, foreman, etc.). Please note that these claims are not considered a legal matter at this point and the DRB proceedings shall not include any legal representation by any party.

Members for the DRB have been finalized. The DRB Chairman is Allen Cadden, PE (Schnabel Engineering). The DRB member selected by the Owner is Robert Power, PE (Heery International). The DRB member selected by MB Kahn is L. Davis Petty, Jr.

Prior to close of business on January 30, 2013, please submit separate written requests briefly describing each dispute along with any and all documentation that supports the parties position to:

Allen Cadden (ACADDEN@schnabel-eng.com)
Robert Power (rpower@heery.com)
L. Davis Petty, Jr (dpetty@mbkahn.com)
Rhett Reidenbach (rreidenb@ips2.davisfloyd.com)
William Lewis (William_Lewis@charleston.k12.sc.us)
Lawrence Lutrario (Lawrence_Lutrario@charleston.k12.sc.us)
Kevin Kelly (kkelly@heery.com)

Heery International, Inc.

Heery International, Inc.
1000 North Main Street
Columbia, SC 29202

ROA000622





HEERY

Mr. Scott Spigener
January 17, 2013
Page 2 of 3

Once the DRB members have reviewed the requests describing each dispute and all pertinent project documentation the DRB Chairman will establish and issue in writing the order and schedule that the claims will be addressed. The location for the DRB proceedings will also be communicated at that time. Please note that the "TENTATIVE" schedule for the DRB is as follows:

Documents Received by DRB:	Jan. 30, 2013
DRB Review of Claims & Documents:	Jan. 30 – Feb. 06, 2013
DRB Member Meeting:	Feb. 11, 2013
DRB Hearings:	Feb. 12, 2013
Terratec Presentation	8:00 – 8:45 am
Q&A	8:45 – 9:00 am
Davis & Floyd and Heery	9:00 – 9:30 am
DRB Closed Session	9:30 – 10:00 am
CRC Presentation	10:30 – 11:15 am
Q&A	11:15 – 11:30 am
Davis & Floyd and Heery	11:30 – 12:00 pm
DRB Closed Session	12:00 – 12:30 pm
Boxed Lunch	12:30 – 1:30 pm
CCS Presentation	1:30 – 2:15 pm
Q&A	2:15 – 2:30 pm
Davis & Floyd and Heery	2:30 – 3:00 pm
DRB Closed Session	3:00 – 3:30 pm
DRB Member Meeting (If Required):	Feb. 13, 2013

ROA000623



Mr. Scott Spigener
January 17, 2013
Page 3 of 3

Please contact me immediately should you have any questions.

Sincerely,
Heery International, Inc.

A handwritten signature in black ink, appearing to read "K. Kelly", is written over the typed name.

Kevin Kelly
Senior Project Manager

cc: Allen Cadden, PE, Schnabel Engineering
Robert Power, PE, Heery International
L. Davis Petty, Jr, MB Kahn Construction Company, Inc.
William H. Lewis, Chief Operating Officer, Capital Projects
Lawrence Lutrario, Charleston County School District
Rhett Reidenbach, Davis & Floyd
Robert Corbin, Heery Program Manager

5648 a1.1

Dispute Resolution Board

February 19, 2013

Responses to Micropile Sub-Contractor's Claims

- Terratec



ROA000625



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Responses to Terratec Claims

The following change proposals were received, evaluated and denied:

- CP-47 (Terratec CO #2) Additional Test Pile Program- \$70,080.58
- CP-48 (Terratec CO #3) Load Test No. 1 Delay and Design CO Request- \$49,749.96
- CP-49 (Terratec CO #4) Installation of Hollow Bar Test Piles- \$40,362.43

Davis & Floyd and S&ME will address CP-47 and CP-48.

Heery will address CP-49.

ROA000626



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Contract Document Requirements for Micropiles

Performance Specification

- Design Requirements: The Contractor is required to design and install the micropiles to meet the specified structural loading criteria of 200 kips. (Drawing S-402, Notes 1, 2, and 3)
- Foundation Testing Requirements (Spec. Section 02369, Paragraph 3.4.2.a., 3.4.2.b.):
 - 2 tests on non-production piles prior to production pile installation
 - Perform tests in accordance with ASTM D3689-07 (uplift test)
- Subsurface Conditions: Provided subsurface data are to be used as the basis for micropile design in conjunction with the appropriate levels of engineering judgment and experience. (Spec. Section 02369, Paragraph 1.2.2.)

ROA000627

Contract Document Requirements for Micropiles

Performance Specification

Micropile Specification 02369:

“3.4.2.d. Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install and test another pile at his expense...”

ROA000628

3.4. FIELD QUALITY CONTROL

3.4.1. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to observe test pile installation and pile load tests, observe production pile installation, submit pile load test data and results, and submit production pile records

3.4.1.a. The Contractor's field quality control representative will provide site inspection to insure performance of the Micropile work.

3.4.2. Load Testing: The effectiveness of the Micropile program will be verified as follows:

3.4.2.a. Two static load tests shall be performed on sacrificial non-production piles to confirm production pile length. The load test set-up shall consist of a center test pile and two adjacent piles used as reaction piles. The load tests shall be performed before the installation of any production piles. The load tests shall be evaluated by the Micropile Contractor and Engineer to assure compliance with job performance requirements.

3.4.2.b. The load tests shall be performed in accordance with ASTM D3689-07, Standard Test Methods for Deep Foundations Under Static Axial Tensile Load. A safety evaluation must be completed for the setup prior to loading.

3.4.2.c. The tensile reinforcing steel in the test piles shall be designed so that the resulting stresses from the maximum ultimate test load does not exceed 80 percent of the yield stress of the reinforcing steel.

~~3.4.2.d. Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install and test another pile at his expense. He also guarantees that he will repair or replace at his own expenses all structural damage caused by inability of his piles to support the working loads satisfactorily for a period of two years.~~

3.4.3. Documentation

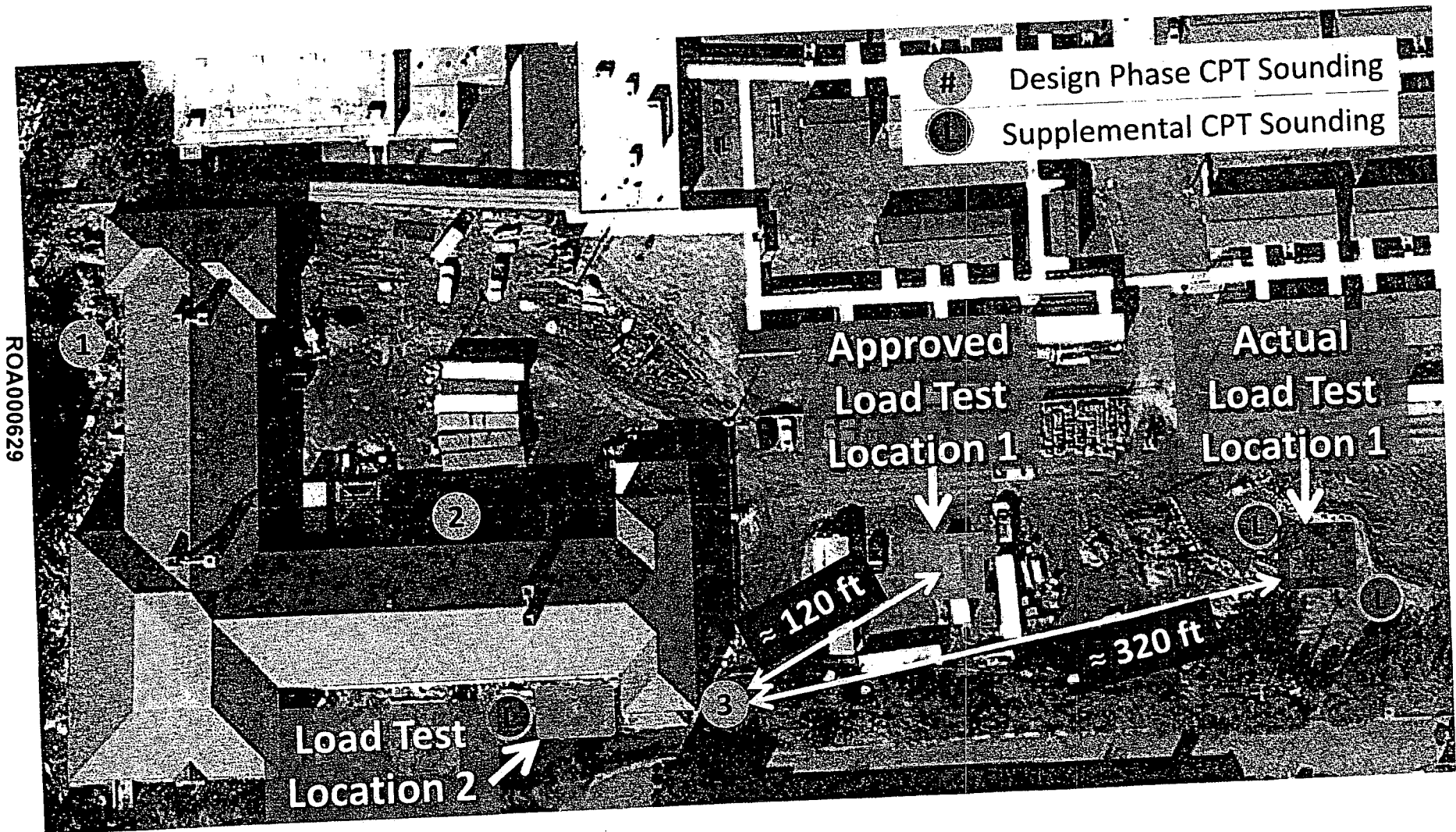
3.4.3.a. All quality control and measurement for payment data shall be recorded on specially prepared forms. The forms will contain space for data, QC test results, location of test samples, measurement of pay quantity, pay quantity, other comments as necessary, and signatures.

(End of Section 02369)

JOB NO.: 30615.16
DATE: JANUARY 2011

02369 - 8

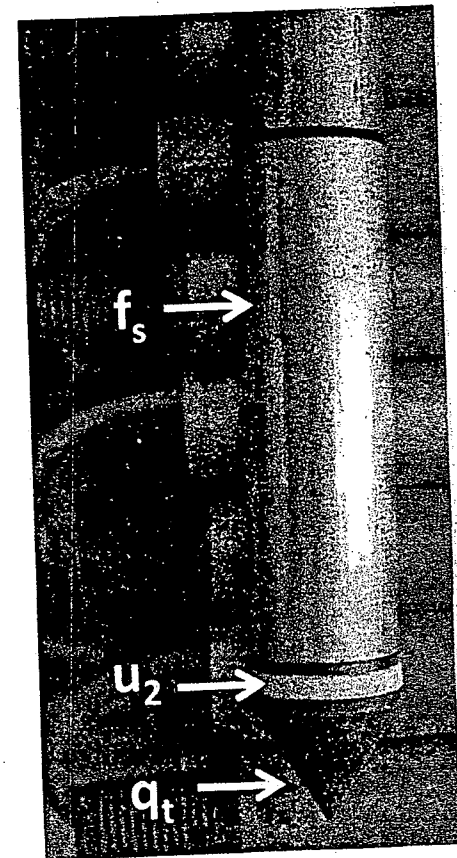
Test Locations



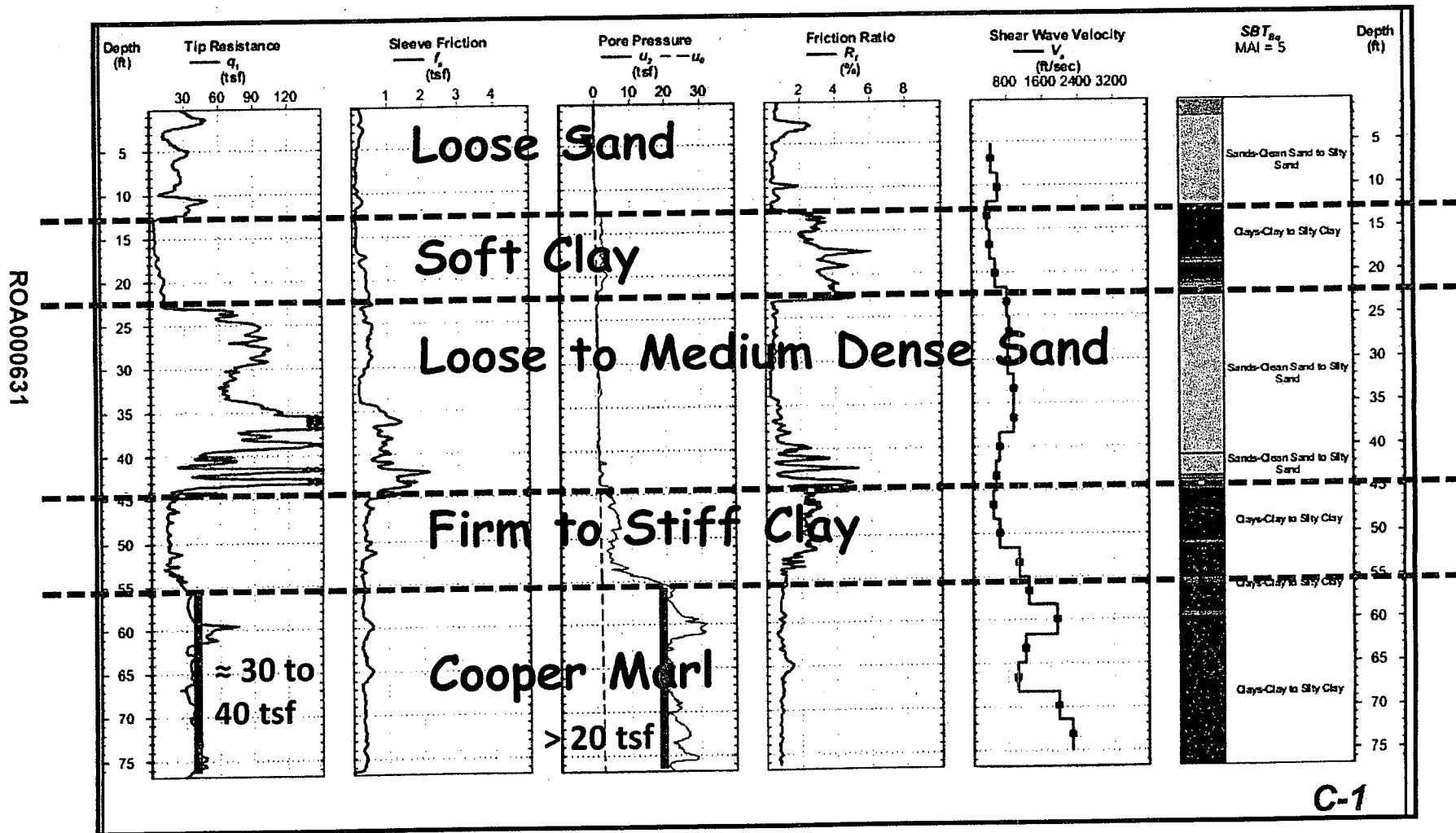
Design Site Characterization

Seismic Cone Penetration Testing (SCPT)

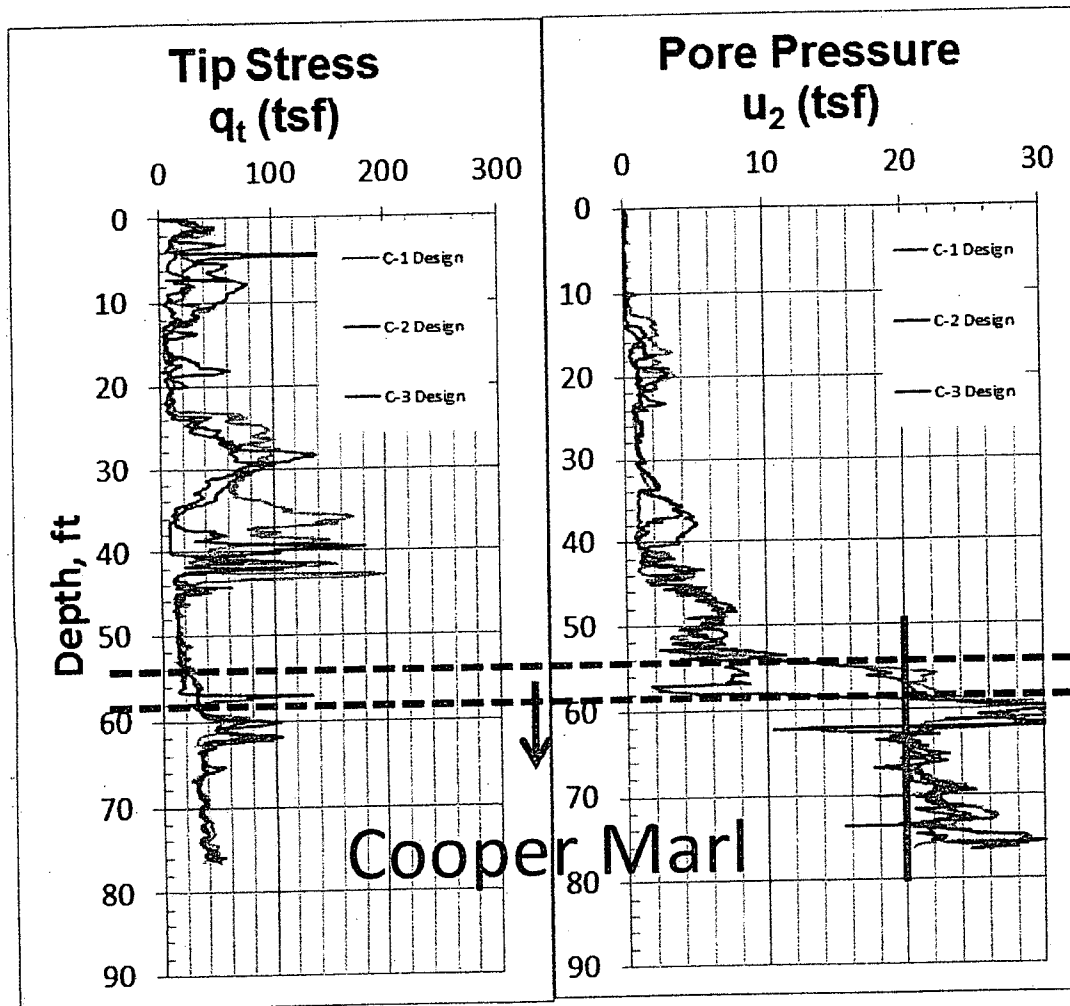
- Three locations around the perimeter of the building
- CPT is the primary exploration tool used by Charleston area practitioners
- Local geology is ideal for characterization by CPT
- CPT data are more reliable and much more valuable than other in situ data
- Cooper Marl has a distinct CPT "signature"
 - (pore pressure > 20 tsf, tip stress of 30 to 40 tsf)



Subsurface Conditions



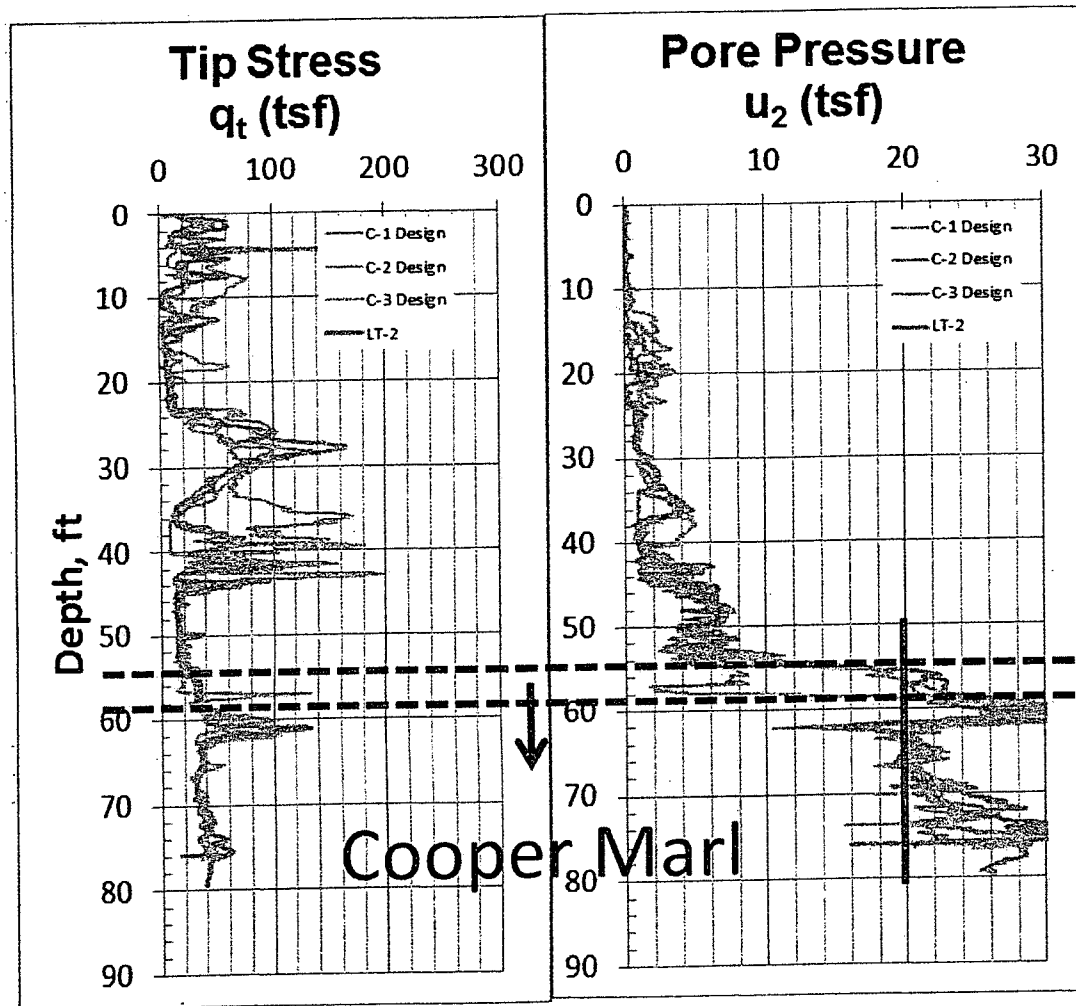
Subsurface Conditions – Bid Docs



- Cooper Marl encountered at depths of 55 to 59 ft
- 4 ft variation across the site

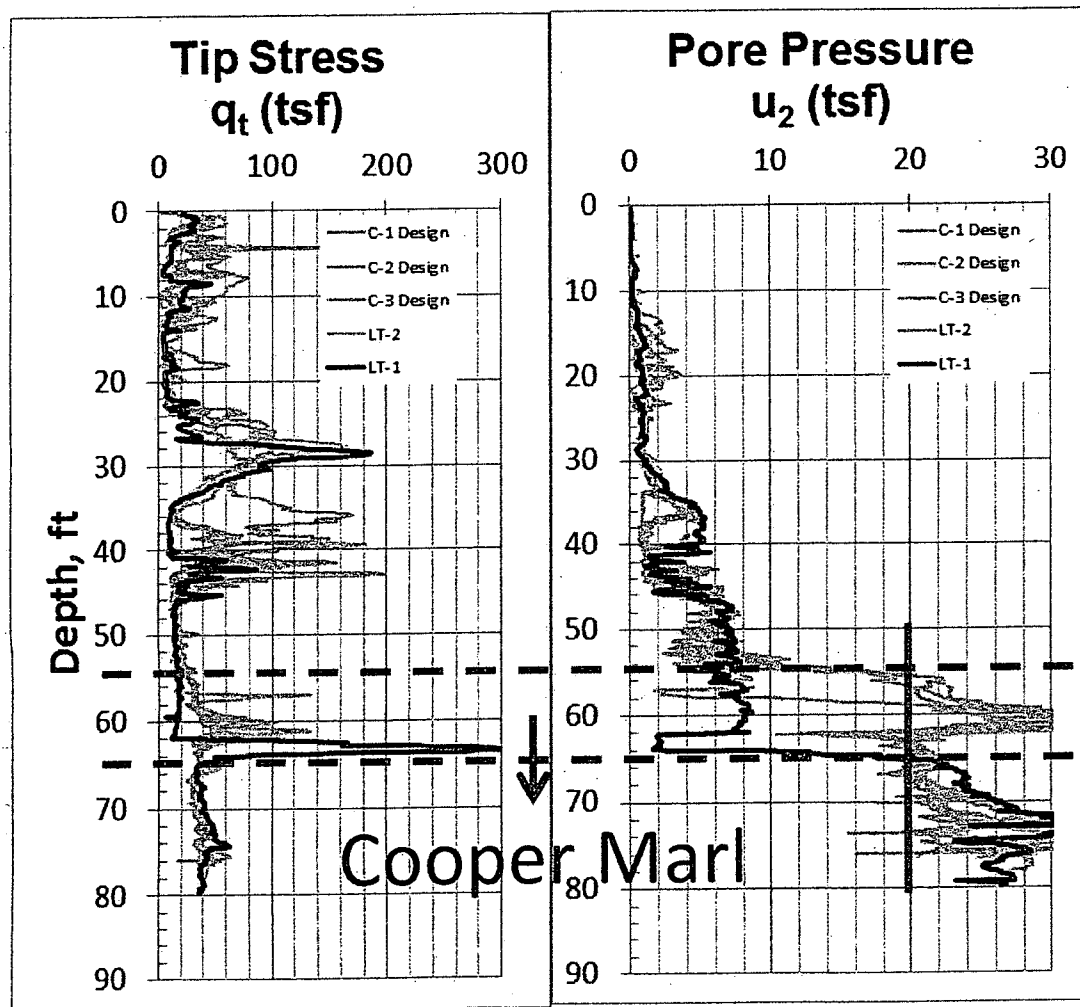
Bid Docs + 2nd Load Test Site

ROA000633



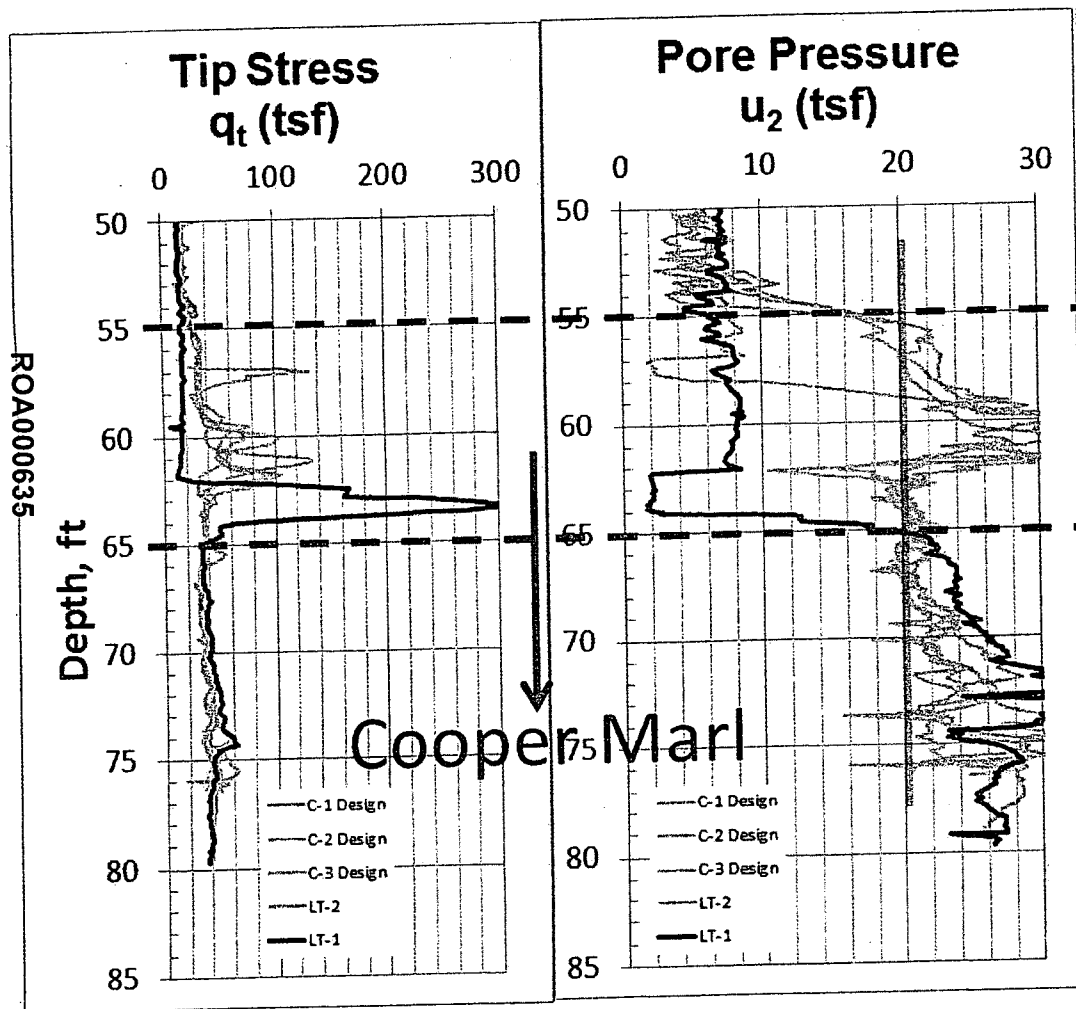
- Conditions at 2nd load test site are in complete agreement with bid documents
- Still a 4-ft variation in top of Cooper Marl

Bid Docs & 2nd + 1st Load Test Sites



- Cooper Marl at 65 ft at 1st Load Test Site
- 6 to 10 ft deeper

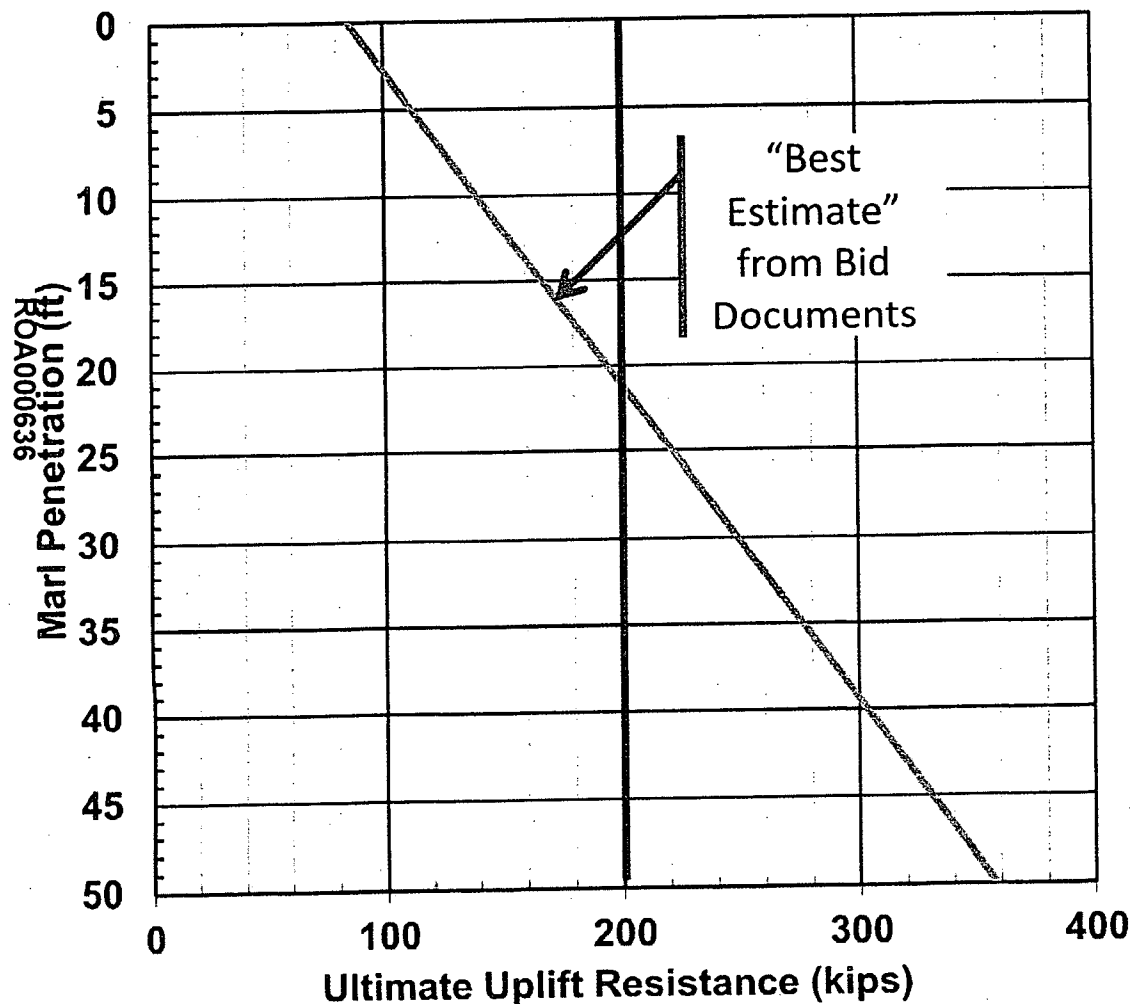
Zoomed View on Bearing Stratum



- Cooper Marl tip stress is uniform in all locations.
- Pore pressure response and tip stress values are completely normal.
- Nothing anomalous about the bearing stratum.

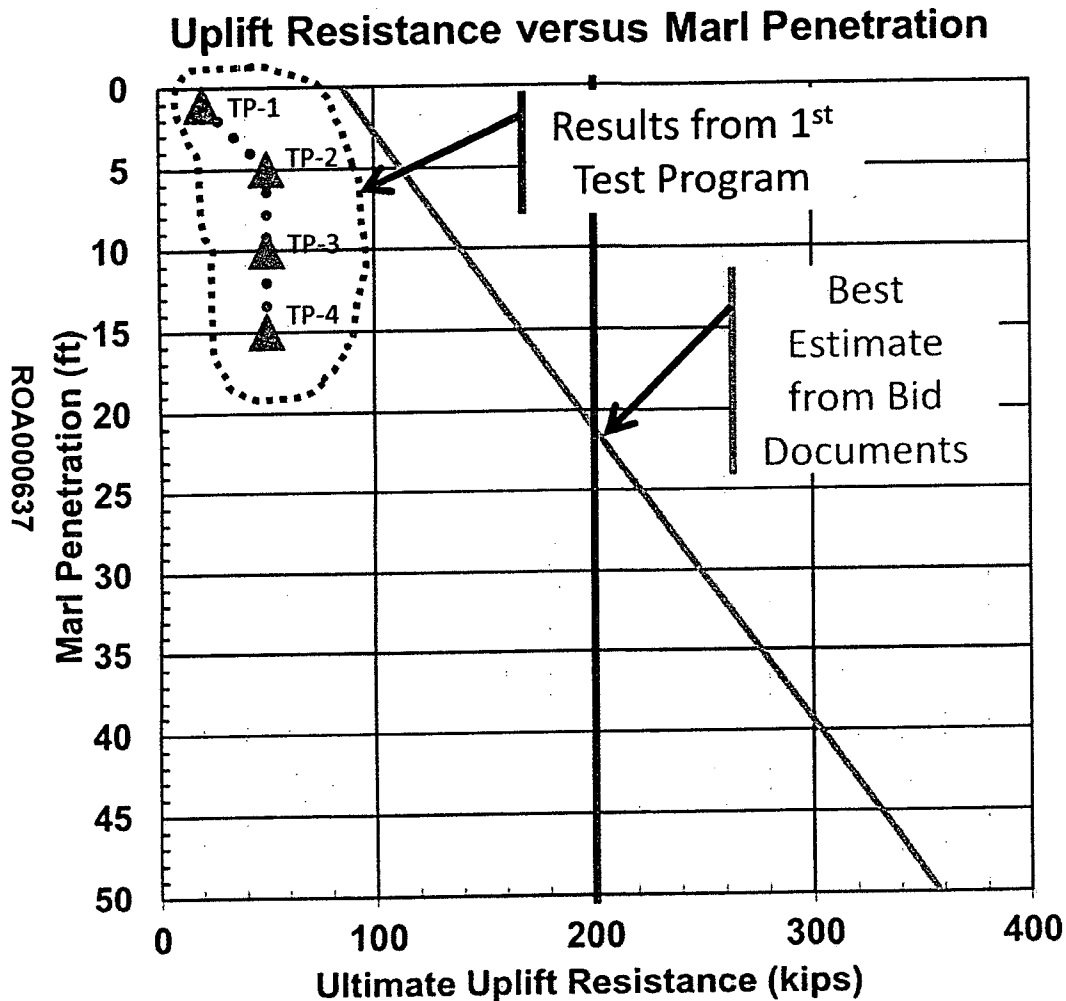
Expected Performance

Uplift Resistance versus Marl Penetration



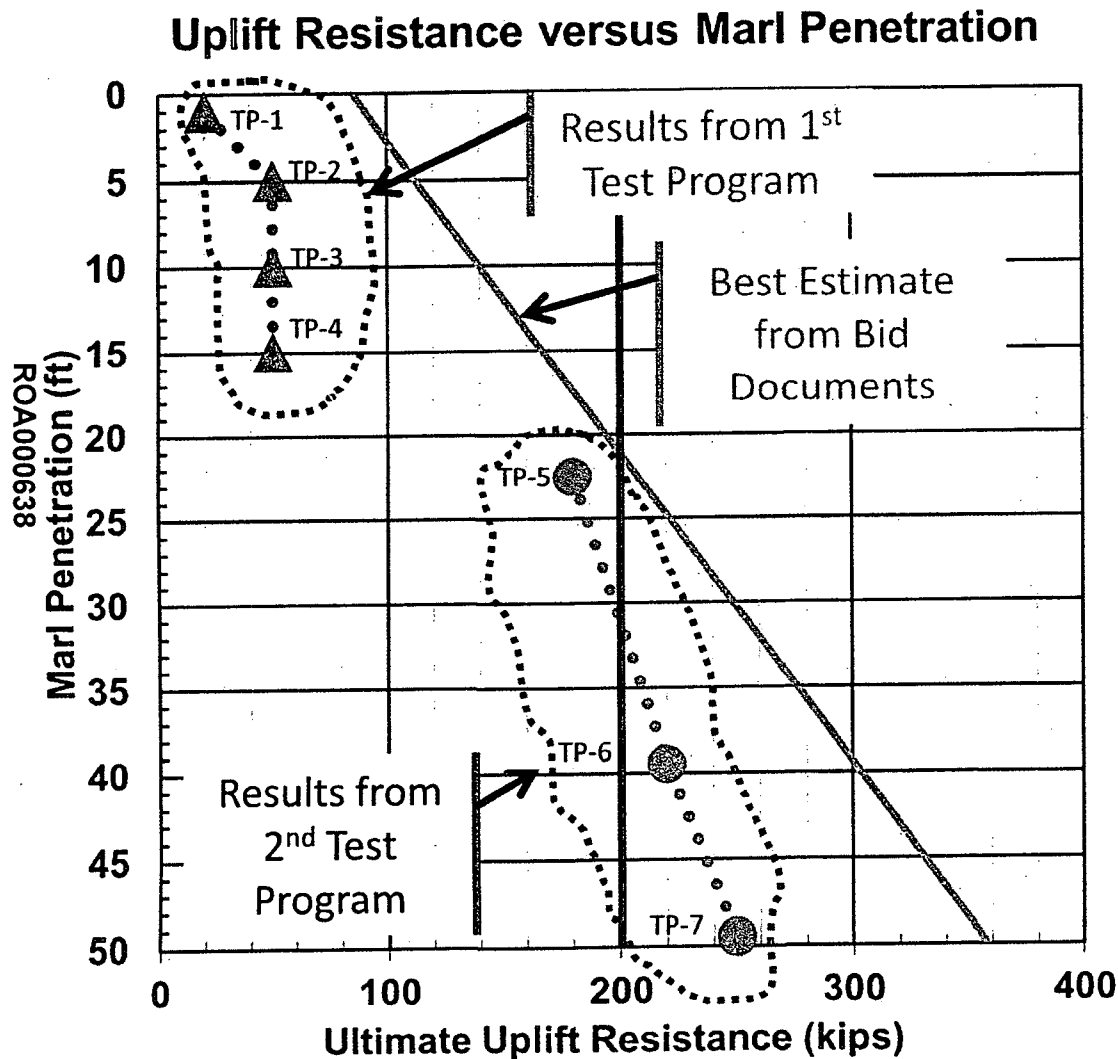
- "Best estimate" based on typical Charleston micropile construction
- For any deep foundation in Cooper Marl – ***Capacity increases linearly with penetration***

1st Load Test Program



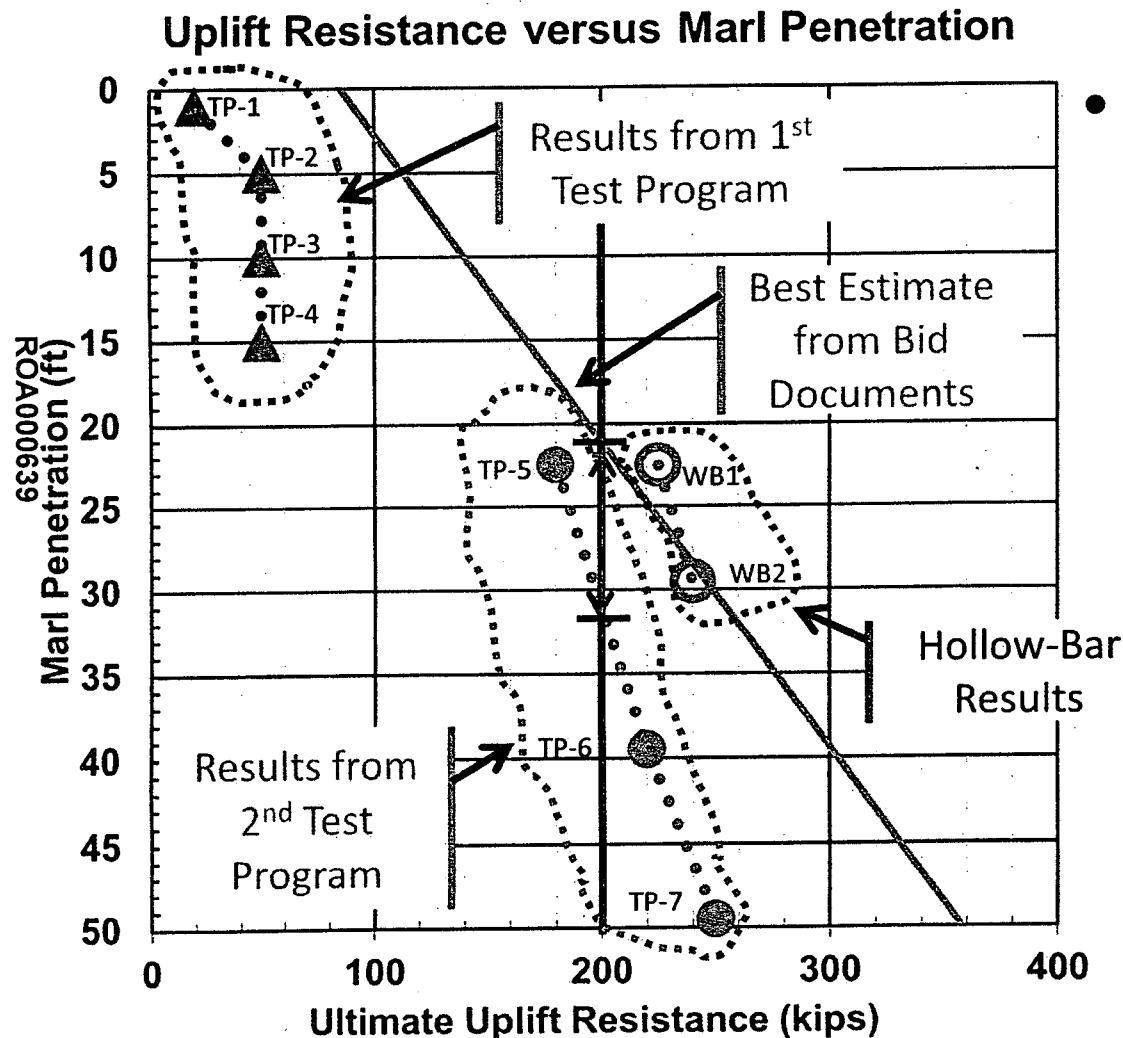
- Measured Capacity is independent of marl penetration – ***Implausible***
- Impossible to extrapolate results
- Results indicative of a systematic problem
- Load test program rejected

2nd Load Test Program



- Capacity does increase with penetration
- Extrapolation of results was possible
- Performance less than expected

2nd Load Test Program – Cont.



- Hollow-bars not loaded to failure but still met or exceeded expected performance

≈ 8 ft difference between expected length and required Terratec length

Summary

1. Subsurface conditions are typical and uniform around building. Piles bear in the Cooper Marl.
2. Contractor opted to perform 1st load test $\approx$ 320 ft from closest exploration location (and outside of approved site) without doing any additional exploration.
3. Cooper Marl was deeper at 1st load test site but it was identical in composition to the Cooper Marl identified at the building.
4. Results from 1st load test site are completely implausible (capacity was independent of penetration) and unrelated to Cooper Marl depth. The test program was therefore rejected.
5. Resulting delays and additional costs were a direct result of Contractor's defective piles.

ROA000640



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Change Order Requests

CP-47 (Terratec CO #2): Change Order Request For Additional Test Pile Program

- Amount: \$70,080.58
- Status: Denied
- Justifications:
 - Load Test No. 1 test piles failed to achieve the required capacity
 - No increase in capacity with Increase in depth- deficient piles
 - Deficiencies resulted From Contractor's design/installation methods
 - Deficiencies did not result from deeper depth to bearing stratum
 - Deficiencies did not result from subsurface anomaly
 - CPT data proves the bearing stratum's strength is consistent across the site

ROA000641



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Change Order Requests

CP-48 (Terratec CO #3): Load Test No. 1 Delay and Design Change Order Request

- Amount: \$49,749.96
- Status: Denied
- Justification:
 - Delay is a result of the rejection/unacceptability of the first test pile program
 - Deficiencies resulted from Contractor's design/installation methods
 - Deficiencies did not result from deeper depth to bearing stratum
 - Deficiencies did not result from subsurface anomaly
 - CPT data proves the bearing stratum's strength is consistent across the site

ROA000642



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Change Order Requests

CP-49 (Terratec CO #4): Change Order Request for Installation of Hollow Bar Test Piles

- Amount: \$40,362.43
- Status: Denied
- Justification:
 - Owner agreed to pay for one hollow bar test pile to be included in the 2nd Load Test.
 - Proposal reflected costs that were not specific to one hollow bar test pile
 - Amount far exceeded the Heery pre-proposal control number
 - MB Kahn was informed of this decision in May 2012 – a revised, fair and reasonable proposal would be re-evaluated.

ROA000643



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Change Order Requests

CP-12: Change Order Request for additional 8' of production pile length and 10 day schedule extension

- Amount: \$247,874.80
- Status: Approved
- Justification:
 - To maintain schedule, Owner agreed to pay for additional production pile length from 78' to 86'.

ROA000644



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Schnabel
ENGINEERING

February 26, 2013

Mr. William Lewis
Charleston County School District
Capital Programs
3999 Bridge View Drive
North Charleston, SC 29405



Subject: Project 13615003, DRB Conclusion Summary, Terratec CO #2, #3 and #4, Rivers Education Center, Charleston, South Carolina

Dear Mr. Lewis:

The Dispute Resolution Board Members (Allen Cadden, Schnabel Engineering Consultants, Inc.; Davis Petty, M.B. Kahn Construction Co. Inc.; and Robert Power, Heery International, Incorporated) wish to thank you for the hospitality and presentation to help us understand the issues at hand related to these three change orders. The following is our opinion regarding the individual change orders.

Change Order #2 (also referred to as CO #47):

This change order requests compensation for the second load test program performed following failure of the initial 4 piles tested. Although there was discussion regarding the location of the Test 1 Program and variability of the ground conditions at this initial location, the Board does not believe that the difference in the site conditions had a material impact on the performance of the piles for the following reasons:

- A review of the test program results from both Area 1 and Area 2 seems to indicate that the soils above the Cooper Marl produced a capacity of about 2 kips per foot (kips/ft) of pile length (which is consistent with the S&ME estimate in their geotechnical report. Within the Cooper Marl, both sets of pile tests indicated that the pile was gaining about 2-3 kips/ft. As such, the difference that would result from Cooper Marl being about ten feet deeper than anticipated would be about 10-20 kips. Even with this additional capacity, the longest pile would not have been reasonably close to the required 200 kips capacity, so that the owner would have accepted extrapolation of this data for acceptance of the pile test program.
- Further, given the comments from Terratec's design team, they clearly expected the piles to produce far greater capacities per foot of pile as evidenced from their initial embedment depths for the test program. Thus, there seems to be a clear indication that their pile system was not producing the anticipated capacity within the Cooper Marl that Terratec and their designer anticipated.

schnabel-eng.com

T/ 610-696-6066 F/ 610-696-7771
1380 Wilmington Pike, Suite 100 / West Chester, PA / 19382

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**Charleston County School District
Rivers Education Center**

- The project specifications required the piles to be proven adequate with an ASTM tension load test. Although the approved submittal indicated that a compression test would be performed first and may have had an impact on the subsequent tension tests, the tension capacities measured were in no way suitable for the project requirements.
- Specification Section 3.4.2.d requires that the contractor guarantee the performance of the test pile program or will complete another test program at his expense. Given the above discussion, it is believed that the auger cast piles did not perform as the original designers anticipated in either location within the Cooper Marl, and thus this guarantee clause would apply.

As such, the Board does not believe that CCSD is responsible for payment of this change order.

Change Order #3 (also referred to as CO #48):

This change order seeks compensation for the costs associated with the delays and evaluation with the pile test failures in Area 1. This includes costs for exploration test borings as well as Terratec's and the designer's consultation and management time. Given our conclusion regarding CO #2, the delays and time to complete Test Program 2 would fall within the guarantee clause Section 3.4.2.d of the project specifications.

As such, the Board does not believe that CCSD is responsible for payment of this change order.

Change Order #4 (also referred to as CO #49):

This change order seeks compensation for the installation of Injection Bore (Titan) micropiles as requested by the design team following the results of Test Program 1. It is recognized that the Titan piles were requested by the owner's representatives and were different than those Terratec was prepared to install at this site. Although there seems to have been discussion about a relative cost for this installation, neither party seems to have requested or obtained any written estimates of this effort prior to performing the work. We have reviewed the submittal records and based on the July 18, 2011, Terratec submittal approved by Davis and Floyd, there was to be one Titan bar micropile installed to 78 ft with two reaction piles. It should be noted, however, that their plan layout indicates that 3 of the 4 reaction piles were required for the three augercast piles. Only one additional reaction pile was needed for this Titan pile test.

As such, we believe that CCSD is responsible for payment of the installation of one Titan bar pile and one (or two) reaction pile as well as the costs associated with the testing of one Titan pile. It would be reasonable for CCSD to receive the installation records and test data/results for this pile as part of payment. The breakdown of the cost for these piles includes mobilization of different equipment, design submittal, and construction consultation. As such, the reduction in the number of piles will not reduce the cost significantly.

We appreciate the opportunity to be of service for this project. Please contact the undersigned if clarification is needed for any aspect of this letter.

Charleston County School District
Rivers Education Center

Sincerely,

SCHNABEL ENGINEERING CONSULTANTS, INC.



Allen W. Cadden, PE, D.GE
Principal

LD:AWC:hcf

cc: Heery International, Inc. (1)
Attn: Mr. Robert Powers

M.B. Kahn Construction Co. Inc. (1)
Attn: Mr. Davis Petty



AIA Document G714/CMA™ - 1992

RECEIVED

JUL 29 2013

CHARLESTON, SC

Construction Change Directive Construction Manager-Adviser Edition

PROJECT: (Name and address) Rivers Education Center Seismic Retrofit, Exterior Restoration and Core Utilities 1002 King Street Charleston, South Carolina, 29403	DIRECTIVE NUMBER: 001 DATE: July 23, 2013 CONTRACT FOR: General Construction	OWNER: ☒ ARCHITECT: ☒ CONSTRUCTION MANAGER: ☒ CONTRACTOR: ☒ FIELD: ☐ OTHER: ☐
TO CONTRACTOR: (Name and address) M.B. Kahn Construction Company, Inc. 101 Flintlake Road Columbia, SC 29223	CONTRACT DATED: March 28, 2011 PROJECT NUMBERS: 5648 /	

You are hereby directed to make the following change(s) in this Contract:
Provide one (1) Injection bore (Titan) micropile; one (1) reaction pile; and testing. Contractor to furnish to the Owner the installation records and test data/results for this micropile.

PROPOSED ADJUSTMENTS

- The proposed basis of adjustment to the Contract Sum or Guaranteed Maximum Price is:

☐ Lump Sum of \$
☐ Unit Price of \$ per
☐ as provided in Section 7.3.6 of AIA Document A201/CMA-1992.
☐ as provided in Section 7.3.7 of AIA Document A232-2009.
☒ as follows: Contract Sum to be increased for a stipulate sum of thirty three thousand one hundred forty nine dollars and fifty two cents (\$33,149.52)
- The Contract Time is proposed to (remain unchanged). The proposed adjustment, if any, is 0 days.

Signature by the Contractor indicates the Contractor's agreement with the proposed adjustments in Contract Sum and Contract Time set forth in this Construction Change Directive. M.B. Kahn Construction Company, Inc.	
CONTRACTOR (Firm name)	
101 Flintlake Road Columbia, SC 29223	
ADDRESS	
BY (Signature)	
Timothy Cullum	
(Typed name)	
DATE: 7/23/2013	

When signed by the Owner, Construction Manager and Architect and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

Charleston County School District
OWNER (Firm name)
3999 Bridgeview Drive, North Charleston,
SC 29406
ADDRESS

BY (Signature)

William H. Lewis
(Typed name)

DATE

7/23/13

Heery International
CONSTRUCTION MANAGER (Firm name)
3125 Ashley Phosphate Road, North
Charleston, SC 29418
ADDRESS

BY (Signature)

Robert Corbin
(Typed name)

DATE

7.23.13

Davis & Floyd
ARCHITECT (Firm name)
3229 West Montague Avenue
North Charleston, SC 29418
ADDRESS

BY (Signature)

J. Rhett Reidenbach, PE
(Typed name)

DATE

7/25/2013

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User Notes:

(1900640853)

ROA000648



Wes
Kelly, Kevin P.

From: Scott Spigener [sspigener@mbkahn.com]
Sent: Thursday, February 14, 2013 1:10 PM
To: ddick@sowellgray.com
Cc: Tim Cullum; Kelly, Kevin P.
Subject: Re: Rivers DRB

David,

The DRB is convened to address issues that involve the owner and it's consultants. The Terratec COR #5 does not involve the owner and Terratec has received a change order for the added pile length. Terratec COR's 2, 3, and 4 will be addressed by the DRB.

Scott Spigener
M.B. Kahn Construction Co., Inc,

On Thu, Feb 14, 2013 at 12:53 PM, Kelly, Kevin P. <KKelly@heery.com> wrote:

The attached is the response received for items to be heard at the DRB.

Kevin Kelly | Senior Associate

d: 843.576.2962 | m: 843.991.5250 | HEERY

From: Dick, David C. [mailto:ddick@sowellgray.com]
Sent: Thursday, February 14, 2013 12:48 PM
To: Kelly, Kevin P.
Subject: RE: Rivers DRB

Kevin,

We received a draft of the schedule for the DRB; however, it does not make reference to Terratec's disputes regarding payment for additional pile footage, change orders from M.B. Kahn to Terratec, and Terratec's Change Order 5 that was submitted to M.B. Kahn. All of these items were addressed in the submittal from Terratec. I believe these items need to be added to the issues before the DRB section in the schedule.

Thanks,

-David



STATE OF SOUTH CAROLINA

COUNTY OF CHARLESTON

) IN THE COURT OF COMMON PLEAS
)
) NINTH JUDICIAL CIRCUIT

Terratec, Inc.,

Plaintiffs,

vs.

M.B. Kahn Construction Co., Inc., Heery
International, Inc., Charleston County
School District, Travelers Casualty and
Surety Company of America;

Defendants.

Civil Action No. ~~2012~~-CP-10-0252
2013

COMPLAINT
(Jury Trial Demanded)

BY
JULIE J. ARMSTRONG
CLERK OF COURT
2013 JAN 14 PM 4:13

FILED

Plaintiff Terratec, Inc. complaining of the Defendants M.B. Kahn Construction Co., Inc.;
Heery International, Inc.; Charleston County School District, Travelers Casualty and Surety
Company of America, allege as follows:

PARTIES, JURISDICTION, AND VENUE

1. This lawsuit arises out of a project initiated by the owner Charleston County School District entitled the Rivers Education Seismic Retrofit, Exterior Restoration and Core Utilities ("Rivers Education Project").
2. Plaintiff Terratec, Inc. ("Terratec") is an entity formed pursuant to the laws of the State of South Carolina with its principal place of business located in West Columbia, South Carolina in Lexington County. Terratec was awarded a contract to install micropiles at the Rivers Education Project, which is a school owned by the Charleston County School District.
3. Defendant M.B. Kahn Construction Co, Inc. ("M.B. Kahn") is an entity formed pursuant to the laws of the State of South Carolina with its principal place of business located in

ROA000650



Columbia, South Carolina in Richland County. M.B. Kahn was retained as the general contractor on the Rivers Education Project and entered into a contract with the owner Charleston County School District.

4. Defendant Heery International, Inc. ("Heery") is an entity formed pursuant to the laws of the State of Georgia with its principal place of business located outside the state of South Carolina. However, Heery performs significant business in South Carolina and was retained as the Program Manager on the Rivers Education Project.

5. Defendant Charleston County School District is a school district located in Charleston County and created pursuant to the laws of the state of South Carolina. Charleston County School District is the owner of the construction project that is the subject of this lawsuit.

6. Defendant Travelers Casualty and Surety Company of America is the provider of the performance bond and payment bond for M.B. Kahn for the Rivers Education Project.

7. Jurisdiction and venue are proper in Charleston County, South Carolina.

FACTS

8. Terratec and Defendants M.B. Kahn and Heery worked together on a construction project located in Charleston County, South Carolina and owned by the Charleston County School District.

9. Terratec was retained as a subcontractor of M.B. Kahn in February 2011 and entered into a contract with M.B. Kahn evidencing this relationship. The purpose of Terratec's contract was for Terratec to install micropiles at the Rivers Education Project.

10. The contract between Terratec and M.B. Kahn specifically required that Terratec install micropiles pursuant to the plans and specifications of the contract and the pile length will

be specified with the notation that any additional pile length needed will be provided at a cost of \$45 per linear foot for each additional foot.

11. Terratec was provided a geotechnical report ("Geotechnical Report") by engineering firm Davis & Floyd including soil composite and asked to design its micropiles based on that report.

12. Terratec was not directed by the project specifications to verify the soil conditions, and therefore no allowance was provided in Terratec's estimate for such services.

13. In addition, the pile seating recommendations were provided in the bid documents, and Terratec's design and installation were based upon the data provided at the time of Terratec's bid.

14. The specifications stated that the Geotechnical Report was "to be used as the basis for micropile design" for the Rivers Education Project. See Section 1.2.2 of the Specifications.

15. However, the soil conditions at the test site were not consistent with the conditions in the Geotechnical Report and a subsurface anomaly was detected, the combination of which led to the failure of the first load test on the micropiles designed by Terratec and the need for additional testing.

16. After the load test failure, Terratec conducted its own boring soil test to determine the soil composition. The boring test showed that the Cooper Marl was at least 10 feet deeper than what was represented by the Geotechnical Report.

17. The specifications and bid by Terratec did not contemplate that Terratec would incur the costs of additional soil testing.

18. Terratec has demanded payment for the soil testing costs but has not received payment.

19. As a result of the failure of the first load test, Terratec was required to perform a second load test after performing its own soil sampling.
20. As a result of the second load test, Terratec incurred additional costs.
21. Terratec also incurred additional costs associated with the alteration of the design and the additional time needed to comply with the correct soil specifications.
22. Terratec has demanded payment for the additional load test and the additional costs but this request has been denied by the Charleston County School District, M.B. Kahn and Heery.
23. The project specifications dictated that the micropiles would have to penetrate into the Cooper Marl by a least 23 feet.
24. As a result of the difference between the Geotechnical Report and the actual soil composition, the test piles only penetrated the Cooper Marl by 13 to 15 feet and thus were unable to withstand the load test.
25. Once Terratec performed its own boring test to determine the location of the Cooper Marl, Terratec determined that the micropiles would have to be a length of 86 feet rather than the 66 feet originally contemplated based on the Geotechnical Report.
26. Terratec received payment for an additional 8 feet of micropile, however the actual increase in micropile is 20 feet per micropile and not 8 feet.
27. Terratec has demanded but has not received payment for the additional length in micropiles.
28. In addition to the issues regarding the Geotechnical Report and the increased micropile length, Terratec also faced difficulties in installing the micropiles.

29. M.B. Kahn agreed that the concrete floor located in the school would be cut open in strips so that Terratec could place its machinery on the floor to install the micropiles below.

30. However, the concrete floor was cut open in large portions forcing Terratec to place its machinery through the concrete floor onto the soil.

31. Placing the machinery on what was essentially mud caused significant problems and delays.

32. Terratec was forced to work continuous hours seven days a week in order to comply with the schedule set by M.B. Kahn and handle the issues caused by the miscut concrete and the lack of stability for the equipment.

33. As a result of the issues caused by the miscut concrete, Terratec incurred significant additional expenses.

34. These additional expenses were submitted in a change order, which has been denied by M.B. Kahn.

35. During the entire job, Terratec felt pressure by the inspection contractor to use a different design style even though Terratec's proposed design style was accepted by the Charleston County School District, Heery and M.B. Kahn.

36. This situation manifested itself in a report by the inspection contractor claiming that the micropiles had been installed incorrectly.

37. Oddly this report was retracted by the inspection contractor shortly after submitting the report.

38. Terratec was never notified of any deficiency of its micropiles or the installation of its micropiles during the course of installation.

39. M.B. Kahn, Heery and the Charleston County School Board continuously cite this report as a reason for not paying Terratec's submitted change orders despite the fact that the report was withdrawn.

40. Terratec has learned that the inspectors used on the Rivers Education Project did not have the correct licensing to inspect such a job.

41. The lack of licensing disqualified the inspection contractor.

42. Terratec has brought this information to the attention of M.B. Kahn, Heery and the Charleston County School District, however, to Terratec's knowledge no one has acted on this information.

43. Upon understanding and belief, M.B. Kahn, Heery and the Charleston County School District continue to rely on reports submitted by the inspection contractor.

44. Terratec is a beneficiary of the Contract Payment Bond between Defendants Travelers and M.B. Kahn.

BREACH OF CONTRACT
(Additional Length of Micropiles)

45. Each allegation contained above is realleged and incorporated by reference.

46. Based on the specifications and the Geotechnical Report provided, Terratec bid the job based on a micropile length of 66 feet.

47. However, after a determination that the Geotechnical Report did not provide an accurate depth for the Cooper Marl, Terratec determined that the micropile length would need to be 86 feet, 20 more feet than originally contemplated.

48. The contract between Terratec and M.B. Kahn, which was approved by the Charleston County School District and Heery, allows for a payment of an additional \$45 per linear foot for any additional pile length that is necessary.

49. Terratec has not received the payment for the additional pile length required for the job and thus M.B. Kahn, the Charleston County School District and Heery are in breach of the contract.

50. Terratec has been damaged by the breach of contract and is entitled to an award of damages.

BREACH OF CONTRACT

(Costs Associated with the Incorrect Information in the Geotechnical Report)

51. Each allegation contained above is realleged and incorporated by reference.

52. Terratec did not include in its bid the cost of performing two load tests and performing a soil sample.

53. Terratec incurred other costs not contemplated in the bid as a result of the incorrect information in the bid documents.

54. The Geotechnical Report included as a part of the specifications provided incorrect information and as a result Terratec was damaged in an amount to be proven at trial.

55. Through no fault of its own, Terratec was forced to perform its own soil sample and additional load tests.

56. Terratec has submitted the costs and damages incurred as a result of the incorrect soil specifications in the form of change orders. However, Heery and the Charleston County School District have denied the change orders.

57. M.B. Kahn has refused to pay the change orders.

58. The refusal to pay the change orders is a breach of the contract.

59. Terratec has been damaged as a result of the breach of contract and is entitled to an award of damages.

BREACH OF CONTRACT
(Miscut Concrete)

60. Each allegation contained above is realleged and incorporated by reference.
61. M.B. Kahn agreed that the concrete floor would be cut in strips so that Terratec's machinery could be set on the concrete in order to install the micropiles.
62. However, the concrete was cut in large portions so that it was not feasible to set the equipment on the concrete, but rather the equipment had to be lowered into the hole and rest essentially in the mud.
63. This miscut of the concrete caused significant delays and caused Terratec to incur additional costs.
64. Terratec has submitted these incurred costs in the form of a change order, but the change order has been denied by M.B. Kahn, the Charleston County School District and Heery.
65. The denial of the change order is a breach of contract.
66. As a result of this breach, Terratec has suffered damages and is entitled to an award of damages.

FAILURE TO PAY ON A PAYMENT BOND
(Little Miller Act)

67. Each allegation contained above is realleged and incorporated by reference.
68. Defendant Travelers holds performance and payment bond for M.B. Kahn.
69. Terratec has made a claim on the bond, but Terratec has not been paid the amounts due.
70. Pursuant to the bond and South Carolina's Little Miller Act, Terratec is entitled to an award of damages for the amounts claimed.

WHEREFORE, Plaintiff Terratec prays for an order awarding actual, consequential and punitive damages to Terratec from the Defendants as will be proven at trial as well as a prayer for any such other and further relief as may be just and proper under the circumstances.

MOORE, TAYLOR AND THOMAS, P.A.

By: Ward Bradley by ALRA
James Edward Bradley
1700 Sunset Boulevard
West Columbia, South Carolina 29169
(803) 796-9160

Attorneys for Plaintiff Terratec

Columbia, South Carolina
Jun. 14, 2013

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County SCHOOL DISTRICT

Charleston County School District

CONSOLIDATED PROCUREMENT CODE

Version 1.5

**EFFECTIVE July 21, 2008
Revision January 7, 2011**

ROA000659



3830.2.2 The property shall be classified as surplus and sold in accordance with the provisions of § 3820. The District's determination shall be in writing and be subject to the provisions of this Code. (SC Code § 11-35-3830(2)(b))

3830.2.3 The Procurement Officer may trade in personal property, whose original unit purchase price did not exceed \$5,000, the trade in value of which must be applied to the purchase of new items. When the original unit purchase price exceeds \$5,000, the Procurement Officer shall refer the matter to the Chief Financial and Operations Officer for disposition. The Chief Financial and Operations Officer shall have the authority to determine whether the property shall be traded in and the value applied to the purchase of new like items or classified as surplus and sold in accordance with the provisions of Section 3820 of the Code. When the original purchase price exceeds one hundred thousand dollars (\$100,000), the Superintendent or his/her designee must make a written determination as to price reasonableness and document such trade-in transaction. (SC Reg. §19-445.2150 (G))

3830.3 **Record of Trade-in Sales.** The designated District office shall submit quarterly to the Chief Financial and Operations Officer a record listing all trade-in sales made under subsections (1) and (2) of this section. (SC Code § 11-35-3830(3))

3850. **Sale of unserviceable supplies** (SC Code § 11-35-3850).

3850.1 The District may sell any supplies owned by it after the supplies have become entirely unserviceable and can properly be classified as "junk", in accordance with procedures established by the board. All sales of unserviceable supplies by the District must be made in public to the highest bidder, after advertising for fifteen days. (SC Code § 11-35-3850)

3850.2 **Definition and Sale of Junk.** Junk is District-owned supplies and equipment having no remaining useful life in public service or the cost to repair or to refurbish the property in order to return it to public use would exceed the value of like used equipment with remaining useful life. (SC Reg. § 19-445.2150 (H))

ARTICLE 17

LEGAL AND CONTRACTUAL REMEDIES

4210. PROTESTS (RIGHT TO PROTEST PROCEDURE SETTLEMENT OF PROTEST ADMINISTRATIVE REVIEW AND DECISION NOTICE OF DECISION FINALITY STAY OF PROCUREMENT PENDING EXCLUSIVITY OF REMEDY.) (SC Code § 11-35-4210)

4210.1 **Right to Protest Exclusive Remedy.** (SC Code § 11-35-4210)

4210.1.1 **Protest of Solicitation.** A prospective bidder, Offeror, contractor, or subcontractor who is aggrieved in connection with the solicitation of a contract shall protest to the Chief Procurement Officer in the manner stated in § 4210.2 below within fifteen (15) days of the date of issuance of the Invitation for Bids or Requests for Proposals or other solicitation documents, whichever is applicable, or any amendment to it, if the amendment is at issue. An

party intervening. The Chief Procurement Officer also shall post a copy of the decision at a date and place communicated to all parties participating in the administrative review, and the posted decision must indicate the date of posting on its face and shall be accompanied by a statement of the right to appeal provided in § 4220.5.

4220.5 Finality of Decision. A decision pursuant to § 4220.3 above is final and conclusive, unless fraudulent or unless the debarred or suspended person requests further administrative review by the District Procurement Review Panel pursuant to § 4410, within ten (10) days of posting the decision in accordance with § 4220.4. The request for review must be directed to the Chief Procurement Officer, who shall forward the request to the Panel, and must be in writing, setting forth the reasons why the person disagrees with the decision of the Chief Procurement Officer. The person also may request a hearing before the Panel.

4220.6 Debarment constitutes debarment of all divisions or other organizational elements of the contractor, unless the debarment decision is limited by its terms to specific divisions, organization elements, or commodities. The debarring official may extend the debarment decision to include any principals and affiliates of the contractor if they are specifically named and given written notice of the proposed debarment and an opportunity to respond. For purposes of this section, business concerns, organizations, or individuals are affiliates of each other if, directly or indirectly, either one controls or has the power to control the other, or a third party controls or has the power to control both. Indications of control include, but are not limited to, interlocking management or ownership, identity of interests among family members, shared facilities and equipment, common use of employees, or a business entity organized following the debarment, suspension, or proposed debarment of a contractor which has the same or similar management, ownership, or principal employees as the contractor that was debarred, suspended, or proposed for debarment. For purposes of this section, the term 'principals' means officers, directors, owners, partners, and persons having primary management or supervisory responsibilities within a business entity including, but not limited to, a general manager, plant manager, head of subsidiary, division, or business segment, and similar positions.

4230. AUTHORITY TO RESOLVE CONTRACT AND BREACH OF CONTRACT CONTROVERSIES. (SC Code § 11-35-4230)

4230.1 Applicability. This section applies to controversies between the District and a contractor or subcontractor when the subcontractor is the real party in interest, which arises under or by virtue of a contract between them including, but not limited to, controversies based upon breach of contract, mistake, misrepresentation or other cause for contract modification or rescission. The procedure set forth in this section constitutes the exclusive means of resolving a controversy between the District and a contractor or subcontractor when the subcontractor is the real party in interest, concerning a contract solicited and awarded pursuant to the provisions of this Code.

4230.2 Request for Resolution; Time for Filing. Either the District or the contractor or subcontractor, when the subcontractor is the real party in interest, may initiate resolution proceedings before the Chief Procurement Officer by submitting a request for resolution to the Chief Procurement Officer in writing setting forth the specific nature of the controversy and the specific relief requested with enough particularity to give notice of every issue to be decided. A request for resolution of contract controversy must be filed within one (1) year of the date the contractor last performs work under the contract; except that in the case of latent defects a request for resolution of

a contract controversy must be filed within three (3) years of the date the requesting party first knows or should know of the grounds giving rise to the request for resolution.

4230.3 **Duty and Authority to Attempt to Settle Contract Controversies.** Before commencement of an administrative review as provided in § 4230.4 below, the Chief Procurement Officer or his designee shall attempt to settle by mutual agreement a contract controversy brought pursuant to this section.. The Chief Procurement Officer shall have the authority to approve any settlement reached by mutual agreement.

4230.4 **Administrative Review and Decision.** If, in the opinion of the Chief Procurement Officer, after reasonable attempt, a contract controversy cannot be settled by mutual agreement, the Chief Procurement Officer or his designee promptly shall conduct an administrative review and issue a decision in writing within ten (10) days of completion of the review. The decision shall state the reasons for the action taken.

4230.5 **Notice of Decision.** A copy of the decision pursuant to § 4230.4 above and a statement of appeal rights pursuant to § 4230.6 below must be mailed or otherwise furnished immediately to all parties participating in the administrative review proceedings. The Chief Procurement Officer shall post a copy of the decision at a date and place communicated to all parties participating in the administrative review, and the posted decision must indicate the date of posting on its face and must be accompanied by a statement of the right to appeal under § 4230.6.

4230.6 **Finality of Decision.** A decision pursuant to § 4230.4 is final and conclusive, unless fraudulent, or unless a person adversely affected requests further administrative review by the District Procurement Review Panel pursuant to § 4410.1 within ten (10) days of posting the decision in accordance with § 4230.5. The request for review must be directed to the Chief Procurement Officer, who shall forward the request to the Panel, and must be in writing, setting forth the reasons why the person disagrees with the decision of the Chief Procurement Officer. The person also may request a hearing before the Panel.

4310. SOLICITATION OR AWARDS IN VIOLATION OF THE LAW. (SC Code § 11-35-4310)

4310.1 **Applicability.** The provisions of this section apply where it is determined by either the Chief Procurement Officer or the District Procurement Review Panel, upon administrative review, that a solicitation or award of a contract is in violation of the law. The remedies set forth herein may be granted by either the Chief Procurement Officer after review under § 4210, or by the District Procurement Review Panel after review under § 4410.

4310.2 **Remedies Prior to Award.** If, prior to award of a contract, it is determined that a solicitation or proposed award of a contract is in violation of law, then the solicitation or proposed award may be:

4310.2.1 Cancelled;

4310.2.2 Revised to comply with the law and re-bid; or.

4310.2.3 Awarded in a manner that complies with the provisions of this Code.

4310.3 **Remedies after Award.** If, after an award of a contract, it is determined that the solicitation or award is in violation of law:

4310.3.1 The contract may be ratified and affirmed, provided it is in the best interests of the District; or

4310.3.2 The contract may be terminated and the payment of such damages, if any, as may be provided in the contract, may be awarded.

4310.4 **Entitlement to Costs.** In addition to or in lieu of any other relief, when a protest submitted under § 4210 (Protests) is sustained, and it is determined that the protesting bidder or Offeror should have been awarded the

contract under the solicitation but is not, then the protesting bidder or Offeror may request and be awarded a reasonable reimbursement amount, including reimbursement of its reasonable bid preparation costs.

4320. CONTRACT CONTROVERSY REMEDIES. (SC Code § 11-35-4320)

4320.1 **Remedies.** Remedies available in a contract controversy brought under the provisions of § 4230. The Chief Procurement Officer or the Procurement Review Panel, in the case of review under § 4410, may award such relief as is necessary to resolve the controversy as allowed by the terms of the contract or by applicable law.

4330. FRIVOLOUS PROTESTS. (SC Code § 11-35-4330)

4330.1 **Signature on Protest Constitutes Certificate.** The signature of an attorney or party on a request for review, protest, motion, or other document constitutes a certificate by the signer that the signer has read the document, to the best of his knowledge, information, and belief formed after reasonable inquiry it is well grounded in fact and is warranted by existing law or a good faith argument for the extension, modification, or reversal of existing law, and that it is not interposed for an improper purpose, such as to harass, limit competition, or to cause unnecessary delay or needless increase in the cost of the procurement or of the litigation. (SC Code § 11-35-4330(1))

4330.2 **Sanctions for Violation.** If a request for review, protest, pleading, motion, or other document is filed with the Chief Procurement Officer is signed in violation of this subsection, the District Procurement Review Panel, upon motion or upon its own initiative, may impose upon the person who signed it, a represented party, or both, an appropriate sanction, that may include an order to pay to the other party or parties the amount of the reasonable expenses incurred because of the filing of the protest, pleading, motion, or other paper, including a reasonable attorney's fee. (SC Code § 11-35-4330(2))

4330.3 **Filing.** A motion regarding a matter that is not otherwise before the Panel may not be filed until after a final decision has been issued by the Chief Procurement Officer. A motion for sanctions pursuant to this section must be filed with the Panel no later than fifteen (15) days after the later of either the filing of a request for review, protest, motion, or other document signed in violation of this section, or the issuance of an order that addresses the request for review, protest, motion, or other document that is the subject of the motion for sanctions.

4410. DISTRICT PROCUREMENT REVIEW PANEL. (SC Code § 11-35-4410)

4410.1 **Creation.** There is created the District's Procurement Review Panel which is charged with the responsibility to review and determine de novo:

4410.1.1 Requests for review of written determinations of the Chief Procurement Officer issued under §§ 42 10.6, 4220.5, and 4230.6; and

4410.1.2 Requests for review of other written determinations, decisions, policies, and procedures as arise from or concern the procurement of supplies, services, information technology, or construction procured in accordance with the provisions of this Code; except that a matter that could have been brought before the Chief Procurement Officer in a timely and appropriate manner pursuant to §§ 4210, 4220, or 4230, but was not, must not be the subject of review under this paragraph. Requests for reviews under this paragraph must be submitted in writing to the Chief Procurement Officer for submission to the Procurement Review Panel, setting forth the grounds, within fifteen (15) days of the date of the

written determinations, decisions, policies, and procedures. The Chief Procurement Officer shall immediately submit such requests to the panel, through its Chairman.

4410.2 Membership. The panel must be composed of

4410.2.1 A member of the Board appointed by the Board, who will chair the Panel;

4410.2.2 For one-year terms running from July 1 through June 30 annually, four (4) persons from the community who are well respected representatives of several of the professions and businesses affected by this Code, including, but not limited to:

- (i) Goods and services
- (ii) Information technology
- (iii) Construction
- (iv) Architects, engineering, construction management, and land surveying.

4410.2.2.1 One of these persons will be appointed by the Chair of the Board of Trustees, one by the Vice-Chair of the Board of Trustees, one by the Superintendent, and one by the District's Chief Financial and Operations Officer, in that order; these persons shall recuse themselves in any matter in which they have an actual or apparent conflict of interest.

4410.2.3 When a vacancy is created, the official responsible for originally appointing the member vacating his or her seat shall appoint the successor to complete the term of service.

4410.2.4 Members may be reappointed to succeed themselves.

4410.3 Meetings. The Panel shall meet as often as necessary to afford a swift resolution of the controversies submitted to it. Four (4) members present and voting constitute a quorum. In the case of a tie vote, the decision of the Chief Procurement Officer is sustained and final. The members of the Procurement Review Panel may be paid a per diem, mileage, and subsistence by the District.

4410.4 Administrative and Legal Support. The Panel shall receive such administrative and clerical support as is necessary for the orderly transaction of business. The District will also provide the Panel with independent legal counsel to assist the Panel in all aspects of its operations.

4410.5 Jurisdiction and Practices. The Panel is vested with the authority to establish its own procedures for the conduct of its business and the holding of its hearings:

- issue subpoenas
- interview any person it considers necessary, and
- record all determinations.

4410.6. Within fifteen (15) days of receiving a grievance filed pursuant to Section 4210.6, 4220.5, 4230.6 or 4410.1.2, the chairman shall either convene the review panel to conduct an administrative review or schedule a hearing to facilitate its administrative review. Except for grievances filed pursuant to § 4230.6 (Contract Controversies), the Panel shall record its determination within ten (10) working days and communicate its decision to those involved in the determination. In matters designated by the Panel as complex, the Panel shall record its determination within thirty (30) days.

4410.7 Finality. Notwithstanding another provision of law, the decision of the Procurement Review Panel is final as to administrative review and may be appealed only to the circuit court. The standard of review is as provided by the

provisions of the South Carolina Administrative Procedures Act. The filing of an appeal does to automatically stay a decision of the panel.

ARTICLE 19

COOPERATIVE PURCHASING

4810. COOPERATIVE PURCHASING AUTHORIZED. (SC Code § 11-35-4810)

4810.1 All rights, powers, duties and authority granted to the District by Title 11, Chapter 35, Article 19 of the South Carolina Code of Laws are hereby vested in the Superintendent provided that the District conduct cooperative purchasing in accordance with Title 11, Chapter 35, Article 19 of the Code including the requirement that should the District participate in a multi-state, multi-party solicitation, thirty days notice of the proposed multi-party solicitation shall be provided through central advertising and such contracts may be only awarded to manufacturers who will be distributing the products to South Carolina governmental bodies (in this case, District offices) through South Carolina vendors.

4880. DISTRICT IN COMPLIANCE WITH CODE REQUIREMENTS. (SC Code § 11-35-4880)

4880.1 Where a public procurement unit or external procurement activity administering a cooperative purchase complies with the requirements of this code, the District participating in such a purchase shall be deemed to have complied with this code. The District shall not enter into a cooperative purchasing agreement for the purpose of circumventing this code.

ARTICLE 21

ASSISTANCE TO MINORITY BUSINESS ENTERPRISES

5210. STATEMENT OF IMPLEMENTATION. (SC Code § 11-35-5210)

5210.1 **Statement of Implementation.** The District recognizes that the General Assembly, in SC Code Ann. 11-35-5210, has declared that business firms owned and operated by minority persons have been historically restricted from full participation in the free enterprise system to a degree disproportionate to other businesses. The Board intends to ensure that those businesses owned and operated by minorities are afforded the opportunity to fully participate in the overall procurement process of the District. The Board, therefore, sets these procedures that will result in awarding contracts and subcontracts to minority business firms in order to enhance minority capital ownership, overall District and state economic development and reduce dependency on the part of minorities.

5210.2 For purposes of this Article, the term "minority business" means a business holding a Certificate of Eligibility issued by the South Carolina Small and Minority Business Assistance Office (OSMBA). (SC Reg. § 19-455.2160(B))

5220. DUTIES OF THE Chief Procurement Officer. (SC Code § 11-35-5220)

5220.1 **Assistance.** The District shall provide appropriate staff to assist minority businesses with the District's procurement procedures and in the interpretation of this code.

POSTING DATE OF DECISION: November 22, 2013

DECISION OF INTERIM DIRECTOR OF CONTRACT AND PROCUREMENT

In Re: Request for Resolution By Terratec, Inc. Submitted on August 21, 2013

Terratec, Inc. ("Terratec") is a subcontractor of M.B. Kahn Construction Company, Inc. ("Kahn"), on the Rivers Education Center Seismic Retrofit, Exterior Restoration and Core Utilities Project ("Project") owned by the Charleston County School District ("CCSD"). Terratec, through its counsel, submitted a request for resolution on August 21, 2013 pursuant to Section 4230 of the Charleston County School District Consolidated Procurement Code.

Terratec, Inc. submitted the following documents in support of its request for resolution: (1) Letter dated January 14, 2013 from Chris Morrison, Vice-President of Terratec, to Chief Procurement Officer for CCSD with Exhibits A through U; (2) Letter dated February 26, 2013 from Allen W. Cadden, PE, D.GE, to William Lewis of CCSD reporting the decision of Dispute Resolution Board ("DRB") which heard Terratec's claim; (3) March 14, 2013 Letter from Christopher A. Morrison, Vice-President of Terratec, to Scott Spigener of Kahn responding to the DRB findings; and (4) Letter dated February 20, 2013 from Frederick Feil of CCSD to Terratec stating that Terratec's January 14, 2013 request for resolution was premature in view of the pending DRB proceeding.

Section 4230.3 of the CCSD Procurement Code provides that before commencement of an administrative review, the Chief Procurement Officer or his

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designee shall attempt to settle a contract controversy by mutual agreement. In order to discharge this duty, I met with Christopher Morrison of Terratec on October 30, 2013 at the office of CCSD for approximately two hours to give him an opportunity to present any additional arguments or documents regarding the claim which Terratec had presented to the DRB. At the meeting Mr. Morrison provided me with a document entitled "Terratec Cost Accounting Breakdown". This document listed 10 sections with the following descriptions: (1) Original Contract Amount; (2) Change Order # 1; (3) Adjusted Contract Value; (4) Payments Received; (5) Retainage; (6) Contract Value versus Payment Received; (7) Joint Checks Issued; (8) Unpaid Balance; (9) Disputed Changes Orders # 1 through 5; and (10) Total Outstanding. I have attached a copy of this document to this decision as Exhibit 1.

Following our meeting, I received an e-mail from Mr. Morrison on November 4, 2013, to which he attached a modified version of the "Terratec Cost Accounting Break Down" which was similar to the one provided at our October 30, 2013 meeting but it added an additional section: (11) Miscellaneous Expenses which listed three types of Finance Fees plus Attorney's Fees for a total of \$110,626.00. Section (12) was added to provide a "Total Outstanding Plus Miscellaneous Expenses. In addition, two columns were added to the right of section (7) through (11) on the list labeled "Responsibility". One of the columns was labeled "Others" and the second column was labeled "CCSD". I have attached a copy of this document as Exhibit 2 to this decision.

As I interpret the second "Terratec Cost Accounting Break Down" received via e-mail on November 4, 2013, Terratec is apparently now claiming that it is owed \$621,975.83 from CCSD and \$540,475.38 from "Others". In view of the fact that

Terratec has expanded its claims over and above the three Changes Orders considered by the DRB and has added additional costs for which claims had not been previously presented, I have determined that a mutual resolution at this stage of the proceeding is not possible.

I have now conducted an administrative review of the claims presented by Terratec pursuant to Section 4230.4 of the CCSD Procurement Code. I have reviewed the documents submitted by Terratec for consideration by the DRB and I was personally present for the presentation by Terratec to the DRB and heard the entire proceeding including questions asked of Terratec and its representatives at the meeting and their responses. I have reviewed Mr. Morrison's response to the DRB decision as outlined in Mr. Morrison's March 14, 2013 letter. I have also reviewed and considered all of the documents submitted by Terratec through its counsel's letter of August 21, 2013, all documents submitted by Mr. Morrison of Terratec at our meeting on October 30, 2013 and the additional documents he provided with his e-mail of November 4, 2013.

As to the claims presented by Terratec to the DRB, I concur with the decision of the DRB. In my opinion Terratec has not proven entitlement to payment for Change Orders # 2 and # 3 (also referred to as Change Orders # 47 and # 48), so Terratec's claim is denied as to these requests. As to Change Order # 4, (also referred to as Change Order # 49), I again concur with the decision of the DRB on this request. Following the issuance of the decision of the DRB, Terratec did submit pricing information for Change Order # 4 as suggested by the DRB. Construction Change Directive Number 001 in the amount of \$33,149.52 has been issued and signed by CCSD as the Owner, Heery International as the Construction Manager, Davis & Floyd as the Architect and Kahn as

the General Contractor. Payment of Constructive Change Directive Number 1 has been made by CCSD's to Kahn, rather than directly to Terratec, as required under CCSD's contract with Kahn. Mr. Morrison informed me at our meeting that Terratec has not yet received payment from Kahn for Construction Change Directive Number 1 but he needs to raise this issue with Kahn, rather than CCSD which has already made payment.

As to the items outlined in the Terratec Cost Accounting Break Down provided by Mr. Morrison with his November 4, 2013 e-mail which I have attached to this decision as Exhibit 2 and that Terratec has delineated as being the responsibility of others, I am not rendering a decision since these claims are not directed against CCSD and I have no authority to address these claims. With regard to the items on Exhibit 2 which are listed as being the responsibility of CCSD, I find that CCSD is only responsible for "TTI to MBK/CCSD CO # 4" for \$33,149.52 under Section 9 Disputed Change Orders, which has already been paid as discussed above. The Disputed Change Order described as "TTI to MBK/CCSD Contract Adjustment (12 feet unpaid at \$45/ft)" in the amount of \$338,580.00 was not presented for consideration by the DRB and I have no basis or authority to consider this request so it is denied. As to the Miscellaneous Expenses listed in Section 11 of the Terratec Cost Accounting Breakdown attached as Exhibit 2, which consists of three types of Finance Fees and attorneys fees totaling \$110,626.45, for which Terratec has placed one-half of these amounts in the CCSD Responsibility column, Terratec has presented no legal, factual or contractual basis as to why CCSD is responsible for these amounts so these claims are also denied.

This decision is final and conclusive pursuant to Section 4230.6 of the CCSD Consolidated Procurement Code unless a request for further administrative review by the

CCSD Procurement Review Panel is made in writing setting forth the reasons for disagreement with this decision. Any request for further administrative review should be directed to the Mr. Wayne Wilcher, Director of Contracts and Procurement for Charleston County School District, 399 Bridge View Drive, North Charleston, SC 29405 within 10 days of the posting of this decision.

~~Lawrence L. Lurario~~, Interim Director
Of Contracts and Procurement for
Charleston County School District

November 22, 2013

Terratec Cost Accounting Break Down

1.) Original Contract Amount: \$ 1,992,835.00

2.) Change Order #1 (12 additional feet) \$ 227,610.00

3.) Adjusted Contract Value \$ 2,220,445.00

4.) Payments Received

Mobilization	\$ 200,700.00
Payment #1	\$ 248,292.70
Payment #2	\$ 657,696.07
Payment #3	\$ 444,053.09
Payment #4	\$ 348,090.78
Total Payments Received	\$ 1,898,832.64

5.) Retainage \$ 222,044.50

6.) Contract Value versus Payments Received \$ 321,612.36

7.) Joint Checks Issued

Staff Zone - 3/2/13	\$ 113,533.00
Ready Mix	\$ 37,500.00

8.) Unpaid Balance \$ 170,579.36

9.) Disputed Change Orders

MBK to Terratec CO #1
TTI to MBK/CCSD CO#2
TTI to MBK/CCSD CO#3
TTI to MBK/CCSD CO#4
TTI to MBK/CCSD CO#5
TTI to MBK/CCSD Contract Adjustment (8 feet unpaid @ \$45/ft)

Total	Undisputed	
\$ (93,584.00)	\$ -(12,143.00)	\$ (81,441.00) * \$58,194.00 to MBK, \$35,154.00 to WPC
		\$ 65,000.00 <i>jump sum. load test</i>
		\$ 46,143.27 <i>borings / engineering / hourly charges by eng.</i>
		\$ 33,149.52 <i>hollow bore</i>
		\$ 473,626.34 <i>extra labor / rented for setting of concrete</i>
		\$ 225,720.00 <i>unpaid 8'</i>

10.) Total Outstanding \$ 1,095,659.49

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Terratec Cost Accounting Break Down

1.) Original Contract Amount:			\$ 1,992,835.00
2.) Change Order #1 (8 additional feet)			\$ 227,610.00
3.) Adjusted Contract Value			\$ 2,220,445.00
4.) Payments Received			
Mobilization			\$ 200,700.00
Payment #1			\$ 248,292.70
Payment #2			\$ 657,696.07
Payment #3			\$ 444,053.09
Payment #4			\$ 348,090.78
Total Payments Received			\$ 1,898,832.64
5.) Retainage			\$ 222,044.50
6.) Contract Value versus Payments Received			\$ 321,612.36
7.) Joint Checks Issued			
Staff Zone - 3/2/13			\$ 113,533.00
Ready Mix - 5/30/12			\$ 63,110.73
Ready Mix - 10/30/12			\$ 37,500.00
8.) Unpaid Balance			\$ 107,468.63
9.) Disputed Change Orders			
* MBK to Terratec CO #1	CO - Firm	Disputed	
	CRC	No	\$ 12,143.00
	MB Kahn	Yes	\$ 58,194.00
	WPC	Yes	\$ 35,154.00
TTI to MBK/CCSD CO#2			\$ 65,000.00
TTI to MBK/CCSD CO#3			\$ 46,143.27
TTI to MBK/CCSD CO#4			\$ 33,149.52
TTI to MBK/CCSD CO#5			\$ 473,626.34
TTI to MBK/CCSD Contract Adjustment (12 feet unpaid @ \$45/ft)			\$ 338,580.00
* We are disputing \$58,194.00 to MBK, \$35,154.00 to WPC, however already taken.			
10.) Total Outstanding			\$ 1,051,824.76
11.) Miscellaneous Expenses			
Finance Fees - Line of Credit/Term Loan			\$ 18,612.34
Finance Fees - ILOC			\$ 20,275.00
Finance Fees - Personal Loans			\$ 20,000.00
Attorney's Fees			\$ 51,739.11
			<u>\$ 110,626.45</u>
12.) Total Outstanding Plus Miscellaneous Expenses			\$ 1,162,451.21

Responsibility	
Others	CCSD
\$ -	\$ -
\$ -	\$ -
\$ -	\$ -
	\$ 107,468.63
\$ -	\$ (12,143.00)
\$ -	\$ -
\$ -	\$ -
\$ -	\$ 65,000.00
\$ 11,535.82	\$ 34,607.45
\$ -	\$ 33,149.52
\$ 473,626.34	\$ -
\$ -	\$ 338,580.00
\$ 9,306.17	\$ 9,306.17
\$ 10,137.50	\$ 10,137.50
\$ 10,000.00	\$ 10,000.00
\$ 25,869.56	\$ 25,869.56
\$ 540,475.38	\$ 621,975.83

EXHIBIT

APPLICATION AND CERTIFICATE FOR PAYMENT

Phase 1 - Final

8/13/12

Page 1 of 8 Pages

TO OWNER: CHARLESTON COUNTY SCHOOL DIST.
3999 BRIDGE VIEW DRIVE
N CHARLESTON, SC 29405

PROJECT: RIVERS EDUCATION CENTER
1002 KING STREET
CHARLESTON, SC 29403

APPLICATION NO: 16
PERIOD TO: 7/31/2012
PROJECT NOS:

Distribution to:
☐ OWNER
☐ ARCHITECT
☐ CONTRACTOR
☐
☐

FROM CONTRACTOR: M B KAHN CONSTRUCTION CO INC
P O BOX 1179
COLUMBIA, SC 29202-1179

VIA ARCHITECT: DAVIS & FLOYD INC
P O BOX 61599
CHARLESTON, SC 29415

CONTRACT DATE:
INVOICE NUMBER: 2229-016
JOB ID: 2229

CONTRACT FOR:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation sheet is attached.

1. ORIGINAL CONTRACT SUM	\$ 9,323,000.00
2. Net change by Change Orders	\$ 568,138.20
3. CONTRACT SUM TO DATE (Line 1 + 2)	\$ 9,891,138.20
4. TOTAL COMPLETED & STORED TO DATE	\$ 9,891,138.20
(Column G on Detail Sheets)	
5. RETAINAGE	
a. 0.00 % of Completed Work	\$ 0.00
(Columns D + E on Detail Page)	
b. 0.00 % of Stored Material	\$ 0.00
(Column F on Detail Page)	
Total Retainage (Line 5a + 5b or	
Total in Column I of Detail Page)	\$ 0.00
6. TOTAL EARNED LESS RETAINAGE	\$ 9,891,138.20
(Line 4 less Line 5 Total)	
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT	
(Line 6 from prior Certificate)	\$ 9,480,840.21
8. CURRENT PAYMENT DUE	\$ 410,297.99
9. BALANCE TO FINISH, INCLUDING RETAINAGE	
(Line 3 less Line 6)	\$ 0.00

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	598,157.53	30,019.33
Total approved this Month	0.00	0.00
TOTALS	598,157.53	30,019.33
NET CHANGES by Change Order		568,138.20

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: W Neely Date: 7-31-12 5271072

State of South Carolina
County of Richland
Subscribed and sworn to before
me this 31st day of July, 2012

Notary Public: Diana Day
My Commission expires: July 31, 2020

Final Payment
Partial Payment
Split Payment
Total \$ 9,891,138.20
Date 8/13/12
RC Date 8-8-12
Unit 8/14/12

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED

\$ 410,297.99

(Attach explanation if the amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:

By: [Signature] Date: 08/06/12

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.



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CONTINUATION SHEET

Page 2 of 8 Pages

APPLICATION AND CERTIFICATE FOR PAYMENT

containing Contractor's signed Certification, is attached.

Use Column 1 on Contracts where variable retainage for line items may apply.

(Version 11.1.1)

APPLICATION NO: 16

APPLICATION DATE: 7/31/2012

PERIOD TO: 7/31/2012

ARCHITECT'S PROJECT NO:

INVOICE NUMBER: 2229-016

JOB ID: 2229

JOB ID: 2227									
A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G / C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
20	General Conditions	389,940.00	389,940.00	0.00	0.00	389,940.00	100.00	0.00	0.00
21	Temporary Utilities	21,000.00	21,000.00	0.00	0.00	21,000.00	100.00	0.00	0.00
30	Mobilization	88,739.00	88,739.00	0.00	0.00	88,739.00	100.00	0.00	0.00
40	Business License	21,479.00	21,479.00	0.00	0.00	21,479.00	100.00	0.00	0.00
50	Insurance	17,536.00	17,536.00	0.00	0.00	17,536.00	100.00	0.00	0.00
60	Payment and Performance Bond	50,178.00	50,178.00	0.00	0.00	50,178.00	100.00	0.00	0.00
70	Subcontractor Bonds	96,571.00	96,571.00	0.00	0.00	96,571.00	100.00	0.00	0.00
80	Preconstruction Submittals	8,250.00	8,250.00	0.00	0.00	8,250.00	100.00	0.00	0.00
90	Site Demolition	20,000.00	20,000.00	0.00	0.00	20,000.00	100.00	0.00	0.00
100	Crawl Space Demolition	65,480.00	65,480.00	0.00	0.00	65,480.00	100.00	0.00	0.00
110	1st Floor Demolition	135,000.00	135,000.00	0.00	0.00	135,000.00	100.00	0.00	0.00
120	2nd Floor Demolition	165,000.00	165,000.00	0.00	0.00	165,000.00	100.00	0.00	0.00
130	Attic Demolition	13,000.00	13,000.00	0.00	0.00	13,000.00	100.00	0.00	0.00
140	Building Facia Demolition	20,000.00	20,000.00	0.00	0.00	20,000.00	100.00	0.00	0.00
150	Concrete Cutting	78,713.00	78,713.00	0.00	0.00	78,713.00	100.00	0.00	0.00
160	Asbestos Abatement (Allowance)	55,000.00	55,000.00	0.00	0.00	55,000.00	100.00	0.00	0.00
170	Lead Paint Abatement	46,400.00	46,400.00	0.00	0.00	46,400.00	100.00	0.00	0.00
180	Shoring	334,831.00	334,831.00	0.00	0.00	334,831.00	100.00	0.00	0.00
190	Crawl Space Drainage System	15,638.00	15,638.00	0.00	0.00	15,638.00	100.00	0.00	0.00
200	Fences and Gates	2,630.00	2,630.00	0.00	0.00	2,630.00	100.00	0.00	0.00
210	Mobilization (Colony/Sitework)	15,520.00	15,520.00	0.00	0.00	15,520.00	100.00	0.00	0.00
220	Silt Fence	3,534.00	3,534.00	0.00	0.00	3,534.00	100.00	0.00	0.00
230	Tree Protection	1,483.00	1,483.00	0.00	0.00	1,483.00	100.00	0.00	0.00
240	Dirt Ramp at Greenhouse	2,920.00	2,920.00	0.00	0.00	2,920.00	100.00	0.00	0.00
250	Haul off of Pile Spoils	30,330.00	30,330.00	0.00	0.00	30,330.00	100.00	0.00	0.00
260	Water (Fire Lane)	29,670.00	29,670.00	0.00	0.00	29,670.00	100.00	0.00	0.00
270	57 Stone (Construction Ent)	13,650.00	13,650.00	0.00	0.00	13,650.00	100.00	0.00	0.00
280	Mobilization & Deposits (Micro	200,000.00	200,000.00	0.00	0.00	200,000.00	100.00	0.00	0.00
	Page Total	1,942,492.00	1,942,492.00	0.00	0.00	1,942,492.00	100.00	0.00	0.00

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CONTINUATION SHEET

Page 3 of 8 Pages

APPLICATION AND CERTIFICATE FOR PAYMENT

containing Contractor's signed Certification, is attached.

Use Column I on Contracts where variable retainage for line items may apply.

(Version 11.1.1)

APPLICATION NO: 16

APPLICATION DATE: 7/31/2012

PERIOD TO: 7/31/2012

ARCHITECT'S PROJECT NO:

INVOICE NUMBER: 2229-016

JOB ID: 2229

ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	%(G / C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
290	Load Test (Test File Program)	65,000.00	65,000.00	0.00	0.00	65,000.00	100.00	0.00	0.00
300	Int/Ext Piles 627 x \$2,755.72	1,975,709.80	1,975,709.80	0.00	0.00	1,975,709.80	100.00	0.00	0.00
310	Excavation	73,415.00	73,415.00	0.00	0.00	73,415.00	100.00	0.00	0.00
320	Foundation Dowels	30,589.00	30,589.00	0.00	0.00	30,589.00	100.00	0.00	0.00
330	Frame & Place-PC/Grade Beams	183,534.00	183,534.00	0.00	0.00	183,534.00	100.00	0.00	0.00
340	Rebar Material (Foundations)	128,474.00	128,474.00	0.00	0.00	128,474.00	100.00	0.00	0.00
350	Rebar Install	33,036.00	33,036.00	0.00	0.00	33,036.00	100.00	0.00	0.00
360	Shotcrete Dowels	55,060.00	55,060.00	0.00	0.00	55,060.00	100.00	0.00	0.00
370	Form & Place-Walls (CIP)	67,296.00	67,296.00	0.00	0.00	67,296.00	100.00	0.00	0.00
380	Form- Walls Shotcrete	144,786.00	144,786.00	0.00	0.00	144,786.00	100.00	0.00	0.00
390	Rebar Material (Walls)	30,589.00	30,589.00	0.00	0.00	30,589.00	100.00	0.00	0.00
400	Rebar Install	8,810.00	8,810.00	0.00	0.00	8,810.00	100.00	0.00	0.00
410	Concrete-Place and Finish	86,873.00	86,873.00	0.00	0.00	86,873.00	100.00	0.00	0.00
420	WWM Material	24,471.00	24,471.00	0.00	0.00	24,471.00	100.00	0.00	0.00
430	Slab Tie In at Elevator Wall	4,894.00	4,894.00	0.00	0.00	4,894.00	100.00	0.00	0.00
440	Form & Place-Ramp/Stairs	27,530.00	27,530.00	0.00	0.00	27,530.00	100.00	0.00	0.00
450	Pump House (Foundation)	9,543.00	9,543.00	0.00	0.00	9,543.00	100.00	0.00	0.00
460	Infill Slab Cut-Outs	15,573.00	15,573.00	0.00	0.00	15,573.00	100.00	0.00	0.00
470	Mobilization (Shotcrete)	10,000.00	10,000.00	0.00	0.00	10,000.00	100.00	0.00	0.00
480	Shotcrete Test Panels	15,000.00	15,000.00	0.00	0.00	15,000.00	100.00	0.00	0.00
490	Shotcrete Walls	569,725.00	569,725.00	0.00	0.00	569,725.00	100.00	0.00	0.00
500	Masonry	57,066.00	57,066.00	0.00	0.00	57,066.00	100.00	0.00	0.00
510	Masonry Restoration (Allowance)	37,023.34	0.00	37,023.34	0.00	37,023.34	100.00	0.00	0.00
520	Structural Steel Materials	311,300.00	311,300.00	0.00	0.00	311,300.00	100.00	0.00	0.00
530	Structural Steel Installation	174,800.00	174,800.00	0.00	0.00	174,800.00	100.00	0.00	0.00
540	Lt Gnage Trusses	9,135.00	9,135.00	0.00	0.00	9,135.00	100.00	0.00	0.00
550	Roof Decking	22,250.00	22,250.00	0.00	0.00	22,250.00	100.00	0.00	0.00
560	Misc Metals	91,996.00	91,996.00	0.00	0.00	91,996.00	100.00	0.00	0.00
	Page Total	4,263,478.14	4,226,454.80	37,023.34	0.00	4,263,478.14	100.00	0.00	0.00

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CONTINUATION SHEET

Page 4 of 8 Pages

APPLICATION AND CERTIFICATE FOR PAYMENT

containing Contractor's signed Certification, is attached.

Use Column 1 on Contracts where variable retainage for line items may apply.

(Version 11.1.1)

APPLICATION NO: 16

APPLICATION DATE: 7/31/2012

PERIOD TO: 7/31/2012

ARCHITECT'S PROJECT NO:

INVOICE NUMBER: 2229-016

JOB ID: 2229

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G / C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
570	Floor Decking	23,650.00	23,650.00	0.00	0.00	23,650.00	100.00	0.00	0.00
580	Elastomeric Waterproofing--She	9,875.00	9,875.00	0.00	0.00	9,875.00	100.00	0.00	0.00
590	Bituminous Dampproofing	1,325.00	1,325.00	0.00	0.00	1,325.00	100.00	0.00	0.00
600	Joint Sealants at Ext Penetrat	6,100.00	6,100.00	0.00	0.00	6,100.00	100.00	0.00	0.00
610	Downspout Boots	11,280.00	11,280.00	0.00	0.00	11,280.00	100.00	0.00	0.00
620	Mobilization (Keating)	4,000.00	4,000.00	0.00	0.00	4,000.00	100.00	0.00	0.00
621	Remove Slate Roofing Tile	74,000.00	74,000.00	0.00	0.00	74,000.00	100.00	0.00	0.00
630	Tile Roofing Material	183,750.00	183,750.00	0.00	0.00	183,750.00	100.00	0.00	0.00
640	Tile Roofing Labor	75,222.00	75,222.00	0.00	0.00	75,222.00	100.00	0.00	0.00
650	Copper Roofing Material	65,679.00	65,679.00	0.00	0.00	65,679.00	100.00	0.00	0.00
660	Copper Roofing Labor	38,679.00	38,679.00	0.00	0.00	38,679.00	100.00	0.00	0.00
670	Modified Roofing Material	5,700.00	5,700.00	0.00	0.00	5,700.00	100.00	0.00	0.00
680	Modified Roofing Labor	3,000.00	3,000.00	0.00	0.00	3,000.00	100.00	0.00	0.00
690	Gutters & Downspouts Material	30,635.00	30,635.00	0.00	0.00	30,635.00	100.00	0.00	0.00
700	Gutters & Downspouts Labor	15,000.00	12,000.00	3,000.00	0.00	15,000.00	100.00	0.00	0.00
710	Standing Seam Material	5,000.00	5,000.00	0.00	0.00	5,000.00	100.00	0.00	0.00
720	Standing Seam Labor	3,000.00	3,000.00	0.00	0.00	3,000.00	100.00	0.00	0.00
730	Demobilization (Keating)	3,000.00	3,000.00	0.00	0.00	3,000.00	100.00	0.00	0.00
740	HM Door & Frame Delivery	22,865.00	22,865.00	0.00	0.00	22,865.00	100.00	0.00	0.00
750	HM Frame Install	1,882.00	1,882.00	0.00	0.00	1,882.00	100.00	0.00	0.00
760	HM Door Install								
770	Wood Door Delivery								
780	Wood Door Install								
790	Fiberglass Door Delivery	29,917.00	29,917.00	0.00	0.00	29,917.00	100.00	0.00	0.00
800	Fiberglass Door Install								
810	Door Hardware (Allowance)	50,102.00	50,102.00	0.00	0.00	50,102.00	100.00	0.00	0.00
820	OH Door	4,793.00	4,793.00	0.00	0.00	4,793.00	100.00	0.00	0.00
830	Aluminum Window Material Deliv	915,554.00	869,776.30	45,777.70	0.00	915,554.00	100.00	0.00	0.00
	Page Total	1,584,008.00	1,535,230.30	48,777.70	0.00	1,584,008.00	100.00	0.00	0.00

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CONTINUATION SHEET

Page 5 of 8 Pages

APPLICATION AND CERTIFICATE FOR PAYMENT

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Use Column 1 on Contracts where variable retainage for line items may apply.

(Version 11.1.1)

APPLICATION NO: 16

APPLICATION DATE: 7/31/2012

PERIOD TO: 7/31/2012

ARCHITECT'S PROJECT NO:

INVOICE NUMBER: 2229-016

JOB ID: 2229

ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	%(G / C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
840	Aluminum Window Installation	243,263.00	231,099.85	12,163.15	0.00	243,263.00	100.00	0.00	0.00
850	Greenhouse	34,434.00	30,990.60	3,443.40	0.00	34,434.00	100.00	0.00	0.00
860	Drywall Assemblies	77,250.00	77,250.00	0.00	0.00	77,250.00	100.00	0.00	0.00
870	Terrazzo	29,918.00	29,918.00	0.00	0.00	29,918.00	100.00	0.00	0.00
880	Wood Flooring (Remove&Store)	78,127.00	78,127.00	0.00	0.00	78,127.00	100.00	0.00	0.00
890	Painting	15,681.00	15,681.00	0.00	0.00	15,681.00	100.00	0.00	0.00
900	FE Cabinets	1,455.00	1,455.00	0.00	0.00	1,455.00	100.00	0.00	0.00
910	Design (Fire Protection)	9,500.00	9,500.00	0.00	0.00	9,500.00	100.00	0.00	0.00
920	Fire Pump	69,000.00	69,000.00	0.00	0.00	69,000.00	100.00	0.00	0.00
930	Pump Install	1,500.00	1,500.00	0.00	0.00	1,500.00	100.00	0.00	0.00
940	Run In	2,500.00	2,500.00	0.00	0.00	2,500.00	100.00	0.00	0.00
950	1st Floor Material	41,662.00	41,662.00	0.00	0.00	41,662.00	100.00	0.00	0.00
960	1st Floor Labor	10,686.00	10,686.00	0.00	0.00	10,686.00	100.00	0.00	0.00
970	2nd Floor Material	41,662.00	41,662.00	0.00	0.00	41,662.00	100.00	0.00	0.00
980	2nd Floor Labor	10,686.00	10,686.00	0.00	0.00	10,686.00	100.00	0.00	0.00
981	Attic Material	4,276.00	4,276.00	0.00	0.00	4,276.00	100.00	0.00	0.00
982	Attic Labor	6,390.00	6,390.00	0.00	0.00	6,390.00	100.00	0.00	0.00
990	Elevator Shop Drawings	9,973.00	9,973.00	0.00	0.00	9,973.00	100.00	0.00	0.00
991	Elevator Material	22,934.00	22,934.00	0.00	0.00	22,934.00	100.00	0.00	0.00
992	Elevator Labor	5,983.00	5,983.00	0.00	0.00	5,983.00	100.00	0.00	0.00
1000	Mobilization (Plumbing)	4,934.00	4,934.00	0.00	0.00	4,934.00	100.00	0.00	0.00
1010	Crawl Space	61,000.00	61,000.00	0.00	0.00	61,000.00	100.00	0.00	0.00
1020	DSB, FD's	8,000.00	8,000.00	0.00	0.00	8,000.00	100.00	0.00	0.00
1030	Gas Piping	4,000.00	4,000.00	0.00	0.00	4,000.00	100.00	0.00	0.00
1040	Sump Pumps	4,000.00	4,000.00	0.00	0.00	4,000.00	100.00	0.00	0.00
1050	Mobilization (HVAC)	5,000.00	5,000.00	0.00	0.00	5,000.00	100.00	0.00	0.00
1060	Piping Material	2,000.00	2,000.00	0.00	0.00	2,000.00	100.00	0.00	0.00
1070	Piping Labor	1,500.00	1,500.00	0.00	0.00	1,500.00	100.00	0.00	0.00
	Page Total	807,314.00	791,707.45	15,606.55	0.00	807,314.00	100.00	0.00	0.00

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CONTINUATION SHEET

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ARCHITECT'S PROJECT NO:

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A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G / C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
1080	Fabricated Ductwork Material	27,500.00	27,500.00	0.00	0.00	27,500.00	100.00	0.00	0.00
1090	Fabricated Ductwork Labor	12,500.00	12,500.00	0.00	0.00	12,500.00	100.00	0.00	0.00
1100	Install Ductwork Material	1,200.00	1,200.00	0.00	0.00	1,200.00	100.00	0.00	0.00
1110	Install Ductwork Labor	40,550.00	40,550.00	0.00	0.00	40,550.00	100.00	0.00	0.00
1120	Make-Up Air Units Materials	280,000.00	280,000.00	0.00	0.00	280,000.00	100.00	0.00	0.00
1130	Make-Up Air Units Labor	2,500.00	2,500.00	0.00	0.00	2,500.00	100.00	0.00	0.00
1140	AHU Split System Material	25,343.00	25,343.00	0.00	0.00	25,343.00	100.00	0.00	0.00
1150	AHU Split System Labor	1,500.00	1,500.00	0.00	0.00	1,500.00	100.00	0.00	0.00
1160	Air Distribution Material	16,700.00	16,700.00	0.00	0.00	16,700.00	100.00	0.00	0.00
1170	Air Distribution Labor	7,500.00	7,500.00	0.00	0.00	7,500.00	100.00	0.00	0.00
1180	Set Equipment	5,000.00	5,000.00	0.00	0.00	5,000.00	100.00	0.00	0.00
1190	Controls	41,295.00	41,295.00	0.00	0.00	41,295.00	100.00	0.00	0.00
1200	Insulation	79,400.00	79,400.00	0.00	0.00	79,400.00	100.00	0.00	0.00
1210	TAB	4,100.00	4,100.00	0.00	0.00	4,100.00	100.00	0.00	0.00
1220	Duct Cleaning	13,275.00	13,275.00	0.00	0.00	13,275.00	100.00	0.00	0.00
1230	Start Up and Testing	1,000.00	1,000.00	0.00	0.00	1,000.00	100.00	0.00	0.00
1240	Mobilization (Electrical)	15,000.00	15,000.00	0.00	0.00	15,000.00	100.00	0.00	0.00
1250	Demobilization (Electrical)	250.00	250.00	0.00	0.00	250.00	100.00	0.00	0.00
1260	Administration	6,000.00	6,000.00	0.00	0.00	6,000.00	100.00	0.00	0.00
1270	Conduit	100,000.00	100,000.00	0.00	0.00	100,000.00	100.00	0.00	0.00
1280	Wire & Cable	54,911.00	54,911.00	0.00	0.00	54,911.00	100.00	0.00	0.00
1290	Lighting Fixtures	70,000.00	70,000.00	0.00	0.00	70,000.00	100.00	0.00	0.00
1300	Panels and Switches	20,000.00	20,000.00	0.00	0.00	20,000.00	100.00	0.00	0.00
1310	Temporary Wiring	70,000.00	70,000.00	0.00	0.00	70,000.00	100.00	0.00	0.00
1320	Receptables & Switches	500.00	500.00	0.00	0.00	500.00	100.00	0.00	0.00
1330	Change Order 1	2,382.25	2,382.25	0.00	0.00	2,382.25	100.00	0.00	0.00
1340	Change Order 2- Cornerstone	0.03	0.03	0.00	0.00	0.03	100.00	0.00	0.00
1341	Change Order 2- Chimney 5	3,431.28	3,431.28	0.00	0.00	3,431.28	100.00	0.00	0.00
	Page Total	901,837.56	901,837.56	0.00	0.00	901,837.56	100.00	0.00	0.00

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CONTINUATION SHEET

Page 7 of 8 Pages

APPLICATION AND CERTIFICATE FOR PAYMENT

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APPLICATION NO: 16

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ARCHITECT'S PROJECT NO:

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ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G / C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
1342	Change Order 2- Asbestos	31,581.96	31,581.96	0.00	0.00	31,581.96	100.00	0.00	0.00
1343	Change Order 2- FP Water Line	8,809.20	8,809.20	0.00	0.00	8,809.20	100.00	0.00	0.00
1344	Change Order 3-Duct Bank Rev.	49,211.04	49,211.04	0.00	0.00	49,211.04	100.00	0.00	0.00
1345	Change Order 4-PileCap32Rev.	3,293.24	3,293.24	0.00	0.00	3,293.24	100.00	0.00	0.00
1346	CO 4-PC 11 Add Shotc. Reinf.	678.47	678.47	0.00	0.00	678.47	100.00	0.00	0.00
1347	CO 4-Bar Joist Removal	24,703.54	24,703.54	0.00	0.00	24,703.54	100.00	0.00	0.00
1348	CO 5-Shotcrete Corbel (Area 1)	38,672.96	38,672.96	0.00	0.00	38,672.96	100.00	0.00	0.00
1349	CO 6-Shotcrete Corbel (Area 2)	19,333.61	19,333.61	0.00	0.00	19,333.61	100.00	0.00	0.00
1350	CO 6-Revision to SW 1-4	18,699.83	18,699.83	0.00	0.00	18,699.83	100.00	0.00	0.00
1351	CO 9--Corbel Formwork	9,380.91	9,380.91	0.00	0.00	9,380.91	100.00	0.00	0.00
1352	CO 7-Anodized Handrails	1,383.89	1,383.89	0.00	0.00	1,383.89	100.00	0.00	0.00
1353	CO 7-Fire Protection Scope Red	(84,897.00)	(84,897.00)	0.00	0.00	(84,897.00)	100.00	0.00	0.00
1354	CO 7-HVAC Scope Red	(67,844.00)	(67,844.00)	0.00	0.00	(67,844.00)	100.00	0.00	0.00
1355	CO 7-Electrical Scope Red	(24,750.00)	(24,750.00)	0.00	0.00	(24,750.00)	100.00	0.00	0.00
1356	CO 8-Delete Brick Screen Wall	(10,754.71)	(10,754.71)	0.00	0.00	(10,754.71)	100.00	0.00	0.00
1357	CO 8-Slab Overlays at S.W.s	29,198.03	29,198.03	0.00	0.00	29,198.03	100.00	0.00	0.00
1358	CO 8-Elev Equip Rm Relocation	5,029.15	5,029.15	0.00	0.00	5,029.15	100.00	0.00	0.00
1359	CO 8-Window infills to CMU	4,558.17	4,558.17	0.00	0.00	4,558.17	100.00	0.00	0.00
1360	CO 8-Mod Decking over Stage	12,130.74	12,130.74	0.00	0.00	12,130.74	100.00	0.00	0.00
1361	CO Floor Leveling	112,150.20	112,150.20	0.00	0.00	112,150.20	100.00	0.00	0.00
1362	CO 9-Inc Shotcrete Thickness	886.47	886.47	0.00	0.00	886.47	100.00	0.00	0.00
1363	CO 10-Stairwell Demo	10,232.40	10,232.40	0.00	0.00	10,232.40	100.00	0.00	0.00
1364	CO 11-Epoxy Dowels	10,584.31	10,584.31	0.00	0.00	10,584.31	100.00	0.00	0.00
1370	CO 12 Mod Chimney Col Base Pl.	1,551.87	1,551.87	0.00	0.00	1,551.87	100.00	0.00	0.00
1375	CO 12 Thicken Shotcrete 2nd Fl	17,875.95	17,875.95	0.00	0.00	17,875.95	100.00	0.00	0.00
1380	CO 12 New Doors, Infill Arch	38,436.05	38,436.05	0.00	0.00	38,436.05	100.00	0.00	0.00
1385	CO 13 Add Steel Lintel	2,301.97	2,301.97	0.00	0.00	2,301.97	100.00	0.00	0.00
1390	CO 13 Demo Load Bearing Walls	43,484.06	43,484.06	0.00	0.00	43,484.06	100.00	0.00	0.00
	Page Total	305,922.31	305,922.31	0.00	0.00	305,922.31	100.00	0.00	0.00

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CONTINUATION SHEET

APPLICATION AND CERTIFICATE FOR PAYMENT

containing Contractor's signed Certification, is attached.

Use Column 1 on Contracts where variable retainage for line items may apply.

(Version 11.1.1.1)

APPLICATION NO: 16

APPLICATION DATE: 7/31/2012

PERIOD TO: 7/31/2012

ARCHITECT'S PROJECT NO:

INVOICE NUMBER: 2229-016

JOB ID: 2229

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (NOT IN D OR E)	G		H BALANCE TO FINISH (C - G)	I RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD		TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G / C)		
1395	CO 14 Additional Floor Prep	20,146.35	20,146.35	0.00	0.00	20,146.35	100.00	0.00	0.00
1400	CO 14 Add Light Fixtures	9,448.26	9,448.26	0.00	0.00	9,448.26	100.00	0.00	0.00
1405	CO 14 Increase Shotcrete	4,645.49	4,645.49	0.00	0.00	4,645.49	100.00	0.00	0.00
1410	CO 14 PVC Conduit to Metal	12,972.76	12,972.76	0.00	0.00	12,972.76	100.00	0.00	0.00
1415	CO 15 Add Shotcrete Shearwall	4,722.67	4,722.67	0.00	0.00	4,722.67	100.00	0.00	0.00
1420	CO 15 Install Additional Steel	3,194.95	3,194.95	0.00	0.00	3,194.95	100.00	0.00	0.00
1425	CO 15 Modify Attic Ladders	1,890.83	1,890.83	0.00	0.00	1,890.83	100.00	0.00	0.00
1430	CO 15 Add 3 A Windows	10,803.43	0.00	10,803.43	0.00	10,803.43	100.00	0.00	0.00
1435	CO 15 Storm Investigation	13,719.09	13,719.09	0.00	0.00	13,719.09	100.00	0.00	0.00
1440	CO 15 Add 4 Down Spouts	4,542.36	4,542.36	0.00	0.00	4,542.36	100.00	0.00	0.00
9998	PENDING CHANGE ORDERS								
	Page Total	86,086.19	75,282.76	10,803.43	0.00	86,086.19	100.00	0.00	0.00
	Grand Total	9,891,138.20	9,778,927.18	112,211.02	0.00	9,891,138.20	100.00	0.00	0.00

ROA000680

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INVOICE/PAYMENT APPLICATION TRACKER

Project Name: River Education Center Project Number: 5648
Vendor: MB Kehn Payment Amount: \$410,297.99
P.O. Number: 5271072 Invoice/Pay. App. Number: 016

8/6/12 Date Invoice/pay application is received from vendor

9/1/12 Invoice/payment application due date (per AIA agreement)

8/6/12 Date Invoice/pay application is forwarded to Architect for approval

8/6/12 Date invoice/pay application is received back from Architect

8/6/12 Date invoice/pay application is given to Heery Accountant

8/6/12 Date Heery personnel approve invoice/pay application

8/8/12 Date Heery Program Manager approve Invoice/pay application

8/9/12 Date invoice/pay application is forwarded to Bill Lewis for approval (Project Accountant only)

8/15/12 Date invoice/pay application is forwarded to CCSD Accounts Payable (Project Accountant only)

8/16/12 Date check was cut (Project Accountant only)

RECEIVED
AUG 15 2012

Accounts Payable

NOTE: This checklist must be kept attached to each invoice/payment application for tracking purposes and returned to Heery International upon approval by CCSD Accounts Payable Department.

Procurement Review Hearing

March 11, 2014

Response to Claim for Additional Pile Length

- Terratec, Inc. requesting \$338,580.00 for 12' of additional pile length



ROA000682



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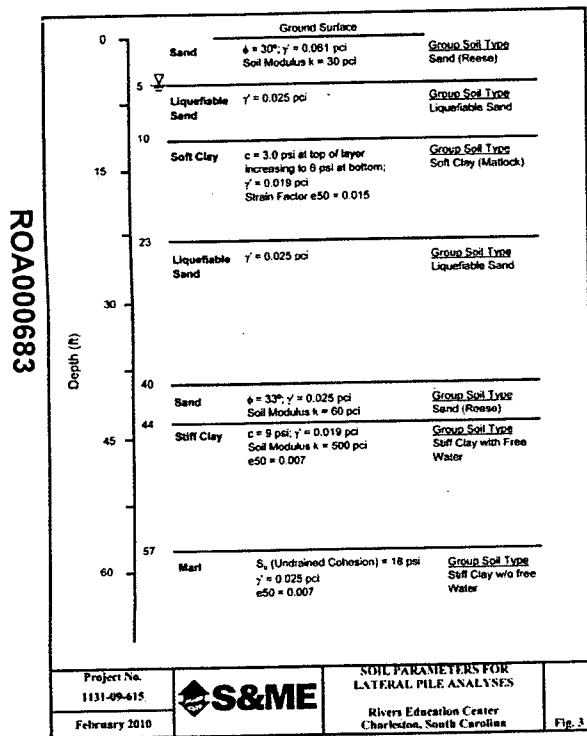
davisfloyd.com

Terratec claims that the bid documents are ambiguous to the depth of the piles when comparing the S&ME Geotechnical Report and Davis & Floyd's Micropile Elevation Detail S-402

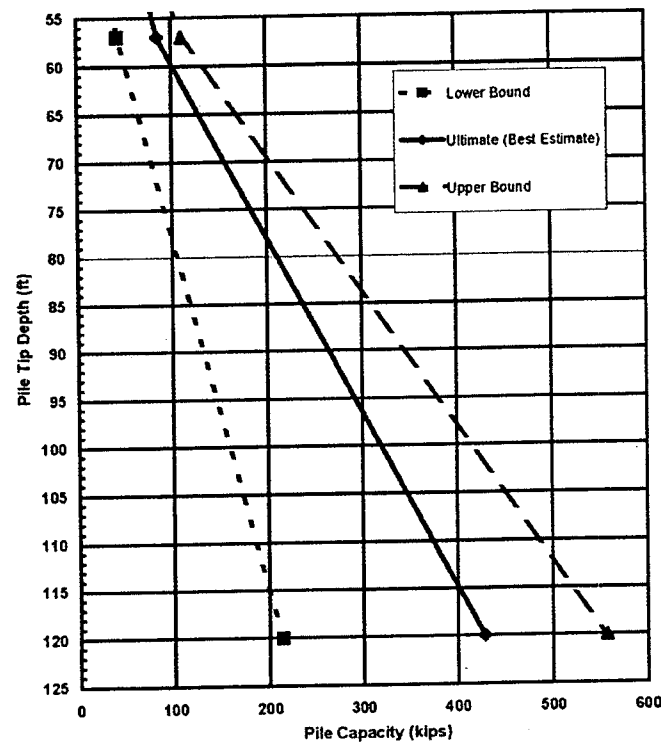
These documents reference the same information and are not ambiguous.

-S&ME Report References Feet Below Ground Surface

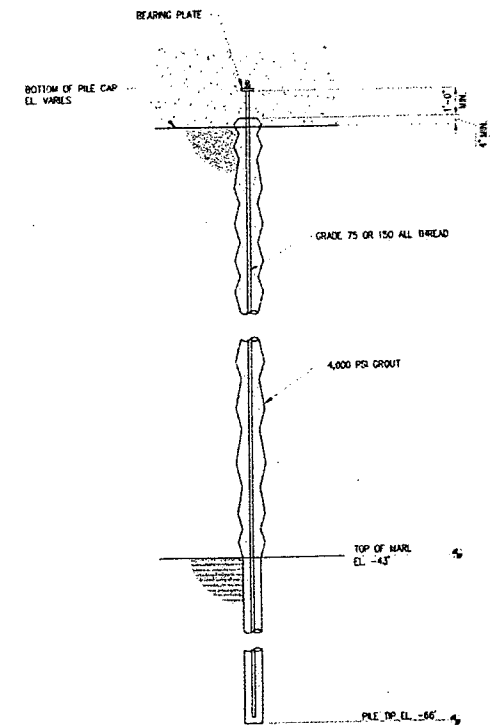
-D&F Drawings Reference Topographic Elevations



S&ME Geotechnical Report included in Bid Documents



S&ME Geotechnical Report included in Bid Documents



Typical Micropile Elevation Shown on S-402

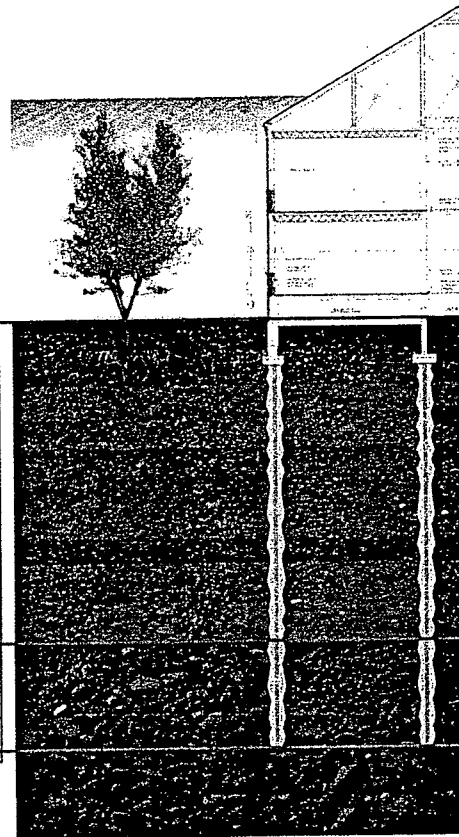
ROA000684

EI 12 (NAVD 88)
0' bgs

EI -43 (NAVD 88)
55' bgs

EI -66 (NAVD 88)
78' bgs

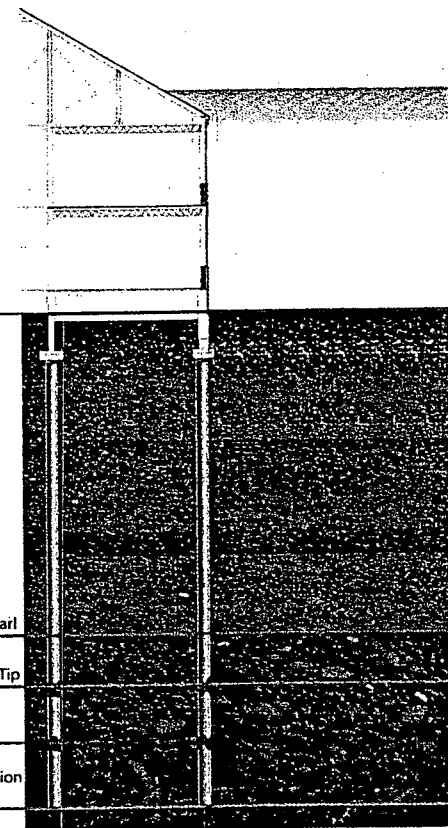
Depth (ft)	Ground Surface	
	Soil	Soil Moisture
0	Gravelly Sand	Gravelly Sand
10	Gravelly Sand	Gravelly Sand
20	Gravelly Sand	Gravelly Sand
30	Gravelly Sand	Gravelly Sand
40	Gravelly Sand	Gravelly Sand
50	Gravelly Sand	Gravelly Sand
60	Gravelly Sand	Gravelly Sand
70	Gravelly Sand	Gravelly Sand
80	Gravelly Sand	Gravelly Sand
90	Gravelly Sand	Gravelly Sand
100	Gravelly Sand	Gravelly Sand
110	Gravelly Sand	Gravelly Sand
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880	Gravelly Sand	Gravelly Sand
890	Gravelly Sand	Gravelly Sand
900	Gravelly Sand	Gravelly Sand
910	Gravelly Sand	Gravelly Sand
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940	Gravelly Sand	Gravelly Sand
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970	Gravelly Sand	Gravelly Sand
980	Gravelly Sand	Gravelly Sand
990	Gravelly Sand	Gravelly Sand
1000	Gravelly Sand	Gravelly Sand



Typical Micropile
(S-402 Detail)

Grade

Top of Cooper Marl
Terratec Bid Pile Tip
Micropile Tip
Terratec Production
Pile Tip



Terratec Pile

EI 12 (NAVD 88)
0' bgs

EI -43 (NAVD 88)
55' bgs

EI -54 (NAVD 88)
66' bgs

EI -74 (NAVD 88)
86' bgs

S&ME Geotechnical Report
included in Bid Documents

Letter from Terratec to Bidding Contractors

"We understand that the geotechnical exploration details anticipate pile capacities to reach the design standards (200 kips axial compression and tension) with....a mean anticipated installation depth of 78 feet. However the project specifications and drawings dictate that our proposal include a bid for the installation of the micropiles to depths of 66 feet below ground surface."

Drawings indicate micropile tip depths at Elevation (EL. -66), not "Feet Below Ground Surface"

ROA000685

TERRATEC, INC.
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

TERRATEC, INC.
LICENSE # 13819 - Active

MICROPILE/CONTRACT
Rivers Education Center Seismic Retrofit
and Fire Pump Building
Charleston County School District
Charleston, South Carolina

To: Bidding Contractors

As requested, our design and installation team has reviewed the project specifications and drawings, dated January 3, 2011, and visited the site on two different occasions to inspect the on-site existing structure's conditions. Based upon our review of the available bid documents, and our review of the project, we understand that the existing structure was built in the 1930s, and it has been abandoned and is no longer in use. Furthermore, we understand that the project is to include the renovation and seismic up-fit of the existing structure, which requires the installation of hundreds of micropile supports. Our inspections further revealed that the first floor of the structure is suspended approximately 3 to 6 feet above the ground surface in most portions of the building, and that the existing floor system will need to be demolished in order for our personnel to gain access and install the subject micropiles. From our review of the project documents we understand that other existing construction (i.e. floor beams, existing piles and pile caps, concrete sidewalks, existing infrastructure, etc.) will need to be identified and removed in order for the construction of the micropiles to be completed.

We understand that the geotechnical exploration details anticipate pile capacities to reach the design standards (200 kips axial compression and tension) with the installation of 8 inch diameter micropiles to depths ranging from 70 feet to 115 feet, with a mean anticipated installation depth of 78 feet. However, the project specifications and drawings dictate that our proposal include a bid for the installation of the micropiles to depths of 66 feet below ground surface. Our design team explored all possible installation methods, including the Titan hollow core system allowed for in the addendum, and determined that the best method for installation of the micropiles would require the use of drilling equipment to create an adequate borehole to achieve the required 8 inch diameter micropile specified by project documents. The use of other installation methods are not anticipated to achieve the required diameter due to borehole cave from the relaxation of the overconsolidated Cooper Marl. This condition could hinder the establishment of a competent pile, resulting in performance penalties. Detailed installation methods will be made available for review in the event that the contract is awarded to Terratec, Inc.



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Letter from Terratec to Bidding Contractors

"Furnish labor, supervision, engineering and material for the design and installation of (627) Six hundred Twenty Seven, 8" diameter micropiles 23 feet into the Cooper Marl strata which is anticipated to be 43 below grade as specified in the design documents...."

Drawings indicate Cooper Marl strata at Elevation (EL. -43), not "Below Grade"

Based upon our understanding summarized above, and in subsequent sections of this proposal, Terratec, Inc. proposes to provide the following base line micropile installation services;

* Furnish labor, supervision, equipment, engineering and material for the design and installation of (4) Four, 8" diameter micropiles for load testing. The test micropiles will be installed to depths matching the planned production micropiles (i.e. 66 feet, 23 feet into the Cooper Marl strata), and they will be load tested for compression and tension in general accordance with the specified ASTM standards.

* Furnish labor, supervision, equipment, engineering and material for the design and installation of (627) Six hundred Twenty Seven, 8" diameter micropiles 23 feet into the Cooper Marl strata, which is anticipated to be 43 feet below grade as specified in the design documents indicated above. As stated above, the geotechnical exploration recommendations detail the potential for the need to extend the micropiles further into the Cooper Marl; however, the project specifications require that the piles be extended to depths of 66 feet. Therefore, our base bid only considers the installation of 66 foot micropiles. An additional \$45.00 will be charged per foot - per pile for any piling installed beyond the estimated depth to refusal. Our work will require that we remove all cuttings from the pile cap excavations, as the work proceeds, to an on-site designated staging area(s) for removal from the site by others.

* The micropile installation will take 78 production days, which will accommodate the timeline established in the critical path requirements established in the bid documents. This schedule does not include the 28 days for the curing period of the test piles. Also, this does not include any unforeseen delays outside the control of Terratec. (Inclimatic weather, field conditions requiring redesign from project Engineer/ Architect, delay due to other subcontractors.) Additionally, it is important to note that in order for our work to flow on a continued basis there will be other subcontractors required for other important aspects of this project. These include floor slab shoring and removal, pile cap excavation (dewatering) along with others subs working on electrical, mechanical and wall construction. Terratec will work along with these subcontractors per direction from the General contractor. General Contractor shall provide Terratec access to the building and workplace for extended hours as needed.

Exceptions: Terratec, Inc. will not be responsible for any tile, carpet, concrete, floor systems, doors, paneling, appliance, air conditioners, outside plantings, etc. that are to be removed, protected and/or replaced. Additionally, we will not be responsible to remove any existing pile caps, utilities, obstructions, trees or tree roots that need to be moved that are in the location of the piles.

Special Consideration: For this project, Terratec has established a design team comprised of South Carolina registered Structural and Geotechnical engineers, and Licensed Well Drillers that will be made available to assist the contractor with other aspects of this project at an additional cost. Terratec has enjoyed a 10 year continued relationship with these registered engineers and offer them as needed in the event their services are required to overcome an obstacle or time constraint.

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Rejected Test Pile Submittal

...as the Marl is understood to be present
at a depth of roughly 43 feet bgs...

D&F Submittal Markup:

"Elevation is given as EL. -43 or roughly
55 ft bgs. See Geotech Report."

ROA000687

TEST PILE CONSTRUCTION

Based upon our understanding of the project, and our experience with similar project and geologic conditions, Teresco offers the following construction details for consideration.

Micropile Borehole Construction Methods

Our design team explored most practical installation methods and determined that the best method for installation of the micropiles would require the use of drilling equipment to create an adequate borehole to achieve the required 8 inch diameter micropile specified by project documents. The use of other installation methods are not anticipated to achieve the required diameter due to borehole cave from the relaxation of the overconsolidated Cooper Marl. This condition could hinder the establishment of a competent pile, resulting in performance penalties. Therefore, the test piles will be installed utilizing drilling methods that will be employed during the construction of the production piles.

Micropile Construction Details

Upon completion of the borehole, the test micropile will be constructed in-place, and will be comprised of a single, centrally located, 1.75 inch diameter, 75 grade threaded rod extended to the micropile tip elevation that will be encapsulated in a plastic grout to the planned pile head elevation. Specific manufacturer and building component details are provided in the subsequent sections of this program.

Threaded Rod: The threaded rod proposed for this project, as stated above, will consist of 1.75 inch diameter, 75 grade rod manufactured by Williams Form Engineering Corp. The rod will be installed in sections, and will be coupled, where necessary, with a grade 150 coupler that will also be manufactured by Williams Form Engineering Corp. Based upon a structural analysis of this rod, ultimate axial and tensile loading that the proposed rod may be exposed to, prior to experiencing excessive deformation, is approximately 225 kips. Alternative reinforcement materials that will also yield adequate loading capacities include: a #18, 40 grade rebar, and a 2.25 inch diameter, grade 62.5 threaded rod. Schematics and a representative of the soil data for the specified rod and coupler is attached in Appendix A.

Plastic Grout: For this project, Teresco has selected a plastic grout yielding an average 28-day compressive strength of 4,000 psi. The grout will be comprised of a mixture of Type I portland cement blended to specified design ratios with a fine sand aggregate, and will be supplied by Ready Mixed Concrete Company.

In order to encapsulate the threaded rod, the plastic grout will be injected into the annular space of the auger utilizing a grout pump that will operate at a minimum pressure of 500 psi during grouting operations. A recording of the grouting pressure will be made in the field at the time of injection. In addition, an adequate number of representative grout specimen will be compiled during pile installation of the test/reaction piles.

A copy of the grout mix material specifications and the mix design test data results is attached in Appendix A.

Test and Reaction Pile Details, Location and Configuration: A total of four (4) test piles and five (5) reaction piles are planned to be constructed to the specifications detailed in this section at the locations, and in the configuration, indicated in the attached Test Pile Location Plan, which is attached in Appendix A.

An array of test pile embedment depths were selected for this load test program. At this time, we propose to install 4 test piles with embedment depths of 66, 70, 75 and 80 feet below ground surface (bgs). The designation of these depths will allow for the project design team to establish a best fit line defining the available axial and tensile capacities developed by the 8" micropiles versus their embedment in the Cooper Marl, as the Marl is understood to be present at a depth of roughly 43 feet bgs. For loading purposes, the test piles will be sleeved and extended an adequate depth above ground surface (ags) to allow proper loading.

Elevation is given
as EL. -43 ft
or roughly 55 ft bgs.
See Geotech Report

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Response to Claim

Terratec, Inc.: Additional 12' Pile Length- \$338,580.00

Terratec claim is not valid for the following reasons:

- S&ME Geotechnical Report and Micropile Elevation on Sheet S-402 reference the same information and are not ambiguous.
- Terratec, Inc. did not account for ground surface at EL. 12 (NAVD 88).

ROA000688



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Letter of Transmittal

P.O. Box 61599 Charleston, SC 29419 3229 West Montague Avenue Charleston, SC 29418 (843) 554-8602 (office) (843) 747-6485 (fax)

To: Heery International
3125 Ashley Phosphate Rd.
North Charleston, SC 29418

Re: Rivers Education Center
Seismic Retrofit

Job Number: 030615.19

Attention: Ed Dempster

File Number:

Date: Apr 27, 2011

We are sending to you via

the following items:

Copies	Description of Items
1	02369--Micropile Load Test Plan

Remarks: Transmittal #2 - Rejected

Please revise and resubmit

Copy to: File

Todd Warren

ROA000689



TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

APPROVED _____	
APPROVED AS NOTED _____	
<u>REJECTED</u>	✓
Checking is only for conformance with the design concept of the project and compliance with the information given in the Contract Documents. Approval is general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc., necessary for proper fitting and construction of the Work as required by the Contract, for achieving the result and performance specified thereunder and to coordination of the work of all trades.	
_____ DAVIS & FLOYD, INC. <i>Ed J. Warren</i>	
(SIGNATURE) Checked by <i>HW</i> Date <i>4/27/11</i>	

** - Revise & Resubmit*

TERRATEC
1350 METHODIST PARK ROAD
WEST COLUMBIA, SC 29170
803-791-8888 - OFFICE
803-791-1050 - FAX

March 11, 2011

Attn.: Mr. Scott Spigener
M.B. Kahn Construction Company
2950 Farrow Road
Columbia, South Carolina 29203

803-730-4411 mobile
803-776-4870 office
803-776-5507 fax

Pile Load Test Program Submittal
Rivers Education Center Seismic Retrofit and Fire Pump House Project
Charleston County School District
Charleston, South Carolina

Dear Mr. Spigener:

Please allow this submittal to serve as our proposed Pile Load Test Program for the above referenced project. This program contains details relating to the construction and load testing of test piles that meet the specifications established in the project bid documents, in addition to suggestions from our design and installation team.

Purpose of Load Test Program

It is our understanding that the purpose of the load test program at this site is to determine an acceptable embedment depth to achieve the design working loads of 100 kips in compression and tension for the planned 8 inch diameter micropiles.

Project Background

Based upon our review of the available information, and from our review of the project, we understand that the existing structure was built in the 1930s, and that it is abandoned and no longer in use. Furthermore, we understand that the project at the site is to include the renovation and seismic up-fit of the existing structure, and the construction of a fire pump house, which requires the installation of 627 micropiles. Our review of the geotechnical report, and addendum, prepared by S&ME, that was provided as a portion of the project plans and specifications details anticipated pile capacities to reach the design standards (100 kips axial compression and tension) with the installation of 8 inch diameter micropiles installed to depths ranging from 70 feet to 115 feet, with a mean anticipated installation depth of 78 feet. With the proposed micropile bid depth, and subsequent depths detailed in the geotechnical report, our design team has developed a comprehensive pile load test program that will establish a best fit line detailing the available axial and tensile capacities developed by the 8" micropiles versus their embedment in the Cooper Marl.

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TEST PILE CONSTRUCTION

Based upon our understanding of the project, and our experience with similar project and geologic conditions, Terratec offers the following construction details for consideration.

Micropile Borehole Construction Methods

Our design team explored most practical installation methods and determined that the best method for installation of the micropiles would require the use of drilling equipment to create an adequate borehole to achieve the required 8 inch diameter micropile specified by project documents. The use of other installation methods are not anticipated to achieve the required diameter due to borehole cave from the relaxation of the overconsolidated Cooper Marl. This condition could hinder the establishment of a competent pile, resulting in performance penalties. Therefore, the test piles will be installed utilizing drilling methods that will be employed during the construction of the production piles.

Micropile Construction Details

Upon completion of the borehole, the test micropile will be constructed in-place, and will be comprised of a single, centrally located, 1.75 inch diameter, 75 grade threaded rod extended to the micropile tip elevation that will be encapsulated in a plastic grout to the planned pile head elevation. Specific manufacturer and building component details are provided in the subsequent sections of this program.

Threaded Rod: The threaded rod proposed for this project, as stated above, will consist of 1.75 inch diameter, 75 grade rod manufactured by Williams Form Engineering Corp. The rod will be installed in sections, and will be coupled, where necessary, with a grade 150 coupler that will also be manufactured by Williams Form Engineering Corp. Based upon a structural analysis of this rod, ultimate axial and tensile loading that the proposed rod may be exposed to, prior to experiencing excessive deformation, is approximately 225 kips. Alternative reinforcement materials that will also yield adequate loading capacities include; a #18, 60 grade rebar, and a 2.25 inch diameter, grade 62.5 threaded rod. Schematics and a representative of the mill data for the specified rod and couplers is attached in Appendix A.

Plastic Grout: For this project, Terratec has selected a plastic grout yielding an average 28-day compressive strength of 4,000 psi. The grout will be comprised of a mixture of Type I portland cement blended to specified design ratios with a fine sand aggregate, and will be supplied by Ready Mixed Concrete Company

In order to encapsulate the threaded rod, the plastic grout will be injected into the annular space of the auger utilizing a grout pump that will operate at a minimum pressure of 500 psi during grouting operations. A recording of the grouting pressure will be made in the field at the time of injection. In addition, an adequate number of representative grout specimen will be sampled during pile installation of the test/reaction piles.

A copy of the grout mix material specifications and the mix design test data results is attached in Appendix A.

Test and Reaction Pile Depths, Location and Configuration: A total of four (4) test piles and five (5) reaction piles are planned to be constructed to the specifications detailed in this section at the locations, and in the configuration, indicated in the attached Test Pile Location Plan, which is attached in Appendix A.

An array of test pile embedment depths were selected for this load test program. At this time, we propose to install 4 test piles with embedment depths of 66, 70, 75 and 80 feet below ground surface (bgs). The designation of these depths will allow for the project design team to establish a best fit line detailing the available axial and tensile capacities developed by the 8" micropiles versus their embedment in the Cooper Marl, as the Marl is understood to be present at a depth of roughly 43 feet bgs. For loading purposes, the test piles will be sleeved and extended an adequate depth above ground surface (ags) to allow proper loading.

Elevation is given
as EL. -43ft
or roughly 55 ft bgs.
See Geotech Report.

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The reaction piles will be installed to maximum depths of 70 feet bgs, but will establish a minimum embedment depth of 23 feet into the Cooper Marl. Per the represented configuration, two reaction piles, will be installed as support for the reaction frame after the installation of the test pile. The reaction piles will not be installed less than 5 reaction pile diameters distance from the test pile or reference beam supports. These distances are measured between the faces of the test pile and reaction piles. Additional spacing details are provided in the above referenced drawing, and in subsequent sections of this program.

LOAD FRAME, LOADING SYSTEM AND MEASUREMENT SPECIFICATIONS

Load Frame Details

For this project, Terratec will be utilizing an I beam load frame that is capable of transferring both axial and tensile loads up to 300 kips with minimal cross-sectional deflection that is anticipated to not exceed 0.35 inches. The dimensions of the load frame require that the test and reaction piles be spaced approximately 6 feet and/or 6-1/2 feet, on center, depending on the cross-sectional alignment of the frame. The test/reaction pile spacing requirement of the proposed load frame eliminates the interference of loading and pressures that may be encountered within proximity of the test pile, as it exceeds the industry standard minimum, face to face spacing of 3 times the test pile diameter (i.e. 24 inches) and 5 times the reaction pile diameter (i.e. 40 inches).

The design of the reaction frame and reaction piles was selected to resist two times the pile design load indicated in the contract documents without undergoing a magnitude of deflection exceeding 75 percent of maximum travel of the jack.

Loading System Details

The load application system will be comprised of calibrated hydraulic jacking system, having a capacity of at least two times the pile design load indicated in the contract documents. Terratec will use jacks with a minimum travel of 6 in. (150 mm), but not less than 25 percent of the test pile's maximum cross-section dimension. The selected jack(s) will be equipped with spherical bearing plates, to bear firmly and concentrically against the pile bearing plate and load-beam bearing plate. The system will be engaged utilizing an automatic load-maintaining pump with manual supplement to control load application. A pressure gage will be attached to the system so that the pressure reading corresponding to the pile design load indicated in the contract documents is between one-fourth and one-third of maximum gage pressure. A load cell will be placed (either electric or hydraulic, unless one or the other is specified in the contract documents) to measure strains for load monitoring during the load test. A schematic of the loading apparatus is attached in Appendix B of this submittal. In addition, the load cell specifications and calibration are attached for review.

Loading Measurement Apparatus

An apparatus for measuring deflection, consisting of a primary system and at least one auxiliary system; and a network of settlement reference points will be established. Two fixed independent benchmarks will be established at least 50 ft. (15 mm) from the test site to monitor the settlement reference points. The auxiliary system may also be referenced to these benchmarks. All measuring devices, scales, and reference points will be clearly marked and identified with numbers or letters to ensure accurate data recording.

Primary System Measuring Devices: These primary instrument packages are to monitor movement of the pile top and will consist of: 1.) three (3) dial gages having at least 2 in. (50 mm) of travel, and 2.) an adequate number of suitable gage blocks to increase the travel to at least an additional 4 in. (100 mm). The dial gages will be aligned parallel to the longitudinal axis of the test pile and the axis of load application. They will be attached to a simply supported reference beam, completely independent of the test pile and loading apparatus. Care will be taken to ensure the load application system will not interfere with any measuring devices during any part of the test.

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ROA000693

Auxiliary System Measuring Devices: One or more of the following auxiliary measuring systems will be established to measure the deflection of the load testing for this project: 1.) wire, mirror, and scale, 2.) surveyor's level and target rod, or, as an alternative, 3.) electrical or optical levels will be installed on the test pile set up and or reaction frame.

Auxiliary System Option 1 - Wire, Mirror, and Scale: The pile movement will be determined by means of a single strand of wire drawn in front of a graduated scale mounted on a minor. This scale will be at least 6 in. (150 mm) long and machine-divided in graduations of 1/32 of an inch, and will be mounted on a 3 in. x 6 in. (75 mm x 150 mm) mirror with metal-and-glass bonding adhesive or electrical tape. The mirror will be attached directly to the pile head and oriented so that the mirror face is parallel to the reference beam. The wire will be mounted between the ends of the reference beam, with one end fixed and the other placed over a pulley with a weight to maintain tension. Prior to loading, our personnel will locate the wire so that it is level and within 1" (25.5 mm) of the mirror face.

Auxiliary System Option 2 - Surveyor's Level and Target Rod: As an additional unit of measure we may use a level and leveling rod to determine deflections by readings on the two fixed independent benchmarks on an established scale or fixed point on the pile top.

LOAD TESTING OPERATIONS

This procedure presents uniform procedures for conducting and reporting the results of load testing of a pile in static axial compressive and tensile loading conditions. These tests have three primary objectives: To establish load-deflection relationships in the pile-soil system, to determine capacity of the pile-soil system, and to determine load distribution in the pile-soil system. These tests will confirm design assumptions, or provide information to allow those assumptions, so that the design of the planned production piles may be modified prior to installation.

Load Testing Method

The load testing program proposed for this project will be conducted in general accordance with the minimum requirements established in ASTM D3689 *Standard Test Methods for Deep Foundations Under Static Axial Tensile Load*, unless otherwise altered by the design engineer. At this time we propose that the load testing at the project be modified, as stipulated in subsequent sections of this program, and that the test be conducted as a "Quick-Load" test. This modification is offered based on two principles, that include; 1.) the intended application and support conditions that these piles are designed for will experience relatively quick loading when exposed to seismic conditions, and 2.) the installation of two (2) additional test piles exceeds the project specifications and should establish more than adequate information to alter the design production pile prior to installation, if necessary.

Test Pile Acceptance for Loading Criteria

After Installation of the test pile and reaction piles is complete, the piles will be allowed to set for a minimum of 14 days, prior to the attachment of the load apparatus, while load testing will not be conducted until the pile grout has established a minimum compressive strength of 4,000 psi. Grout specimens sampled during pile installation will be tested in compression prior to the load test being conducted, and the results of these tests will be forwarded to the contractor and the design engineer for approval.

Load Testing Apparatus Set Up and Preparation

As stipulated in previous sections of this program, the load will be applied to the test pile, first in compression and second in tension, by jacking against the two reaction piles with one or more calibrated hydraulic jacks. The load application system arrangement and constructed elements of the load-application system will conform with details provided in this program, and to the following details for compressive and tensile loading:

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Compressive Test Pile Loading Preparation: As stated previously, the test piles will be sleeved and extended an adequate depth ags to provide ample pile for both loading conditions. Preparation of the pile butt will continue as detailed below;

- 1.) At the appropriate pile elevation, our personnel will cut off the pile butt and cap it to provide a level bearing surface perpendicular to the pile axis. A steel plate, or a neat cement paste, will be placed over the head of the pile to ensure a level surface to place the jack.
- 2.) To distribute load over the pile's entire cross-section, our personnel will install a solid steel billet (bearing plate) of sufficient thickness (1 in. (25 mm) minimum) to prevent bending between the capped pile and the jack base. The size of the solid steel billet shall be not less than the size of the pile butt or less than the area covered by the jack base.
- 3.) Install the load application system (including hydraulic jack, spherical bearing and load cell) between the bearing plate on the pile and the center of the underside of the load beams. The system will be constructed so that all components are centered along the pile's longitudinal axis, to ensure application of a concentric minimal load.
- 4.) To distribute load over the entire width of the load beams, another solid steel billet of sufficient thickness (1 in. (25 mm) minimum) will be placed as a bearing plate between the load beam and the load application system.
- 5.) Immediately before starting the load test, our personnel will verify that at least 1 in. (25 mm) of clear space exists between the upper bearing plate and load beams, or the upper bearing plate and load application system.

Tensile Test Pile Loading Preparation: Upon completion of the compressive loading test, the test piles will be reconfigured to provide adequate exposure of the threaded rod for tensile testing, as detailed below;

- 1.) At the appropriate pile elevation, our personnel will cut off the pile butt and expose an adequate length of the threaded rod to attach the loading mechanism.
- 2.) The threaded rod will be attached to the load jack and cell by double bolting the threaded rod to an adequately thick bearing plate.
- 3.) Install the load application system (including hydraulic jack, spherical bearing and load cell) between the bearing plate on the pile and the center of the underside of the load beams. The system will be constructed so that all components are centered along the pile's longitudinal axis, to ensure application of a concentric minimal load.
- 4.) To distribute load over the entire width of the load beams, another solid steel billet of sufficient thickness (2 in. (50 mm) minimum) will be placed as a bearing plate between the load beam and the load application system.
- 5.) Immediately before starting the load test, our personnel will verify that at least 1 in. (25 mm) of clear space exists between the upper bearing plate and load beams, or the upper bearing plate and load application system.

Pile Loading Procedure

As proposed above, the pile loading is recommended to be applied under the "Quick-Load" test method on the subject test piles, first in compression and second in tension. Based on our understanding of this method, we plan to load the test piles in increments of 5% of the design load (i.e. 200 kips and (160 kips) in compression and tension, respectively) until reaching failure or the specified design ultimate loads. Upon reaching design or failure loads, the pile will then be unloaded in 25% increments until the load on the pile equals zero. Magnitude and sequence of load and unload increments are as follows:

Loading Increments: Maintain each load increment for 5 minutes, but no more than 15 minutes, after the measureable deflection in the test pile stabilizes (i.e. as defined by a change in deflection of no more than 0.01 in (0.25 mm)). Maintain the 200% design load for 30 minutes after the measureable deflection in the test pile stabilizes.

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ROA000695

Unloading Increments: Maintain each rebound load increment for 5 minutes, but no more than 15 minutes, after the measureable deflection in the test pile stabilizes. After removing the total applied load, allow the pile to stabilize for 15 minutes and record the final (rebound) reading on the measuring devices.

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APPENDIX A - TEST PILE CONSTRUCTION DATA

Typical Test Pile Detail

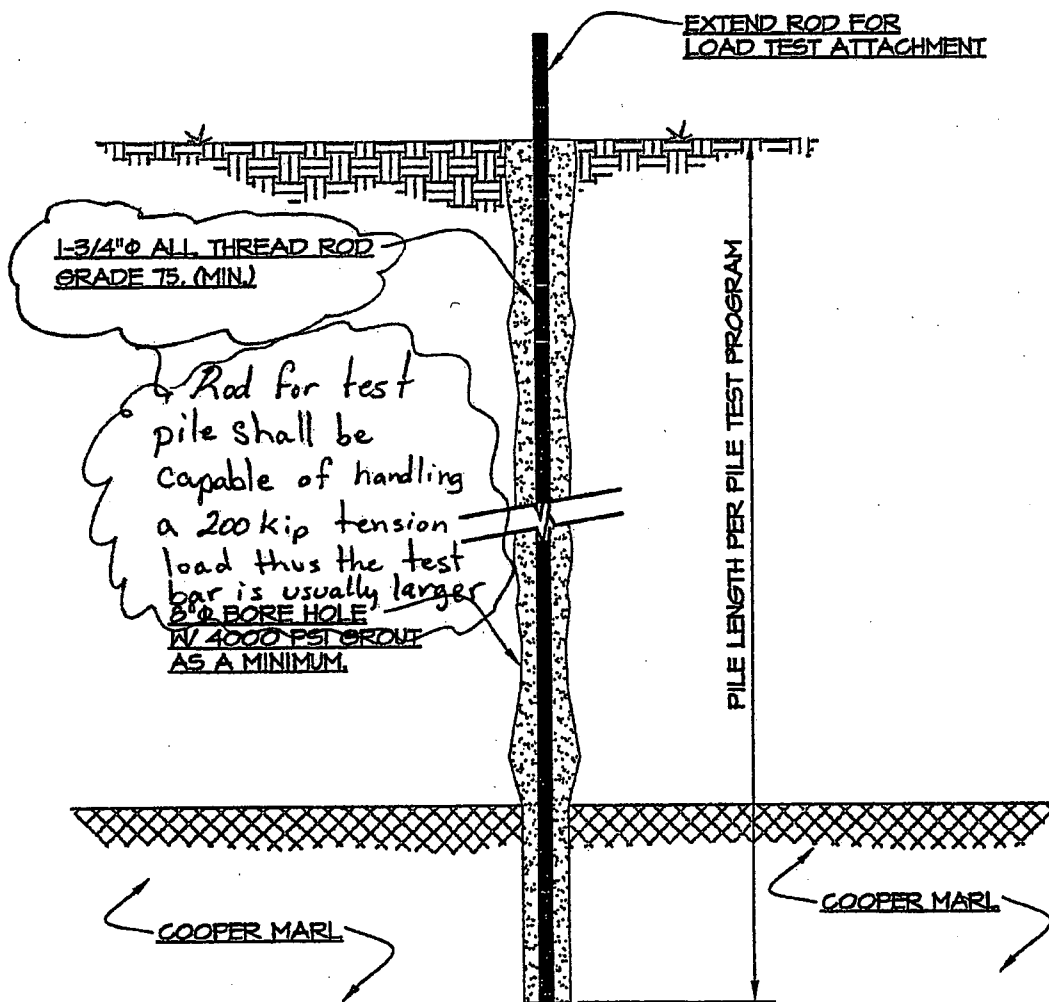
Threaded Rod Specifications and Mill Data

Plastic Grout Materials Specifications and Test Data

Test Pile Location Plan

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ROA000697

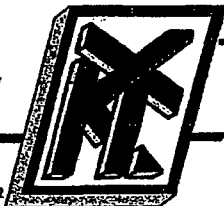


TEST PILE - MICROPILE ELEVATION NOT TO SCALE

**KYZER &
TIMMERMAN**

STRUCTURAL ENGINEERS

680 Chris Drive, West Columbia S.C. 29169 Ph. 803.791.4511 Fax 803.791.4522



JOB:

TEST PILE - MICROPILE ELEVATION

JOB NUMBER:

11-158

DATE:

APRIL 7TH, 2011

SHEET:

5102

PILE ROD CALCULATIONS: USE EQUATIONS FROM SPECS

For 1 3/4" GRADE 75 ALL THREAD

$D = 1\frac{3}{4}" \quad AREA = 2.25 in^2 \quad f_y = 75 ksi \quad P = 100^k \quad P = 200^k$
 ALL $\left(\begin{matrix} \text{ULT} \\ \text{UP ON TANKS} \end{matrix} \right)$

$A_{gross} = \pi (D)^2 = 2.25 in^2 = 48 in^2$

FOR ALLOWABLE COMPRESSION LOADS

$P_{allc} = 0.33 f_c' A_{gross} + CASHING + 0.4 f_{TANK} A_{TANK}$
 $= 0.33 (4 ksi) (48) + 0 + 0.4 (75) (2.25) = 63.4 + 67.5 = 130.9^k$
 $130.9^k = 100^k \quad \text{OK}$

FOR ALLOWABLE TENSION LOADS

$P_{allt} = 0.6 (CASHING + f_{TANK} A_{TANK}) = 0.6 (0 + 75 (2.25)) = 101.25^k > 100^k$
 OK

FOR ULTIMATE COMPRESSION LOADS

$P_{ultc} = 0.85 f_c' A_{gross} + CASHING + f_{TANK} A_{TANK}$
 $= 0.85 (4) (48) + 0 + (75) (2.25) = 163.2^k + 168.8^k = 332^k$
 $332^k > 200^k \quad \text{OK}$

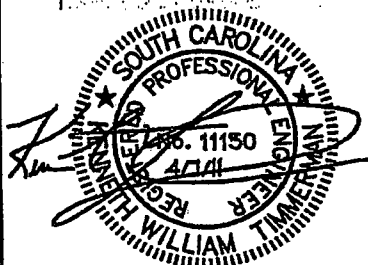
FOR ULTIMATE TENSION LOADS

$P_{ultt} = CASHING + f_{TANK} A_{TANK} = 0 + 75 (2.25) = 168.8^k < 200^k$
 N.G.

NOTE: FOR THIS CONDITION THE
 MILL CERT MUST BE $\frac{200^k}{2.25} = 88.9 ksi$

RESULTS: 1 3/4" RODS MAY BE USED
 PROVIDED $f_y \geq 88.8 ksi$

We need a mill
 cert. to show $f_y \geq 88.9 ksi$

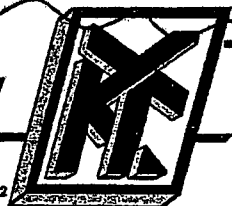


SC COA #600114

**KYZER &
 TIMMERMAN**

STRUCTURAL ENGINEERS

680 Chris Drive, West Columbia S.C. 29169 Ph. 803.791.4511 Fax 803.791.4522



MICROPILE ROD CALCULATIONS

JOB NUMBER 11-15B

DATE APRIL 1TH, 2011

REVISION 5103

Provide ultimate tension Load for a test pile rod
 that can accommodate 200 kip load @ 80% yield stress

ROA000699

NUCOR
NUCOR CORPORATION
NUCOR STEEL NEBRASKA

Mill Certification
1/31/2011

2911 East Nucor Road
 NORFOLK, NE 68701
 (402) 844-0200
 Fax: (402) 844-0329

Sold To: WILLIAMS FORM ENG CORP
 8165 GRAPHIC DR
 BELMONT, MI 49306-0000
 (519) 858-8444
 Fax: (402) 371-3022

Ship To: WILLIAMS FORM ENG CORP
 5501 RUSHE DR
 COMSTOCK PK, MI 48321-0000
 (616) 866-0815
 Fax: (616) 866-1810

Customer P.O.	19336	Sales Order	114137.1
Product Group	Merchant Bar Quality	Part Number	30001687600T630
Grade	ASTM A615-07 Grade 75	Lot ID	NF1120013752
Size	1-11/16" (1.6875) Round	Heat ID	NF11200137
Product	1-11/16" (1.6875) Round 50' A615GR75	B.L. Number	N1-192394
Description	A615GR75	Load Number	N1-141280
Customer Spec		Customer Part #	

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed above and that it satisfies those requirements.

Test outside scope of L-A-B accreditation			C	Mn	P	S	Si	Cr	Ni	Mo	Al	Ca
0.47%	0.81%	0.082%	0.22%	0.039%	0.013%	0.28%	0.13%	0.11%	0.02%	0.002%	0.002%	
Pb	Sn	Ca										
0.000%	0.010%	0.0007%										

*Yield 1: 84,400psi (582MPa)

*Tensile 1: 122,230psi (843MPa)

*Elongation 14% in 8" (% in 203.3mm)

*Bend OK

*Reduction Ratio 20:1

1. All manufacturing processes of the steel materials in this product, including melting, have been performed in the United States.
2. All products produced are weld free.
3. Mercury, in any form, has not been used in the production or testing of this material.
4. L-A-B Accredited Chemical Testing. Certificate L-2232 Expires 12-16-2012.
5. Test conform to ASTM A29-05, ASTM E415 and ASTM E1019 resulfurized grades or applicable customer requirements.

*Design Calcs require 88.9 ksi
 Please provide data to support*

WFEC SIZE
 DESIGNATION # 14

Williams Form Engineering Corp.
 This Quality Assurance document has been
 reviewed and approved electronically as follows:

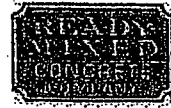
by: [Signature] or 02/11
 Quality Assurance Mgr (date)
 checked by: _____



Letter Of Transmittal

04/07/2011 2:14:54PM

Report 146737 (internal use only)



Please use the submittal number located on the following pages when referring to the set of documents contained within this submittal.

The following items are included in this mix submittal:
Submittal #10108 for Project: Rivers Middle School Retrofit

Detailed Data for Submittal #10108

BASF_Glenium 7500.pdf attachment for Submittal #10108 for Project: Rivers Middle School Retrofit

BASF_Pozzolith 300R.pdf attachment for Submittal #10108 for Project: Rivers Middle School Retrofit

Holcim_Holly Hill.pdf attachment for Submittal #10108 for Project: Rivers Middle School Retrofit

SEFA_Group.pdf attachment for Submittal #10108 for Project: Rivers Middle School Retrofit

Murray Mines_Summerville.pdf attachment for Submittal #10108 for Project: Rivers Middle School Retrofit

BASF_Pozzolith 80.pdf attachment for Submittal #10108 for Project: Rivers Middle School Retrofit

Ready Mixed Concrete Company
2769 Three Lakes Rd.
Charleston, SC 29418

Office Telephone: (843) 744-3535
Office Fax: (843) 747-0478
Dispatch: (843) 747-0424



Submittal No. 10108

Date Issued: 4/7/2011

Contractor: GS2 Engineering

Project: Rivers Middle School Retrofit

Dear Shawn:

We are submitting these mixes in accordance with ACI 318 (Chapter 5), proportioning on the basis of field experience and/or the trial mixture method:

Mix Code Number	Description	Intended Use
50GNF197	5000GROUTNAASH	Auger Cast

When placing orders for this project, please order by product mix code number.

Ready Mixed Concrete Company warrants that the concrete as delivered to this project will meet or exceed the design strength specified on the delivery ticket when evaluated in accordance with ACI-318, ACI-301, and ASTM C-94, latest revision. The measured slump, and the concrete must be tested in strict accordance with the provisions of ASTM standards C-172, C-143, C-31, C-39, C-617, C-231, C-173, C-138, C-1019, C-78, C-567, C-1064, latest revisions.

All samples and testing of samples for acceptance shall be conducted at the point of discharge from the concrete delivery truck.

Should the Purchaser choose not to purchase temperature control measures, the Purchaser shall assume all liability for rejected concrete due to non-compliant concrete temperatures.

Responsibility for concrete when others supply mix designs will be the sole responsibility of those parties supplying the mix design.

Customer assumes total responsibility for concrete placement, finishing, initial and final curing, placement of joints at proper spacing, and any aesthetic concerns/issues (such as cracks, discoloration, etc.) that may arise in the plastic and hardened state.

The contents of this packet, with particular consideration in regard to the mix designs themselves, are considered proprietary in nature and are to be treated as confidential.

This information is being submitted for approval for use on this project. Please provide Ready Mixed Concrete Company an approved copy or a copy with the notes for correction of this submittal, when available.

Concrete will be delivered to the nearest accessible point over passable roads; customer assumes responsibility for all damages to city, state, and personal property, including concrete mixer truck if customer instructs concrete mixer truck to drive beyond curb lines. Customer should provide concrete mixer truck with wash down area.

In accordance with ASTM C-94, please copy our office with all test results obtained on this concrete by independent testing laboratories.

All raw materials are subject to change depending on availability. All substitutes are guaranteed to meet or exceed projects performance specification requirements.

Thank you for your business and cooperation in this matter.

Dewayne Hartzell
Q. A. Manager

1992 - 2011 Digital Site Systems, Inc.

Page 2

Quadrel iService SM

ROA000702

Ready Mixed Concrete Company
2769 Three Lakes Rd.
North Charleston, SC 29418

Office Telephone: (843) 744-3535
Office Fax: (843) 747-0478
Dispatch: (843) 747-0424



Submittal No. 10108

Date Issued: 4/7/2011

Customer: GS2 Engineering
Project: Rivers Middle School Retrofit
Plant: [51 - Charleston]

Mix Code: 50GNF197		Mix Code must be used when ordering concrete.				
Description	Mfg. Source	Tradename	ASTM	Spec. Gravity	oz/cwt	Weight (lb)
Type I-II	Holly Hill, SC	Holcim	C - 150	3.15		960
Fly Ash F	Winyah Station	SEFA	C - 618	2.25		140
Natural Sand	Murray Mines	Murray Sand	C - 33	2.64		2,357
Potable	City	Water	C - 94	1.00		401
Type A Water Reducer	BASF	Pozzolith 80	C - 494	1.00	4.00	
Specified F'c : 5,000 psi @ 28 days		Designed Unit Weight:		142.9 lbs/cu.ft.	TOTAL 3,857	
Specified Slump 8.00 +/- 1.00 in.		Designed W/C + P Ratio:		0.36		
Specified Air: 1.50 +/- 1.50 %		Designed Volume:		27.00 cu.ft.		

NOTES:

Ready Mixed Concrete Company has no knowledge or authority regarding where this mix is to be placed; therefore, it is the responsibility of the project architect, engineer, and/or contractor to ensure that the above designed mix parameters of compressive strength, water-to-cementitious ratio (W/C+P), cement content, and air content are appropriate for the anticipated environmental conditions (i.e. ACI-318 sections 4.1-4.3, and local Building Codes).

Customer assumes total responsibility for concrete placement, finishing, initial and final curing, placement of joints at proper spacing, and any aesthetic concerns/issues (such as cracks, discoloration, etc.) that may arise in the plastic and hardened state.

Customer assumes responsibility for any performance issues (strength, aesthetic, durability, air entrainment etc.) as a result of water added to concrete at the project site that exceeds the w/c+p.

Designed mix cementitious content, is stated as a minimum, and Ready Mix Concrete Company reserves the right to increase cementitious content.

Chemical admixtures are added in accordance with the manufacturer's recommendations. Ready Mixed Concrete Company reserves the right to adjust these dosages to meet the changes in jobsite demands.

All raw materials are subject to change depending on availability. All substitutes are guaranteed to meet or exceed projects performance specification requirements.

Ready Mixed Concrete Company may use admixtures or procedures not listed above to control the mixture during Hot or Cold weather, for pumping, long hauls, or other special applications, unless restricted in writing by the client.

In accordance with ASTM C-94, please copy our office with all test results obtained on this concrete by independent testing laboratories.

COMMENTS:

Dewayne Hartzell
Q. A. Manager



The Chemical Company

February 1, 2010

Certificate of Conformance
Glenium 7500
BASF Construction Chemicals* Admixture for Concrete

(*Previously doing business as BASF Admixtures, Inc. and prior to that as Degussa Admixtures, Inc. and Master Builders, Inc.)

Ready Mixed Concrete Co.
Attn: Ken Vickers
ken.vickers@rmcc.com

TO WHOM IT MAY CONCERN:

State of Ohio)
County of Cuyahoga) ss

Before me, a Notary Public, in and for the aforesaid State and County, personally appeared Mark E. Piechuta; who being duly sworn, deposes and says:

That he is Sr. Technical Marketing Specialist for BASF Construction Chemicals, LLC in Cleveland, Ohio; and

That no calcium chloride or chloride based ingredient is used in the manufacture of GLENIUM 7500; and

That GLENIUM 7500, based on the chlorides originating from all the ingredients used in its manufacture, contributes less than 0.00017 percent (1.7 ppm) chloride ions by weight of the cement when used at the rate of 65 mL per 100 kg (1 fluid ounce per 100 pounds) of cement; and

That GLENIUM 7500 meets the requirements for a Type A, Water-Reducing, and Type F, Water-Reducing, High Range Admixture specified in ASTM C 494, Corps of Engineers' CRD-C 87 and AASHTO M194, the Standard Specifications for Chemical Admixtures for Concrete.

Mark E. Piechuta
BASF Construction Chemicals

Subscribed and sworn to before me
This 1st day of February, 2010

Charlene R. Mandat
Notary Public, State of Ohio
My Commission Expires 11/4/11
(Recorded in Summit County)

* Previously doing business as BASF Admixtures, Inc. and prior to that as Degussa Admixtures, Inc. and Master Builders, Inc.

BASF Construction Chemicals
23700 Chagrin Boulevard
Cleveland, Ohio 44122 USA
216 839-7500 ph
www.masterbuilders.com

**Master
Builders**

Admixture Solutions

ROA000704



The Chemical Company

February 1, 2010

Certificate of Conformance
Pozzolith 300R
BASF Construction Chemicals* Admixture for Concrete

(*Previously doing business as BASF Admixtures, Inc. and prior to that as Degussa Admixtures, Inc. and Master Builders, Inc.)

Ready Mixed Concrete Co.
Attn: Ken Vickers
ken.vickers@rmcc.com

TO WHOM IT MAY CONCERN:

State of Ohio)
County of Cuyahoga) ss

Before me, a Notary Public, in and for the aforesaid State and County, personally appeared Mark E. Plechuta, who being duly sworn, deposes and says:

That he is Sr. Technical Marketing Specialist for BASF Construction Chemicals, LLC in Cleveland, Ohio; and

That no calcium chloride or chloride based ingredient is used in the manufacture of Pozzolith 300R; and

That Pozzolith 300R, based on the chlorides originating from all the ingredients used in its manufacture, contributes less than 0.0002 percent (2.0 ppm) chloride ions by weight of the cement when used at the rate of 65 mL per 100 kg (1 fluid ounce per 100 pounds) of cement; and

That Pozzolith 300R meets the requirements for a Type B, Retarding, and Type D, Water-Reducing and Retarding Admixture specified in ASTM C 494, Corps of Engineers' CRD-C 87 and AASHTO M194, the Standard Specifications for Chemical Admixtures for Concrete.

Mark E. Plechuta
BASF Construction Chemicals

Subscribed and sworn to before me
This 1st day of February, 2010

Charlene R. Mandat
Notary Public, State of Ohio
My Commission Expires 11/4/11
(Recorded in Summit County)

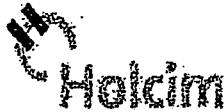
* Previously doing business as BASF Admixtures, Inc. and prior to that as Degussa Admixtures, Inc. and Master Builders, Inc.

BASF Construction Chemicals
23700 Chagrin Boulevard
Cleveland, Ohio 44122 USA
216 839-7500 ph
www.masterbuilders.com

**Master
Builders**

Admixture Solutions

ROA000705



Holcim (US) Inc.
9624 Bailey Road, Suite 275
Cornelius, NC 28031
Phone: 800-845-1120
Fax: 704-895-5961

APPROVED
[Signature]
Ready Mixed Concrete Company
Director, Corporate Quality Assurance
8/24/09

AFFIDAVIT

This is to certify that Type I Portland Cement, as manufactured by Holcim (US) Inc. at our facility at Holly Hill, South Carolina, is warranted to conform at time of shipment, to current A.S.T.M. Specification C-150, A.A.S.H.T.O. Specification M-85 and Federal Specification SS-C-1960/3 for Type I Portland Cement.

Additionally, this same cement is warranted at time of shipment to meet A.S.T.M. Specification C-150 and Federal Specification SS-C-1960/3 for Type II Portland Cement.

The total alkali content expressed as sodium equivalent $[Na_2O + K_2O (0.658)]$ is less than 0.60% and Tricalcium Aluminate (C3A) content does not exceed (8%).

No other warranty is made or to be implied.

[Signature]

Witness

[Signature]

Eddie Deaver
Technical Services Engineer

[Signature]

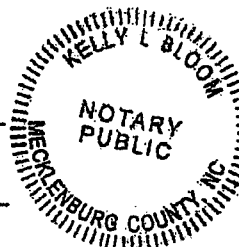
Witness

Sworn to and subscribed before me this 18th day of August 2009

[Signature]

Notary Public of State of North Carolina

My commission expires 3/31/2014



ROA000706



APPROVED
Argos USA
Director, Corporate Quality Assurance
2/28/11

February 2, 2011

Mr. Ken Vickers
Technical Services Manager
Ready Mixed Concrete Company
3610 Bush Street
Raleigh, NC 27069

RE: 2011 Fly Ash Certification

Dear Mr. Vickers

The SEFA Group certifies through this letter that the fly ash from our South Carolina, North Carolina, and Maryland sources comply with the requirements set forth in ASTM C 618, Class F, when sampled and tested in accordance with ASTM C 311. Our fly ash meets the requirements of AASHTO M-295 and the SC, NC, GA, and VA departments of transportation. Unless written notification of change in status is received by you in a letter from The SEFA Group, this certification will apply to any and all phases on construction projects supplied by Ready Mixed Concrete Co., Inc.

Source	Avg. LOI
Wateree CBO, Wateree, SC	2.47%
Winyah CBO, Georgetown, SC	2.44%
Cliffside Station, Mooresboro, NC	2.15%
Cross Station, Pineville, SC	3.27%
Morgantown Station, Newburg, MD	6.12%
McMeekin Station, Columbia, SC	0.92%
Belews Creek Station, Belews Creek, NC	2.56%

The weight % of water soluble chloride is < 0.002.

We appreciate the opportunity to serve you. Please let us know if we can be of further assistance.

Sincerely,

Bert Nunn
Vice President, Operations

Notary Public

Sworn to and Subscribed Before Me,

This 2nd Day of February, 2011

Signed: Brian C. Pendleton
Notary Public of South Carolina

My Commission Expires: October 19, 2015.

Administrative Office
217 Cedar Road
Lexington, SC 29073
Tel (803) 620-8000
Fax (803) 620-8001

Corporate Office
P.O. Box 6
Moncks Corner, SC 29461
Tel (843) 781-1999
Fax (843) 899-7213

MURRAY MINES, INC.
2696 HIGHWAY 17-A, SOUTH
SUMMERVILLE, SC 29483
PHONE (843)873-0056 FAX (843)873-4423

APPROVED
Argon USA
Director, Corporate Quality Assurance
11/9/10

April 28, 2010

Ready Mixed Concrete
2769 Three Lakes Road
North Charleston, SC 29418

Murray Mines, Inc. certifies that the sand purchased by Ready Mixed Concrete designated as FA-10 meets ASTM C33 and SCDOT requirements.

Elaine C. Murray
Elaine C. Murray
Vice President

State of South Carolina
County of Dorchester

On this 28th day of April 2010 before me personally appeared Elaine C. Murray who provided satisfactory evidence of her identification to be the person whose name is subscribed to this instrument, and she acknowledged that she executed the foregoing instrument.

Leigh H. Murray
Leigh H. Murray - Notary Public
Berkeley County, South Carolina
My Commission Expires: March 2, 2015



ROA000708



Project Name:
Project Number:
GS2 Laboratory ID:
Aggregate Type:
Date:

Murray Mines

10-61721

89303

Concrete Sand

29-Mar-2010

Test Procedure	ASTM Designation	Sample Results
Bulk Density	C29	104.5 lb/ft ³
Organic Impurities	C40	Color Plate 2
Soundness (Magnesium Sulfate)	C88	8.3% Total Weighted Percentage Loss
Wash 200	C117	1.1 % Passing # 200 Sieve
Lightweight Particles (shale/chert)	C123	0.20%
Specific Gravity	C128	Specific Gravity = 2.64
Specific Gravity	C128	Bulk SSD Gravity = 2.64
Specific Gravity	C128	Apparent Gravity = 2.65
Specific Gravity	C128	Absorption = 1.6 %
Clay Lumps and Friable Particles	C142	0.10%
Alkali-Silica Reactivity	C289	Innocuous
Water Soluble Chloride Ion Content	C1218	< 0.002%
Mortar Bar Expansion	C1260	0.01%
Sand Equivalent	D2419	94 %
Particle Distribution	C136	Percent Passing
3/8 inch		100
# 4		100
# 8		97
# 16		85
# 30		58
# 50		23
# 100		1
Fineness Modulus		Fineness Modulus = 2.33

S.C. DEPARTMENT OF
TRANSPORTATION
FORM AGG203

TEST REPORT
FINE AGGREGATE
(SC STANDARD 701)

LABORATORY NO. 6B78646
N. CHAS., SC 2/24/2010

FILE NO. 10-426A

PROJECT NO.

PIN 22336

SAMPLE OF	FA-10	SUBMITTED BY	RICKIE GREEN
DATE SAMPLED	2/15/2010	ADDRESS	N. CHAS., S.C.
IDENTIFICATION MARKS	26+46 F-26	TO BE USED IN	12" Full Depth Patch
SAMPLE TAKEN FROM	Mini Stockpile	DATE RECEIVED	2/17/2010
SAMPLED BY	Dan K.	DATE TESTED	2-22-24-2010
QUANTITY REPRESENTED	500 TONS	TESTED BY	M. BROWN
SUPPLY SOURCE	MURRY MINES		
ADDRESS	RIDGEVILLE, SC	SM SAMPLE ID.	610-09-1518

FINE AGGREGATE GRADATION (AASHTO T-27)

TOTAL PASSING 3/8"	100	%
TOTAL PASSING No. 4	100	%
TOTAL PASSING No. 8	98	%
TOTAL PASSING No. 16	80	%
TOTAL PASSING No. 30	48	%
TOTAL PASSING No. 50	15	%
TOTAL PASSING No. 100	2	%
TOTAL PASSING No. 200	0	%

ORGANIC IMPURITIES IN FINE AGGREGATES (AASHTO T-21)

ORGANIC COLORIMETRIC (AASHTO T-21) 2. Impurities are within tolerance.

EFFECT OF ORGANIC IMPURITIES IN FINE AGGREGATE ON STRENGTH OF MORTAR (AASHTO T-71)

STRENGTH TEST AT 7 DAYS %

STRENGTH TEST AT 28 DAYS %

Note: Strength test is not required if color is less than 4.

This sample of FA-10 Does meet SCDOT specifications.

NOTES

COPY TO	CENTRAL LAB FILE	COPY TO	DIST. 6 LAB FILE
COPY TO	MATLAB	COPY TO	
COPY TO	LOCKMAN	COPY TO	

AASHTOT21
Rev. 8/06

M. O. FLETCHER
MATERIALS AND RESEARCH ENGINEER



The Chemical Company

February 1, 2010

Certificate of Conformance
Pozzolith 80
BASF Construction Chemicals* Admixture for Concrete

(*Previously doing business as BASF Admixtures, Inc. and prior to that as Degussa Admixtures, Inc. and Master Builders, Inc.)

Ready Mixed Concrete Co.
Attn: Ken Vickers
ken.vickers@rmcc.com

TO WHOM IT MAY CONCERN:

State of Ohio)
County of Cuyahoga) ss

Before me, a Notary Public, in and for the aforesaid State and County, personally appeared Mark E. Piechuta, who being duly sworn, deposes and says:

That he is Sr. Technical Marketing Specialist for BASF Construction Chemicals, LLC in Cleveland, Ohio; and

That no calcium chloride or chloride based ingredient is used in the manufacture of Pozzolith 80; and

That Pozzolith 80, based on the chlorides originating from all the ingredients used in its manufacture, contributes less than 0.0002 percent (2.0 ppm) chloride ions by weight of the cement when used at the rate of 65 mL per 100 kg (1 fluid ounce per 100 pounds) of cement; and

That Pozzolith 80, depending upon the dosage used, meets the requirements for a Type A, Water-Reducing, Type B, Retarding, and Type D, Water-Reducing and Retarding Admixture specified in ASTM C 494 and Corps of Engineers' CRD-C 87 and AASHTO M194, the Standard Specifications for Chemical Admixtures for Concrete.

Mark E. Piechuta
BASF Construction Chemicals

Subscribed and sworn to before me
This 1st day of February, 2010

Charlene R. Mandat
Notary Public, State of Ohio
My Commission Expires 11/4/11
(Recorded in Summit County)

* Previously doing business as BASF Admixtures, Inc. and prior to that as Degussa Admixtures, Inc. and Master Builders, Inc.

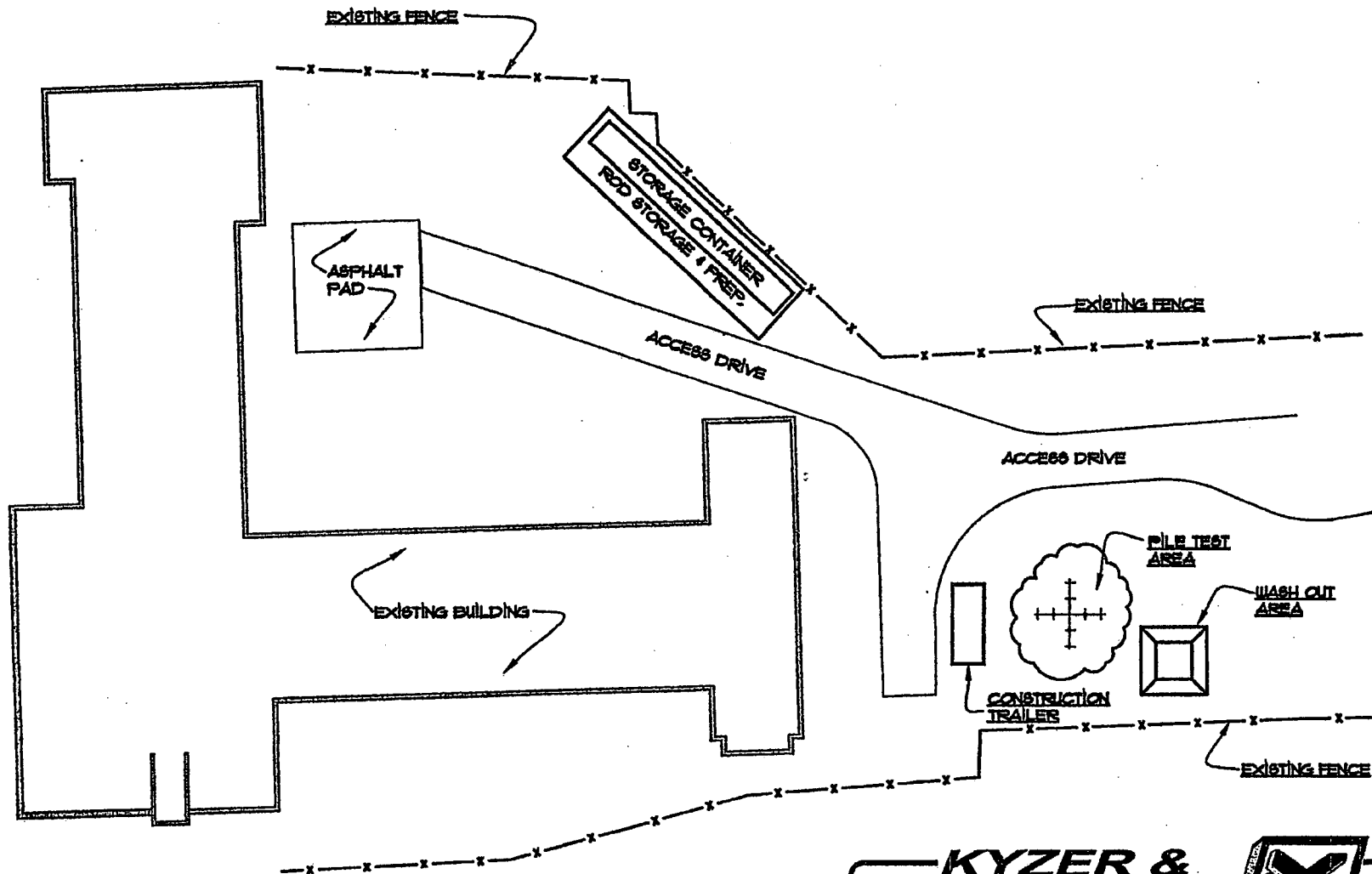
BASF Construction Chemicals
23700 Chagrin Boulevard
Cleveland, Ohio 44122 USA
216-839-7500 ph
www.masterbuilders.com

**Master
Builders**

Admixture Solutions

ROA000711

ROA000712



SITE LAYOUT
NOT TO SCALE

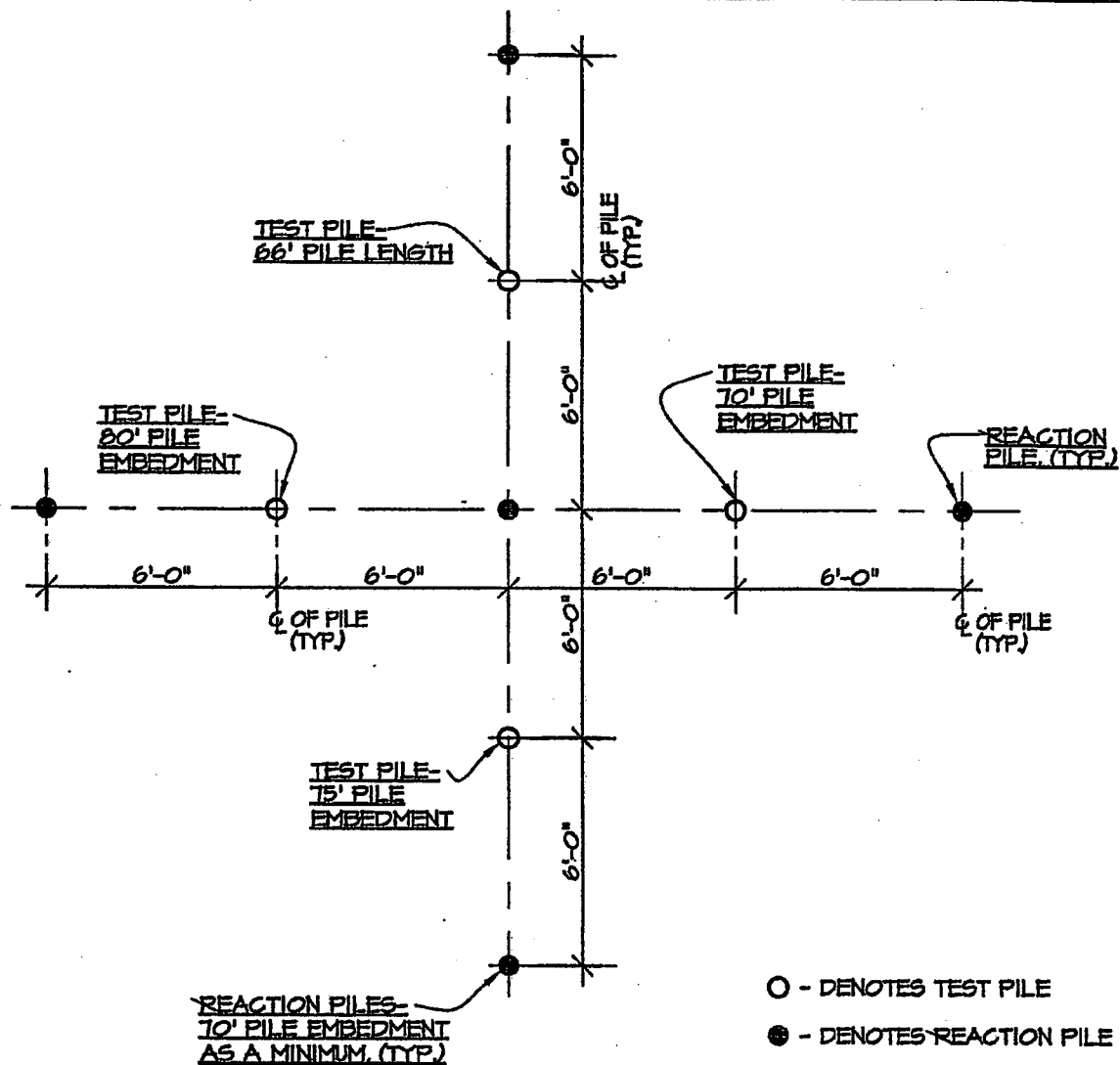
**KYZER &
TIMMERMAN**

STRUCTURAL ENGINEERS

550 Chiles Drive, West Columbia, S.C. 29150 Ph. 803.791.4311 Fax 803.791.4322



SITE LAYOUT		
JOB NUMBER	11-55	DATE
		APRIL 7TH, 2011
		SCALE
		1"=100'



TEST PILE CONFIGURATION

SCALE: 1/4" = 1'-0"

**KYZER &
TIMMERMAN**

STRUCTURAL ENGINEERS

680 Chris Drive, West Columbia S.C. 29169 Ph. 803.791.4511 Fax 803.791.4522



JOB#

TEST PILE CONFIGURATION

JOB NUMBER

11-158

DATE

APRIL 7TH, 2011

SHEET

5101

ROA000713

APPENDIX B - LOAD TESTING APARATUS

Load Frame Details

Load Jack and Cell Specifications and Calibration Data

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Copyright 2011 Terratec
ALL RIGHTS RESERVED**

ROA000714

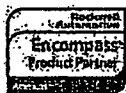
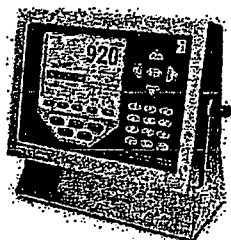
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Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils¹

This standard is issued under the fixed designation D 5778; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the procedure for determining the resistance to penetration of a conical pointed penetrometer as it is advanced into subsurface soils at a slow, steady rate.

1.2 This test method is also used to determine the frictional resistance of a cylindrical sleeve located behind the conical point as it is advanced through subsurface soils at a slow, steady rate.

1.3 This test method applies to friction-cone penetrometers of the electronic type.

1.4 This test method can be used to determine pore pressure development during push of a piezocone penetrometer. Pore pressure dissipation, after a push, can also be monitored for correlation to soil compressibility and permeability.

1.5 Other sensors such as inclinometer, seismic, and temperature sensors may be included in the penetrometer to provide useful information. The use of an inclinometer is highly recommended since it will provide information on potentially damaging situations during the sounding process.

1.6 ~~Cone penetration test data can be used to interpret subsurface stratigraphy and through use of site specific correlations it can provide data on engineering properties of soils intended for use in design and construction of earthworks and foundations for structures.~~

1.7 The values stated in SI units are to be regarded as standard. Within Section 13 on Calculations, SI metric units are considered the standard. Other commonly used units such as the inch-pound system are shown in brackets. The various data reported should be displayed in mutually compatible units as agreed to by the client or user. Cone tip projected area is commonly referred to in centimetres for convenience. The values stated in each system are not equivalents; therefore, each system must be used independently of the other.

NOTE 1—This test method does not include hydraulic or pneumatic penetrometers. However, many of the procedural requirements herein could apply to those penetrometers.

1.8 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the*

responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ASTM Standards:

D 653 Terminology Relating to Soil, Rock, and Contained Fluids²

E 4 Practice for Force Verification of Testing Machines³

3. Terminology

3.1 Definitions:

3.1.1 Definitions are in accordance with Terminology D 653.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *apparent load transfer*—apparent resistance measured on either the cone or friction sleeve of an electronic cone penetrometer while that element is in a no-load condition but the other element is loaded. Apparent load transfer is the sum of cross talk, subtraction error, and mechanical load transfer.

3.2.2 *baseline*—a set of zero load readings, expressed in terms of apparent resistance, that are used as reference values during performance of testing and calibration.

3.2.3 *cone*—the conical point of a cone penetrometer on which the end bearing component of penetration resistance is developed. The cone has a 60° apex angle, a projected (horizontal plane) surface area or cone base area of 10 or 15 cm², and a cylindrical extension behind the cone base.

3.2.4 *cone penetration test*—a series of penetration readings performed at one location over the entire depth when using a cone penetrometer. Also referred to as cone sounding.

3.2.5 *cone penetrometer*—a penetrometer in which the leading end of the penetrometer tip is a conical point designed for penetrating soil and for measuring the end-bearing component of penetration resistance.

3.2.6 *cone resistance, q_c* —the end-bearing component of penetration resistance. The resistance to penetration developed on the cone is equal to the vertical force applied to the cone divided by the cone base area.

3.2.7 *corrected total cone resistance, q_t* —tip resistance

¹ This test method is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.02 on Sampling and Related Field Testing for Soil Evaluations.

Current edition approved Sept. 10, 1995. Published January 1996.

² Annual Book of ASTM Standards, Vol 04.08.

³ Annual Book of ASTM Standards, Vol 03.01.

pore pressure as a function of time. When pore pressure becomes constant it is measuring the equilibrium value or piezometric level at that depth.

5. Significance and Use

5.1 Tests performed using this test method provide a detailed record of cone resistance which is useful for evaluation of site stratigraphy, homogeneity and depth to firm layers, voids or cavities, and other discontinuities. The use of a friction sleeve and pore pressure element can provide an estimate of soil classification, and correlations with engineering properties of soils. When properly performed at suitable sites, the test provides a rapid means for determining subsurface conditions.

5.2 This test method provides data used for estimating engineering properties of soil intended to help with the design and construction of earthworks, the foundations for structures, and the behavior of soils under static and dynamic loads.

5.3 This test method tests the soil in situ and soil samples are not obtained. The interpretation of the results from this method provides estimates of the types of soil penetrated. Engineers may obtain soil samples from parallel borings for correlation purposes but prior information or experience may preclude the need for borings.

6. Interferences

6.1 Refusal, deflection, or damage to the penetrometer may occur in coarse grained soil deposits with maximum particle sizes that approach or exceed the diameter of the cone.

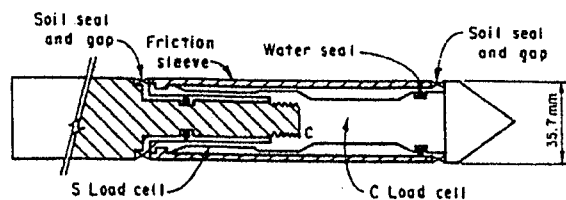
6.2 Partially lithified and lithified deposits may cause refusal, deflection, or damage to the penetrometer.

6.3 Standard push rods can be damaged or broken under extreme loadings. The amount of force that push rods are able to sustain is a function of the unrestrained length of the rods and the weak links in the push rod-penetrometer tip string such as push rod joints and push rod-penetrometer tip connections. The force at which rods may break is a function of the equipment configuration and ground conditions during penetration. Excessive rod deflection is the most common cause for rod breakage.

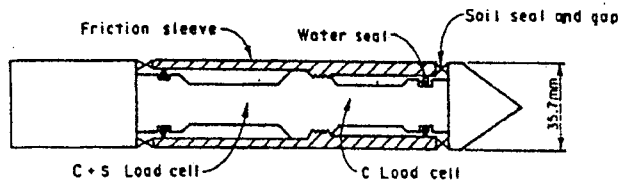
7. Apparatus

7.1 **Friction Cone Penetrometer**—The penetrometer tip should meet requirements as given below and in 10.1. In a typical friction cone penetrometer tip (as shown on Fig. 1 (1)),⁴ the forces produced by friction sleeve resistance and cone resistance during penetration are measured by two load cells within the electronic friction cone penetrometer. Either independent or subtraction-type electronic friction cone penetrometer tips are acceptable for use.

7.1.1 In the subtraction-type friction cone penetrometer, the cone and sleeve both produce compressive forces on the load cells. The load cells are joined together in such a manner that the cell nearest the cone (the "C" cell on Fig. 1(b)) measures the compressive force on the cone while the second cell (the "C + S" cell on Fig. 1(b)) measures the sum of the compressive



(a) Independent tension-type electric friction — cone penetrometer.



(b) Subtraction-type electric friction — cone penetrometer.

FIG. 1 Typical Electric Friction—Cone Penetrometer Tip Configurations (1)

sive forces on both the cone and friction sleeve. The compressive force from just the friction sleeve is computed then by subtraction. This cone design finds the most common use in industry. It is preferred because of its rugged design. This design forms the basis for minimum performance requirements for electronic penetrometers.

7.1.1.1 In the independent tension-type cone penetrometer tip, the cone produces a compression force on the cone load cell (the "C" cell on Fig. 1(a)) while the friction sleeve produces a tensile force on the independent friction sleeve load cell (the "S" cell on Fig. 1(a)). Designs are also available where the independent sleeve element is placed in compression. This penetrometer tip design results in a higher degree of accuracy in friction sleeve measurement, but, depending on the design, it is more susceptible to damage under extreme loading conditions.

7.1.1.2 Typical general purpose cone penetrometers are manufactured to full scale outputs equivalent to net loads of 10 to 20 tons. Often, weak soils are the most critical in an investigation program and in some cases very accurate friction sleeve data may be required. To gain better resolution, the FSO can be lowered or independent type penetrometers can be selected. A low FSO subtraction cone may provide more accurate data than a standard FSO independent type cone depending on such factors as system design and thermal compensation. If the FSO is lowered, this may place electrical components at risk if overloaded in stronger soils. Expensive preboring efforts may be required to avoid damage in these cases. The selection of penetrometer type and resolution should consider such factors as practicality, availability, calibration requirements, cost, risk of damage, and preboring requirements.

7.1.1.3 The user or client should select the cone design requirements by consulting with experienced users or manufacturers. The need for a specific cone design depends on the design data needs outlined in the exploration program.

7.1.1.4 Regardless of penetrometer type, the friction sleeve

⁴ The boldface numbers given in parentheses refer to a list of references at the end of the text.

**SOUTH CAROLINA DEPARTMENT OF LABOR, LICENSING AND REGULATION
BEFORE THE STATE BUILDING CODES COUNCIL**

In the Matter of:

THOMAS CLARK SMOAK, III,
License No. BCS.102

Respondent

OIE Case # 2012-17

ORDER OF DISMISSAL

This matter first came before the South Carolina Building Codes Council (Council) on November 20, 2013, for a hearing on the Formal Complaint alleging the above named respondent (Respondent) violated S.C. Code Ann. §40-1-110(f)(1976, as amended) and S. C. Code of Regulations § 8-170(D)-(F) (1976 as amended) governing the practice of Building Code Enforcement. A quorum of the Council was present at the November 20, 2013, meeting. Council members Parsons, Cullum and Hill offered to recuse themselves, but as counsel did not object to their continuing to participate, they continued to hear this matter.

The State was represented at the November 20, 2013, hearing by Erin Baldwin, Assistant General Counsel. Respondent was represented by Kent T. Stair, Esquire.

The State did not present any witnesses or evidence at the November 20, 2013, hearing and the case proceeded on facts stipulated by the Respondent and the State in a Memorandum of Agreement and Stipulations dated November 19, 2013 (MOA).

At the conclusion of the November 20, 2013, hearing the Council orally indicated a ruling against the Respondent and imposed sanctions. On December 9, 2013, prior to the written order being issued, the Respondent filed a Motion for Reconsideration, which was received by the Council on December 12, 2013.

The Council considered Respondent's Motion for Reconsideration at the Council's January 21, 2014, meeting, although the Council had not yet issued a written order from the November 20, 2013, meeting. A quorum was present at the January 21, 2014, meeting.

The State was represented at the January 21, 2014, hearing by Andrew Rogers, Assistant General Counsel. Respondent was again represented by Kent T. Stair, Esquire.

At the January 21, 2014 hearing, the Council accepted the Motion for Reconsideration with Exhibits A-L attached thereto, along with a supplemental affidavit of Kylie Page, P.E., dated January 20, 2014 (Respondent's Exhibit 1). Respondent's Exhibit 2 was the MOA.

Upon reconsideration of the matter, the Council decided to dismiss the Formal Complaint because of procedural issues.



FINDINGS OF FACT

Respondent stipulated to the following facts in the MOA:

1. The Respondent is registered as a Special Inspector with the Council in the areas of reinforced concrete, structural masonry, earth work, modular retaining walls, deep foundations, exterior insulation and finish systems, seismic resistance, retention basin, and steel frame. At the time giving rise to this matter, the Respondent was employed by WPC, Inc., a Terracon Company; the Council has personal and subject matter jurisdiction in this matter.
2. Respondent was the Special Inspector of a seismic retrofit project designed to bring the Rivers Education Center, Charleston, SC, into compliance with applicable codes. The project involved the installation of six hundred thirty-one (631) micropiles.
3. Respondent was initially certified by the Office of School Facilities and subsequently registered by the Council as a Special Inspector, with a designation allowing him to inspect deep foundations, on or about June 30, 2011.
4. Due to time constraints, the project operated around the clock. Respondent served as the Project Manager and also as a Special Inspector for deep foundations. The project utilized a multi-shift system under which Respondent, in addition to the micropiles he personally inspected, reviewed and signed off on inspections conducted by other individuals. Specifically, Respondent supervised one individual who was not registered in South Carolina and a second individual, who, while registered as a Special Inspector, was not registered to inspect deep foundations.

CONCLUSIONS OF LAW

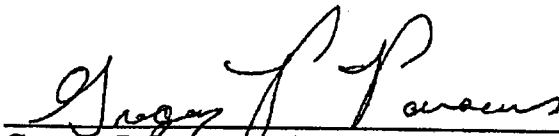
Until an order is written and entered, the adjudicator retains discretion to change his mind and amend an oral ruling accordingly. *Ford v. State Ethics Comm'n*, 344 S.C. 642, 646, 545 S.E.2d 821, 823 (2001). Thus, not having issued a written order, the Council is not bound by its oral ruling at the November 20, 2013, hearing. The Council determined it appropriate to hear the Motion to Reconsider along with the additional information Respondent submitted regarding the November 20, 2013, proceedings.

Upon consideration of the procedural error issues raised in the Motion for Reconsideration, and the additional evidence presented therein and at the January 21, 2014, hearing, the Council determines that the Formal Complaint against Respondent should be dismissed.

NOW THEREFORE, IT IS ORDERED, ADJUDGED AND DECREED that the Formal Complaint against Respondent is **DISMISSED**.

AND IT IS SO ORDERED.

SOUTH CAROLINA BUILDING CODES COUNCIL



Gregory P. Parsons, MS, PE, CBO
Chairman

February 27, 2014.

South Carolina Department of Labor, Licensing & Regulation

STATE OF SOUTH CAROLINA

COUNTY OF LEXINGTON

In the Matter of:

THOMAS CLARK SMOAK III

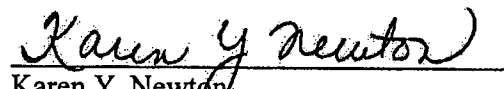
BCS . 102

CERTIFICATE OF SERVICE BY MAIL

This is to certify that the undersigned has this date, February 27, 2014, served the Order of Dismissal in the above entitled action upon all parties to this cause by depositing a copy hereof, in the United States mail, postage paid, or in the Interagency Mail Service addressed to the party(ies) or their attorney(s) to the following address:

MR THOMAS CLARK SMOAK
TERRACON CONSULTANTS INC
1450 FIFTH ST W
N CHARLESTON, SC 29405-2326

KENT T. STAIR, ESQUIRE
40 CALHOUN STREET, SUITE 400
CHARLESTON, SC 29401


Karen Y. Newton
Administrative Coordinator
SC Department of Labor, Licensing
and Regulation

**SOUTH CAROLINA DEPARTMENT OF LABOR, LICENSING AND REGULATION
BEFORE THE STATE BUILDING CODES COUNCIL**

In the Matter of:

DONALD ACCARDO
License No. BCS.109

Respondent

OIE Case # 2012-18

ORDER OF DISMISSAL

This matter first came before the South Carolina Building Codes Council (Council) on November 20, 2013, for a hearing on the Formal Complaint alleging the above named respondent (Respondent) violated S.C. Code Ann. §40-1-110(f)(1976, as amended) and S. C. Code of Regulations § 8-170(D)-(F) (1976 as amended) governing the practice of Building Code Enforcement. A quorum of the Council was present at the November 20, 2013, meeting. Council members Parsons, Cullum and Hill offered to recuse themselves, but as counsel did not object to their continuing to participate, they continued to hear this matter.

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Upon reconsideration of the matter, the Council decided to dismiss the Formal Complaint because of procedural issues.



FINDINGS OF FACT

Respondent stipulated to the following facts in the MOA:

1. The Respondent is registered as a Special Inspector with the Council in the areas of earth work and spray fire resistive material. At the time giving rise to this matter, the Respondent was employed by WPC, Inc., a Terracon Company; the Council has personal and subject matter jurisdiction in this matter.
2. Respondent worked on a seismic retrofit project designed to bring the Rivers Education Center, Charleston, SC, into compliance with applicable codes. The project involved the installation of six hundred thirty-one (631) micropiles.
3. Respondent, although registered as a Special Inspector, was not registered to inspect deep foundations by the Council.
4. Due to time constraints, the project operated around the clock. The project utilized a multi-shift system under which a properly registered Special Inspector acted as the overall supervisor and reviewed and signed off on inspections conducted by the Respondent and at least one other person.

CONCLUSIONS OF LAW

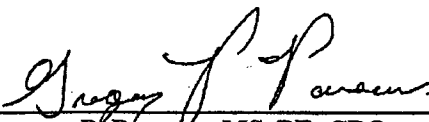
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Upon consideration of the procedural error issues raised in the Motion for Reconsideration, and the additional evidence presented therein and at the January 21, 2014, hearing, the Council determines that the Formal Complaint against Respondent should be dismissed.

NOW THEREFORE, IT IS ORDERED, ADJUDGED AND DECREED that the Formal Complaint against Respondent is **DISMISSED**.

AND IT IS SO ORDERED.

SOUTH CAROLINA BUILDING CODES COUNCIL



Gregory P. Parsons, MS, PE, CBO
Chairman

February 27, 2014.

South Carolina Department of Labor, Licensing & Regulation

STATE OF SOUTH CAROLINA

COUNTY OF LEXINGTON

In the Matter of:

DONALD ACCARDO

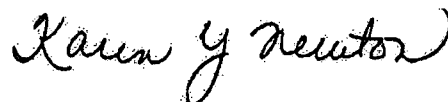
BCS . 109

CERTIFICATE OF SERVICE BY MAIL

This is to certify that the undersigned has this date, February 27, 2014, served the Order of Dismissal in the above entitled action upon all parties to this cause by depositing a copy hereof, in the United States mail, postage paid, or in the Interagency Mail Service addressed to the party(ies) or their attorney(s) to the following address:

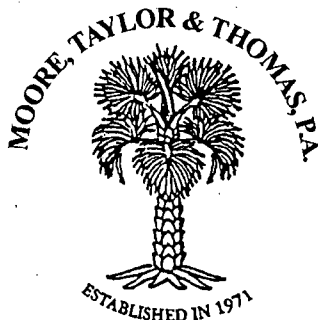
DONALD ACCARDO
TERRACON
1450 FIFTH STREET WEST
N CHARLESTON, SC 29405

KENT T. STAIR, ESQUIRE
40 CALHOUN STREET, SUITE 400
CHARLESTON, SC 29401



Karen Y. Newton
Administrative Coordinator
SC Department of Labor, Licensing
and Regulation

S. JAHUE MOORE
J. MARK TAYLOR*
DAVID L. THOMAS†
C. VANCE STRICKLIN, JR.
JAMES EDWARD BRADLEY
SHEILA McNAIR ROBINSON
ROBERT D. HAZEL
CHRISTIAN G. SPRADLEY††
C. DAVID SAWYER, JR.††
WILLIAM H. EDWARDS
STANLEY L. MYERS
JANE H. DOWNEY**
S. JAHUE MOORE, JR.
JOHN C. BRADLEY, JR.



1700 SUNSET BOULEVARD (HWY. 378)
POST OFFICE BOX 5709
WEST COLUMBIA, SOUTH CAROLINA 29171
TELEPHONE (803) 796-9160
FAX (803) 791-8410

MELISSA K. MOORE
WILLIAM B. FORTINO
R. NICHOLS "NICK" RILEY, JR.
M. BROOKS BIEDIGER
AMBER L. FULMER
SARAH TAYLOR CASSIDY
MARGARET "MEG" HAZEL

RETIRED:
BILLY C. COLEMAN††

††SALUDA OFFICE:
(864) 445-4544 OR (866) 604-4544
†GREENVILLE OFFICE:
(864) 271-6371

November 27, 2013

Wayne Wilcher
Director of Contracts and Procurement
Charleston County School District
399 Bridge View Drive
North Charleston, SC 29405
VIA CERTIFIED MAIL and FEDEX OVERNIGHT

Re: Terratec Dispute

Dear Mr. Wilcher:

Please take this letter as a request for appeal from Terratec Inc. Terratec Inc. is appealing the decision of Lawrence Lutrario as Interim Director of Contract and Procurement. We understand this decision was posted November 22, 2013. For your convenience, we attach a copy of this decision as Exhibit 1 to this letter and statement of appeal.

We are appealing pursuant to the Statement of Right to Appeal we received with the letter. For your convenience, I enclose a copy of the Statement of Right to Appeal as Exhibit 2 with this letter. If any further actions, statements or filings need to be made, please let us know. We have reviewed the procurement code and have not found any further requirements for appeal other than notice in writing to you.

For your convenience, we attach additional documentation supporting this appeal. This documentation is as follows:

- Exhibit 3: Letter dated January 14, 2013, from Chris Morrison, Vice President Terratec Inc. to Chief Procurement Officer for CCSD with Exhibits A through U;
- Exhibit 4: Letter dated February 26, 2013, from Allen W. Cadden to William Lewis of CCSD reporting the decision of the Dispute Resolution Board which heard Terratec's claim;

ROA000725

*Fellow of the American Academy of Matrimonial Lawyers
**Certified Specialist in Bankruptcy & Debtor/Creditor Law

- Exhibit 5: Letter dated March 14, 2013, from Christopher A. Morrison, Vice President Terratec Inc. to Scott Spigener of M. B. Kahn responding to the DRB findings;
- Exhibit 6: Letter dated February 20, 2013, from Fredrick Feil of CCSD to Chris Morrison of Terratec Inc. stating that Terratec's January 14, 2013, request for resolution was premature in view of the DRB proceeding;
- Exhibit 7: Terratec Accounting Cost Breakdown.

At the bottom of page 2, Mr. Lutrario's letter indicates that Terratec has expanded its claims beyond those initially submitted to the Dispute Resolution Board. We disagree with this finding. In fact, the claims Terratec makes at this point are the same claims Terratec made to the Dispute Resolution Board. The Dispute Resolution Board refused to consider those claims. Terratec does not know on what basis the Dispute Resolution Board refused to consider some of those claims, but those claims were presented to the Dispute Resolution Board as indicated by Terratec's letter of January 30, 2013, which was sent to Allen Cadden, Chairman of the Dispute Resolution Board. For your convenience, we attach a copy of that letter as Exhibit 8 to this submittal. For this reason, we disagree with Mr. Lutrario's conclusion that we have expanded the claim. We have continued to maintain that the claim is exactly what it is. The claim was not fully considered by the Dispute Resolution Board over our objection.

Mr. Lutrario's letter on page 3 indicates that he concurs with the decision of the Dispute Resolution Board in total. As our dispute with Mr. Lutrario's position, please refer to our initial letter of January 30, 2013, outlining our disputes to the Dispute Resolution Board, the Dispute Resolution Board's response to that letter, and our response to the Dispute Resolution Board's decision. While we could list every one of these reasons in this letter, we have already done so, and refer you to that previous correspondence as the basis for our exception to Mr. Lutrario's adoption of the Dispute Resolution Board decision in total.

On page 4 of Mr. Lutrario's letter, he indicates that: "The Disputed Change Order described as 'TTi to MBK/CCSD Contract Adjustment (12 feet unpaid at \$45/ft)' in the amount of \$338,580 was not presented for consideration by the DRB and I have no basis or authority to consider this request so it is denied." This dispute was presented to the Dispute Resolution Board as indicated in the January 30, 2013, letter to Allen Cadden. The DRB simply refused to hear it.

We would like to reiterate that Terratec disagrees with the decision of the Dispute Resolution Board and Mr. Lutrario's decision. Terratec relies upon the January 30, 2013 letter to Allen Cadden to set forth all the issues for review which it believes was improperly denied.

Wayne Wilcher
November 27, 2013
Page 3

In addition, Terratec believes the make up of the DRB was not as impartial as it is currently in a dispute with M.B. Kahn and Heery. As a result, representatives from those organizations should not have been on the Dispute Resolution Board.

In addition, there has recently been a hearing from the Department of Labor, Licensing and Regulation at which time the Licensing Board determined that WPC, the School District's inspector, were not licensed to perform inspections on Terratec's work. As a result, any amounts paid to this company were improperly paid as an inspector without a license is not entitled to be paid.

As a result, any amounts charged to Terratec for WPC's inspections were improperly charged. WPC should be required to refund any amounts it was paid on this job with any amounts paid by Terratec for WPC's inspections to be refunded to Terratec. Terratec has objected to WPC's involvement with this job for years based upon its belief that WPC was not properly doing its job. The Labor, Licensing and Regulation Commission met on Wednesday, November 20, 2013, at which time it determined that WPC was in violation of South Carolina Law regarding licensing for inspections. We have requested a copy of those findings which we believe are also important in consideration of this matter.

Thank you for your consideration in this matter. Please contact me with any questions or concerns.

Sincerely,



James Edward Bradley

/lgi

Enclosures

cc: Chris Morrison
Brewton Hagood
Lawrence Lutrario

ROA000727

STATE OF SOUTH CAROLINA	)	BEFORE THE PROCUREMENT REVIEW
	)	PANEL OF THE CHARLESTON COUNTY
COUNTY OF CHARLESTON	)	SCHOOL DISTRICT
IN RE: Request for Administrative Review	)	RESPONSE OF CHARLESTON
By Terratec, Inc.	)	COUNTY SCHOOL DISTRICT
_____	)	TO CLAIMS OF TERRATEC, INC.

Charleston County School District ("CCSD") submits this Response to the claims of Terratec, Inc. ("Terratec") set forth in Terratec's request for administrative review by letter dated November 27, 2013, from Terratec's counsel, James Edward Bradley, to Wayne Wilcher, Director of Contracts and Procurement for CCSD. For the reasons set forth below, it is CCSD's position that Terratec's request for additional compensation should be denied as Terratec has received payment for change orders which were properly submitted, reviewed and granted under the governing contracts and documents. This Response will provide an overview of the pertinent provisions of the contracts which govern this dispute, the plans and specifications related to Terratec's work, background on the processing of Terratec's claims to date and CCSD's position as to claims which Terratec has asserted against CCSD, most of which are between Terratec and the general contractor. A set of exhibits referred to in this Response will be provided to each of the members of the Procurement Review Panel and counsel for Terratec.

I. Parties and Contracts

Terratec is a subcontractor to M.B. Kahn Construction Company, Inc. ("Kahn") which contracted with CCSD to serve as general contractor for the project known as the Rivers Education Center Seismic Retrofit, Exterior Restoration and Core Utilities ("Project"). CCSD's contract with Kahn dated as of March 28, 2011 is marked as **CCSD Exhibit 1**. The contract sum set forth in Article 4.1 was \$9,323,000, prior to adjustment for change orders. Heery

International, Inc. ("Heery") was the Program Manager for CCSD for the Project and Davis and Floyd, Inc. ("Davis and Floyd") was the Architect for the Project. WPC, Inc. ("WPC") was the testing company hired by CCSD to conduct independent testing regarding the work by Terratec and other subcontractors of Kahn. Representatives of these entities will be attending the hearing scheduled for March 11, 2014 to explain their involvement in the project and their opinions regarding the claims asserted by Terratec.

General Conditions for the Contract are contained in a separate document and Article 15 entitled Claims and Disputes is marked as CCSD Exhibit 2. Article 15 sets forth the requirements for Notice of Claims (§15.1.2) for both additional cost (§15.1.4) and additional time (§15.1.5) and provides that claims are initially referred to the Architect for decision (§15.2). Subject to a duty of good faith and fair dealing, claims against the Architect and Program Manager are waived under § 15.1.7. A Dispute Resolution Board ("DRB") is provided for in §15.3 of the General Conditions as a non-binding attempt to resolve project disagreements and is an express condition precedent to the filing of a claim in the Court of Common Pleas for Charleston County.

Terratec entered into a subcontract with Kahn dated February 22, 2011 to provide all labor and supervision, coordination, materials, tools, equipment, loading and unloading, hoisting, hauling, taxes, insurance, licenses, permit fees, inspections, tests, certifications, warranties, guarantees, training, design and any other appurtenances needed to accomplish the Micropile scope of work per plans and specifications as defined in the contract documents for a price of \$1,992,835. A copy of Terratec's subcontract with Kahn is marked as CCSD Exhibit 3. Terratec retained the services of GS2 Engineering and Environmental Consultants and Kyzer & Timmerman, LLC to perform the engineering work necessary to design the micropiles to be

furnished and installed by Terratec to meet the performance specifications required by the plans and specifications for Terratec's scope of work. The description of the scope of work provided in Terratec's subcontract with Kahn stated that "shoring and concrete floor demolition required for Micropiles will be accomplished by others". Article VIII, § 1 of Terratec's subcontract with Kahn provided that the Subcontractor shall be bound to the Contractor by the terms of the Contract Documents and the Subcontract and assume toward the Contractor all of the obligations and responsibilities that the Contractor, by those documents assumes toward the Owner. Article VIII, §29 provided that the Subcontractor agrees to be bound by the dispute resolution procedure for resolving disputes between the Contractor and Owner. However, claims and disputes between the Contractor and the Subcontractor which do not involve the owner are to be decided by arbitration between Terratec and Kahn. This is important since Terratec's largest claim item listed on Terratec's Cost Accounting Break Down as TTI to MBK/CCSD CO# 5 in the amount of \$473,626.34 relates to assumptions apparently made by Terratec that it would have the support of the existing concrete floor to stage its equipment during the performance of Terratec's work. It is CCSD's position that this item is a dispute solely between Kahn and Terratec related to the means and methods which Terratec and Kahn would perform their work and is not a dispute to be considered by the Procurement Review Panel.

II. Plans and Specifications Related to Terratec's Claims

The specifications applicable to Terratec's scope of work in its subcontract are contained in SECTION 02369 MICROPILES dated January 2011 which are marked as CCSD Exhibit 4. Terratec's description of work as defined in paragraph 1.2.1 included furnishing all materials, products, accessories, tools, equipment, services transportation, labor and supervision, design, installation and testing of micropiles and pile top attachments. The most pertinent pages of the

engineering plans related to this work are marked as CCSD Exhibit 5, consisting of S-000, S-100, S-400, S-401 and S-402. The Geotechnical Report prepared by S&ME for Davis and Floyd is already included in the submission by Terratec. Under para. 1.2.2 of Specification Section 02369, the test borings shown in the S&ME Geotechnical Report were to be used as a basis for micropile design in conjunction with the appropriate levels of engineering judgment and experience. Test piles were to be installed and load tested under para. 3.4.2.a. Para. 3.4.2.d provided that should the test pile fail to give acceptable results, the contractor will modify his design and install another test pile "at his expense".

Para. 3.4.1 of Section 02369 provided that the owner would engage a qualified testing and inspection agency to observe test pile installation and pile load tests, observe production pile installation, submit pile load test data and results and submit production pile records. CCSD retained WPC to perform this scope of work.

III. Background on Terratec's Claims

Terratec installed its test piles at a location over 320 feet from the soil testing performed by S&ME referenced in its Geotechnical Report. Documents submitted by Terratec indicated that an employee of Kahn directed Terratec to install its test piles at this location since Kahn had placed one of its project trailers at the spot where the test piles were initially to be installed. It is undisputed that Terratec's first test pile installation did not meet the performance requirements of the specifications and engineering plans for the project. Terratec's position is that the soil conditions at the site of the first test pile installation were not consistent with the data contained in the S&ME Geotechnical Report and contends that the differing soils condition was the cause of the failure of its test piles. S&ME conducted an investigation of Terratec's claim regarding differing soils at the site of the test piles and issued its Addendum # 3 to Geotechnical

Exploration Report For Seismic Retrofit- Supplement CPT Soundings dated June 17, 2011 which opined that the alleged differing soil conditions at the test pile site was not the cause of the failure of the first test piles to meet the performance specifications for the work. A copy of this report is marked as CCSD Exhibit 6.

After the second test pile installation was completed and tested, Terratec, through Kahn, submitted a Change Proposal to add \$247,874.80 to Kahn's contract price with CCSD to modify the anticipated pile length from 78 feet to 86 feet. Although Davis and Floyd did not recommend approval of this change order request, CCSD, after review of the request by Heery and counsel for CCSD, did execute Change Order Number 7 to Kahn to add \$247,874.80 to Kahn's contract on account of the increase in production pile length and increased the contract time by 44 days attributable to the micro pile installation. A copy of Change Order Number 7 to Kahn is marked as CCSD Exhibit 7. CCSD submits that approval of this substantial change order, over the recommendation of the Project Architect and structural engineer, demonstrates that CCSD has dealt in good faith with Terratec on this project.

IV. Terratec's Timely Change Order Requests Were Reviewed in Accordance With Contract Procedures

Each change order request submitted by Terratec, through Kahn, was properly reviewed and considered by CCSD, its program manager, its Architect and, when appropriate, its independent testing consultant. The documentation supporting the review and the decision regarding each change orders is lengthy since it includes Terratec change order request to Kahn and supporting documentation, which would then be assigned a CW number by Kahn and submitted to CCSD and its consultants for review and comments and a Change Proposal Review Form would be signed off on by Robert Corbin of Heery and Larry Lutrario and William Lewis of CCSD. The compilation of documents has been assigned a single CCSD Exhibit number, but

the individual pages have been numbered to allow the panel members to locate specific pages within the exhibit to follow the below discussion.

A. Terratec Change Order Request 2 (Kahn CW #47)

The documents relating to the review of Terratec Change Order request # 2 to Kahn for \$65,000.00 for additional test pile program due to failure of initial program is marked as **CCSD Exhibit 8, pages 001 -082**. Although the date shown on Terratec's Change Order Request # 2 to Kahn is September 1, 2011,(Exhibit 8 at page 004), the "Received" date stamp placed on the document by Kahn is March 12, 2012. Additionally, Kahn's Change Proposal Form to CCSD, which is transmitted as Kahn Proposal # 47, to which Kahn adds it overhead and profit and bond cost, is dated May 8, 2012 (CCSD Exhibit 8 at page 016). Chris Morrison of Terratec's May 7, 2012 letter to Kahn indicates in paragraph 2 that Kahn had questioned the timeliness of Terratec's submission of its Change Order Request Number 2 to Kahn since the alleged costs for which Terratec requests compensation covers the period of May 10, 2011 through June 15, 2011 (CCSD Exhibit 8 at page 022). Despite the failure of this request to be submitted in accordance with the 21 day period called for in § 15.1.2 of the General Conditions (CCSD Exhibit 2), WPC reviewed the claim and supporting documentation and provided its comments to Heery and Davis and Floyd on April 20, 2012 (CCSD Ex. 8, pages 2-3). The package reviewed by CCSD and Heery also includes WPC's June 21, 2011 comments regarding the problems with Terratec's first load test (CCSD Exhibit 8, pages 007- 009) and Davis and Floyd's two white paper reports dated September 12, 2011, one which explains the relationship between the relevant parts of the Contract Documents for the design and construction of micropiles to meet the design intent (CCSD Exhibit 8, pages 010-013) and the second which explains John Orvin's opinion regarding the causes for the failure of the first test pile program by Terratec (CCSD Exhibit 8,

pages 014-015). After review of the documentation submitted by Terratec through Kahn and the comments from WPC and Davis and Floyd, CCSD and Heery rejected Terratec's claim on May 18, 2012 (CCSD Exhibit 8, page 001).

B. Terratec Change Order Request #3 (Kahn CW # 48)

Terratec's Change Order Request No. 3 for \$46,143.27 is stated to be for schedule delay associated with Load Test No. 1 and having to conduct a second load test. Again, Terratec's Change Order No. 3 is dated September 1, 2011 (CCSD Exhibit 9, page 005), but Kahn's Change Proposal # 48 to CCSD is dated May 8, 2012 (CCSD Exhibit 9, page 016). Kahn had also questioned the timeliness of this change order request according to Morrison's May 7, 2012 letter (CCSD Exhibit 9, page 17). After reviewing the comments by Davis and Floyd and WPC CCSD and Heery rejected the change order request on May 18, 2012 (CCSD Exhibit 9, page 001). Comments on the Change Proposal Review Form also indicated that a time extension had been given to Kahn when Change Order 7 to Kahn was approved granting an increase in length of the micropiles for an addition of \$247,874.80 and 44 days (CCSD Exhibit 7).

C. Terratec Change Order Request # 4 (Kahn CW#49)

Terratec's Change Order Request No. 4 for \$37,436.40 is designated as Work Directive—July 5, 2011- Installation of Hollow Bar Test Piles (CCSD Exhibit 10). Although CCSD initially rejected this Change Order request, this request was partially recommended for approval by the Dispute Resolution Board as discussed below. A Construction Change Directive was issued for which payment has been made to Kahn so CCSD's position is that this request should not be acted upon by the Procurement Review Panel.

V. The Dispute Review Board Rejected Terratec's Change Order Requests 2 and 3 and Partially Granted Request Number 4 Which Has Been Paid

Terratec, through Kahn, requested that a Dispute Resolution Board ("DRB") be convened to review their claims by letters dated October 26 and 29, 2012. See CCSD Exhibit 11. Despite the fact that the request was untimely in view of the fact that substantial completion of the project was achieved on June 29, 2012 (CCSD Ex. 12), CCSD through Heery, agreed to convene a DRB. See CCSD Exhibit 13. The Dispute Resolution Board was convened and chaired by Allen W. Cadden, PE, D.GE of Schnabel Engineering Consultants, Inc., an independent engineer agreed to by the Owner and Contractor. A hearing was convened using procedures established by the DRB. Witnesses were not sworn and no formal record was kept of the proceeding. Terratec attended along with its consultants and was permitted to make a presentation of its claims to the DRB. Representatives from CCSD, Heery, Davis and Floyd and WPC also attended. A copy of the power point presented by CCSD's consultants addressing the Terratec's claims before the DRB is marked as CCSD Exhibit 14.

The chairman of the DRB issued the decision on Terratec's claims by letter dated February 26, 2013 in which Terratec's Change Order Requests 2 and 3 were denied and Change Order Request 4 was recommended to be paid. See CCSD Exhibit 15. Upon receipt of proper documentation relating to costs, Construction Change Directive Number 1 was issued to Kahn in the amount of \$33,149.52, which was accepted by Kahn and has been marked as CCSD Exhibit 16. This amount has been paid to Kahn by CCSD. CCSD's position is that the processing of this Construction Change Directive and the acceptance of payment by Kahn constitutes an accord and satisfaction of Terratec's claim regarding

Terratec Change Order Number 4 so this claim does not need to be addressed by the Procurement Review Panel.

VI. Terratec Was Informed That the DRB Would Not Hear Disputes Between Kahn and Terratec Which Did Not Involve The Owner

CCSD acknowledges that Terratec's January 30, 2013 submission to Mr. Cadden as Chairman of the DRB did include requests that the DRB hear claims for additional pile footage totaling \$338,580.00 (Item VIII); a deductive change order from Kahn to Terratec for \$93,584.00 (Item IX); and Terratec Change Order # 5 to Kahn for \$498,626.34 (Item X). Terratec complains in its November 27, 2014 request for review by the Procurement Review Panel that Terratec does not know on what basis the Dispute Review Board refused to consider the claims. However, Terratec's counsel at the time, David Dick, was informed by e-mail from Scott Spigner of Kahn dated February 14, 2013 that the DRB is convened to address issues that involve the owner and its consultants so that the DRB would only be considering Terratec Change Order Requests 2, 3 and 4. A copy of this e-mail is marked as **CCSD Exhibit 17.**

VII. Terratec Filed Suit Against Kahn, Heery, CCSD and Kahn's Bonding Company

On January 14, 2013, Terratec filed suit in the Court of Common Pleas for Charleston County against Kahn, Heery, CCSD and Travelers Casualty and Surety Company as the provider of the performance and payment bond for Kahn. A copy of Terratec's Complaint is marked as **CCSD Exhibit 18.** CCSD filed an Answer to Terratec's Complaint and a Motion To Dismiss asserting that Terratec had not exhausted its administrative remedies under the CCSD Procurement Code. Kahn filed a Motion To Dismiss also asserting that the administrative remedies under the CCSD Procurement Code had not been

exhausted and additionally asserting that claims between Kahn and Terratec which did not involve CCSD are to be arbitrated under paragraph 29 of Kahn's subcontract with Kahn. Following a hearing on July 15, 2013, Heery was dismissed from the lawsuit. A Consent Order was filed on September 17, 2013 staying the case until the dispute resolution procedures established by the CCSD Procurement Code is completed.

VIII. Provisions of CCSD Procurement Code Applicable to Review Of Terratec's Claims

Excerpts of the pertinent provision of the CCSD Consolidated Procurement Code have been marked as **CCSD Exhibit 19** for ease of reference. Article 17 governs Legal and Contractual Remedies. Section 4230 of the CCSD Procurement Code entitled "Authority to Resolve Contract and Breach of Contract Controversies" applies to controversies between the District and a contractor or a subcontractor when the subcontractor is the real party in interest and provides that the procedure is the exclusive means for resolving a controversy between the District and a contractor or subcontractor concerning a contract solicited and awarded pursuant to the provisions of this Code. Pursuant to Sections 4230.3 and 4230.4 of the CCSD Procurement Code, Laurence Lutrario, as Interim Director of the Contracts and Procurement for CCSD, made an attempt to resolve the dispute with Terratec which was unsuccessful. Mr. Lutrario conducted an administrative review which included a meeting with Chris Morrison. Mr. Lutrario received additional information from Mr. Morrison following their meeting and completed his review and issued his written decision which was posted on November 23, 2013. A copy of Mr. Lutrario's decision has been marked as **CCSD Exhibit 20**.

Terratec submitted its request for review by the Procurement Review Panel dated November 27, 2013, which CCSD concedes is a timely request. Due to the fact that there was no standing Procurement Review Panel, CCSD moved forward with the process outlined in

Section 4410.2 to appoint members to the Panel. It is important to note that Section 4410.1 provides that the District's Procurement Review Panel is charged with the responsibility to review and determine de novo. Due to the amount of documents related to Terratec's claim, CCSD submits that the Panel should determine this matter to be complex under Section 4410.6 to allow the Panel thirty days to record its determination. Under Section 4410.7, appeal from a decision of the Panel is final as to administrative review and may only be appealed to the circuit court with the standard of review being as provided by the South Carolina Administrative Procedures Act. For this reason, CCSD requests that a court reporter be utilized to keep a record of the documentary evidence and to take testimony of witnesses presented by either party so that a record for appeal can be established should there be an appeal to either party to the proceeding.

IX. Many Of The Elements of Terratec's Claims Are Disputes Between Kahn And Terratec Which Do Not Involve CCSD and Should Not Be Considered By The Panel

Of all of the voluminous documents submitted by Terratec in support of its request for administrative review, the Terratec Cost Accounting Breakdown, which Mr. Lutrario attached as Exhibit 2 to his November 22, 2013 Decision (CCSD Exhibit 20), appears to provide the best outline of the elements of the claims by Terratec, the dollars attributed to each element and the party which Terratec asserts is responsible. As noted in Mr. Lutrario's decision, Exhibit 2 was provided to Mr. Lutrario after his face-to-face meeting with Mr. Morrison on October 30, 2013. Each of the items will be discussed separately.

A. CCSD Is Not Responsible For the Unpaid Balance Claimed for \$107,468.63

As previously noted, Substantial Completion of Kahn's contract for the seismic retrofit, exterior restoration and core utilities was established as June 29, 2013 in the Certificate of

Substantial Completion marked as CCSD Exhibit 12. The final Application and Certificate of Payment is marked as CCSD Exhibit 21. Kahn certified the Application on July 31, 2012, Davis and Floyd signed the Certificate For Payment as Architect on August 6, 2012. The Invoice/Payment Application Tracker on the last page of CCSD Exhibit 21 indicates that the check to Kahn was cut on August 16, 2012. Therefore, Kahn has been paid all it was due under its contract with CCSD as of that date. Items 1 through 7 of the Terratec Cost Accounting Break Down appears to be a recapitulation of Terratec's contract with Kahn and payments received and item 8 entitled "Unpaid Balance of \$107,468.13" is the balance Terratec claims is due. It appears that at least \$93,584.00 of this amount relates to a deductive change order which Kahn issued to Terratec by letter and attachment dated January 24, 2012 which was marked as Exhibit Y to Terratec's January 30, 2013 submission to Mr. Cadden as Chairman of the DRB. CCSD is not a party to this deductive change order and does not understand why this item is listed in the column for CCSD Responsibility on the Terratec Cost Accounting Break Down. The DRB did not hear this issue since it did not involve CCSD. This dispute is between Terratec and Kahn which they should arbitrate pursuant to the terms of their subcontract. Therefore CCSD submits that this issue is not properly reviewable by the CCSD Procurement Review Panel.

B. Terratec Claim for CO # 5 for \$473,626.34 Is A Dispute With Kahn Not CCSD

Terratec's claim for \$473,626.34 is listed in the column for responsibility of "Others" on the Terratec Cost Accounting Breakdown and appears to relate to a Terratec Change Order request Number 5 dated March 5, 2012 issued to Kahn which was attached as Exhibit BB to Terratec submission to Mr. Cadden on January 30, 2013. The DRB did not consider this claim since it did not involve CCSD. CCSD submits that this item is not properly reviewable by the Panel.

X. Terratec's Request For Additional 12 Feet of Pile for \$338,580.00 Was Never Submitted As A Change Order and CCSD Does Not Owe This

Change Order requests which were timely submitted with supporting documentation were reviewed as required under the contract documents and decisions were rendered as to whether the amounts requested were due. Neither Davis and Floyd nor Heery have any record of a change order request being submitted by Terratec through Kahn for additional length of piles other than Change Order Number 7 in the amount of \$247,874.80, which granted and has been marked as CCSD Exhibit 7. For the first time, Terratec's submission to the Chairman of the DRB on January 30, 2013 contained a claim that it was entitled to an additional \$338,580.00 for additional length of pile under its bid to Kahn. It is interesting to note that Terratec's initial request for review by the Chief Procurement Officer on January 14, 2013 did not include any such claim against CCSD for additional pile length.

Despite the fact that no notice of this claim was made within the 21 day period required under Article 15.1.2 of the General Conditions for the Contract, CCSD has asked its consultants to review Terratec's claim on this issue. A power point presentation has been prepared by CCSD's consultants to address the issues raised by Terratec on this claim which has been marked as CCSD Exhibit 22. Representatives of Davis and Floyd and S&ME will be present at the hearing before the panel to explain the intent of the design. It appears that Terratec misinterpreted the correlation of the data contained in the S&ME Geotechnical Report and the design documents. CCSD submits that even if the Panel allows Terratec to present this untimely claim which was never submitted as a change order, the claim should be denied.

XI. Conclusion

For the reasons set forth above, CCSD submits that all of Terratec's claims for administrative review should be denied. CCSD respectfully requests that the Panel issue a

written determination containing findings of fact and conclusions based upon the contract documents, other exhibits and the oral testimony presented by witnesses at the hearing before the Panel so that a proper record will be preserved should there be an appeal be made to the Circuit Court under the South Carolina Administrative Procedures Act.

ROSEN, ROSEN & HAGOOD, LLC.

By: H. Brewton Hagood
H. Brewton Hagood
Suite 400, 151 Meeting Street
Charleston, SC 29402
(843) 577-6726

ATTORNEYS FOR CHARLESTON COUNTY
SCHOOL DISTRICT

Charleston, South Carolina
March 7, 2014

**PROCUREMENT REVIEW HEARING
MARCH 11, 2014**

<u>EX. #</u>	<u>DATE</u>	<u>DESCRIPTION</u>
CCSD Ex. 001	Mon 03/28/2011	CCSD Contract with MB Kahn
CCSD Ex. 002	Mon 03/28/2011	General Conditions claims excerpts
CCSD Ex. 003	Mon 02/28/2011	Terratec subcontract with MB Kahn
CCSD Ex. 004	01/??/2011	Spec Section 2369 Micropiles
CCSD Ex. 005	Mon 01/03/2011	Davis & Floyd select drawings
CCSD Ex. 006	Fri 06/17/2011	S&ME Addendum 3 to Geotec Report
CCSD Ex. 007	Tue 10/25/2011	Change Order No 7 to Kahn
CCSD Ex. 008	Wed 05/09/2012	Review of Kahn Proposal CW-047
CCSD Ex. 009	Wed 05/09/2012	Review of Kahn Proposal CW-048
CCSD Ex. 010	Thu 09/01/2011	Terratec Change Order Req. No 4
CCSD Ex. 011	Mon 10/29/2012	Kahn and Terratec Request for DRB
CCSD Ex. 012	Fri 06/29/2012	Certificate of Substantial Completion
CCSD Ex. 013	Thu 01/17/2013	Heery Letter to Kahn re: DRB
CCSD Ex. 014	Tue 02/19/2013	Response to Terratec DRB claims
CCSD Ex. 015	Tue 02/26/2013	DRB Decision re: Terratec claims
CCSD Ex. 016	Tue 07/23/2013	Change Directive No 1 for \$33,149
CCSD Ex. 017	Thu 02/14/2013	Kahn EM to Dick re: claims for DRB
CCSD Ex. 018	Mon 01/14/2013	Terratec suit v. CCSD, Kahn, Heery
CCSD Ex. 019	Fri 01/07/2011	Procurement Code excerpts on PRP
CCSD Ex. 020	Fri 11/22/2013	Lutratio Decision on Terratec claim
CCSD Ex. 021	Tue 07/31/2012	Kahn Final Pay App No 16
CCSD Ex. 022	Tue 03/11/2014	Response to claim for additional pile length

ROA000742

STATE OF SOUTH CAROLINA)
COUNTY OF CHARLESTON)
Terratec, Inc.,)
Subcontractor/Appellant,)
vs.)
Charleston County School District,)
Owner/Respondent.)

IN THE COURT OF COMMON PLEAS

C/A NO. 2014-CP-16-2946

NOTICE OF APPEAL

JULIE J. ARMSTRONG
CLERK, C.P. & G.S.

MAY 08 2014

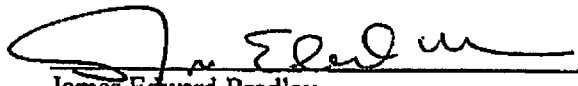
FILED

YOU WILL PLEASE TAKE NOTICE that Terratec, Inc., appeals the order of the Procurement Review Panel of the Charleston County School District (attached as Exhibit 1). The Appellant's substantial rights have been prejudiced because the administrative findings, inferences, conclusions, and decisions are:

- a. In violation of constitutional and statutory provisions;
- b. In excess of the statutory authority;
- c. Made upon unlawful procedure;
- d. Affected by other error law;
- e. Clearly erroneous in view of the reliable, probative, and substantial evidence on the whole record; and
- f. Arbitrary, capricious, and characterized by abuse of discretion and clearly unwarranted exercise of discretion.

This notice of appeal will also serve as notice that a hearing transcript has been ordered.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "J. E. Bradley", written over a horizontal line.

James Edward Bradley
Moore Taylor Law Firm, P.A.
1700 Sunset Boulevard
P.O. Box 5709
West Columbia, SC 29171
(803) 796-9160
Attorney for Appellant Terratec, Inc.

West Columbia, South Carolina

May 2, 2014

STATE OF SOUTH CAROLINA

COUNTY OF CHARLESTON

IN RE: Request for Administrative Review
By Terratec, Inc.

) BEFORE THE PROCUREMENT REVIEW
) PANEL OF THE CHARLESTON COUNTY
) SCHOOL DISTRICT

ORDER

This matter came before the Procurement Review Panel of the Charleston County School District ("Panel") on March 11, 2014, for a hearing on the request for administrative review submitted by Terratec, Inc. ("Terratec") through its counsel's letter to Wayne Wilcher of the Charleston County School District ("CCSD") dated November 27, 2013. The members of the Procurement Review Panel, who were appointed in accordance with the provisions of Section 4410.2 of the CCSD Procurement Code, are: (a) Mr. George T. Ducker, appointed by the CCSD Board of Trustees and who served as Chair of the Panel; (b) Ms. Denise Badillo, Procurement Director for the City of North Charleston, SC; (c) Mr. Matthew Brewer, Vice President, Division Manager for Choate Construction Company; (d) Mr. Jason McKinney, Joint Venture Audit Director for Roper Saint Francis Healthcare; and (e) Mr. Edward H. Stehmeyer, P.E., retired structural engineer. All members of the Panel were present for the entire hearing. John A. Massalon, an independent attorney selected to advise the Panel, was also present for the entire hearing and has been available to the Panel for guidance on legal issues.

James Edward Bradley appeared at the hearing as counsel for Terratec and H. Brewton Hagood appeared as counsel for CCSD. An independent court reporter was provided by CCSD to administer the oath to witnesses who testified at the hearing, to record the proceedings and to collect the exhibits entered into the record. At the outset of the hearing, Mr. Ducker informed counsel and the parties of the procedures which had been established by the Panel to govern the



ROA000745

conduct of the hearing by reading these procedures into the record. Mr. Ducker then asked if any members of the Panel would like to make any disclosures regarding any contacts or relationships with any of the parties or the persons who had been disclosed as potential witnesses. Mr. Stehmeyer disclosed that he had worked closely with William Lewis of CCSD when Mr. Lewis was a Captain in the U.S. Navy in charge of construction projects and Mr. Stehmeyer was a civilian engineer working on projects for the U.S. Navy. Mr. Stehmeyer also disclosed that he had worked as a consulting engineer for an independent engineering firm which had conducted some seismic studies for CCSD, but these studies did not involve the project which is the subject of Terratec's claim. Neither party objected to Mr. Stehmeyer's continued service on the Panel after these disclosures were made.

I. Stipulation As to Admission of Exhibits

Prior to the commencement of opening arguments and testimony, counsel for the parties stipulated that all 21 of the exhibits pre-marked by Terratec and all 22 of the exhibits pre-marked by CCSD were admitted into evidence for the purpose of the hearing without the necessity of laying an evidentiary foundation for each of the exhibits. The parties were given the opportunity to add additional exhibits during the hearing as they deemed necessary.

II. Decision On Scope of Matters to Be Heard By The Panel

Mr. Ducker asked counsel for the parties to make an opening statement to summarize their respective positions on whether the Panel had the jurisdiction to hear and decide all of the claims set forth in the Terratec Index of Claims which had been provided in the front of the notebook containing Terratec's exhibits. Mr. Bradley stated that Terratec wanted the Panel to hear and determine the following issues, which were listed as A., B., C. and D. on Terratec's Index of Claims:

- A. Additional testing and engineering work made necessary by information provided on ground conditions.

CO #2 (47) Tests	\$65,000.00
#3 (48) Engineering	\$46,143.27

- B. Additional footage of micropiles.

Original contract called for 66 foot micropiles with cost for each extra foot of \$45/foot. Piles were required to be 86 feet. Terratec has been paid for 8 extra feet, but not the remaining 12 feet.

CO #1B Contract Adjustment	\$338,580.00
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- C. Additional costs based on changed working conditions.

The contract required that the concrete floor be shored so that Terratec's drill equipment could be mounted on the floor for work. Instead, M.B. Kahn completely removed the concrete requiring Terratec to build special rigging and operate the drills in swampy conditions.

Change Order # 5	\$473,626.34
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- D. Delay/Inspection Charges

M.B. Kahn is holding funds based on alleged delays caused by Terratec. The additional footage and changed working conditions created the delay which should not be assessed against Terratec.

M.B. Kahn is also charging Terratec for additional inspection fees assessed by WPC. Terratec did not cause the delay, and WPC inspectors were not licensed to perform the inspections for which Terratec was charged.

CO # 1 Delay Charge	\$58,194.00
WPC Inspection Charge	\$35,154.00

Mr. Hagood stated CCSD's position that the Panel did not have jurisdiction to hear item C. labeled as "Additional costs based on changed working conditions" due to the fact that this claim item related to Terratec's position that it priced its bid to the General Contractor, M.B. Kahn ("Kahn"), on the assumption that Terratec would have the use of the existing concrete slab to

stage its equipment to perform its work. In addition, CCSD took the position that this claim item had never been presented by Terratec, through Kahn, as a proposed change order pursuant to Article 15 of the General Conditions of Kahn's Contract with CCSD which was marked as CCSD Exhibit 2. CCSD's position was that this item was a "means and methods" issue solely between Kahn and Terratec which did not involve CCSD and that the Panel's jurisdiction under the CCSD Procurement did not extend to this type of dispute. Terratec claimed that Kahn had cut out the concrete slab in many areas thereby requiring Terratec to stage its equipment on the ground which Terratec alleged added an additional cost of \$473,626.34.

As to Item D labeled "Delay/Inspection Charges relating to a deductive change order for \$93,584.00 which Kahn had issued to Terratec marked as Terratec Exhibit 16, CCSD's position was that CCSD had paid Kahn in full as evidenced by the Final Pay Application from Kahn to CCSD marked as CCSD Exhibit 21 and that the summary pages attached to the final pay application did not include a deduction by CCSD to Kahn for Kahn to seek to pass on to Terratec. CCSD's position was that this was also a dispute solely between Kahn and Terratec that did not involve CCSD and that the Panel did not have jurisdiction to hear this claim item D.

As to Item B set forth on the Terratec Index of Claims entitled "Additional footage of micropiles," CCSD's position was that Terratec had not presented a timely change order through Kahn for this item as required by Article 15 of the General Conditions, so this claim for \$338,580.00 should also not be heard by the Panel.

After hearing the opening statements and arguments of counsel as to the Panel's jurisdiction to hear the claims presented by Terratec, the Panel took a recess to consider the arguments made and to make a determination as to which claim items the panel would hear. The Panel then resumed the hearing and informed the parties that it would hear testimony and consider exhibits

related to Items A (CO # 2 and CO # 4) and B, but would not consider Items C and D set forth on the Terratec Index of Claims. Counsel for all parties were instructed from refrain from introducing evidence on issues listed as C and D above, and prohibited the parties from proffering this evidence. Counsel for Terratec noted Terratec's objection to the decision of the Panel and preserved this issue for appeal on the record.

III. List of Witnesses Heard And Additional Exhibits Entered Into The Record

Following the decision on the scope of the issues to be considered by the Panel, Terratec presented sworn testimony from the following witnesses who were examined by counsel for Terratec and then cross-examined by counsel for CCSD: (1) Chris Morrison, President of Terratec; (2) George Sambos, P.E. of GS2; and (3) Kenneth W. Timmerman, P.E. of Kyzer and Timmerman. Terratec also added Meeting Minutes for a June 22, 2011 as Terratec Exhibit 22 which was accepted into the record.

CCSD presented sworn testimony from the following witnesses who were examined by counsel for CCSD and then cross-examined by counsel for Terratec: (1) William M. Camp, III, P.E., D.Ge of S&ME; (2) John Y. Orvin, III, P.E. of Davis & Floyd; and William B. Wright, P.E. of WPC/Terracon. Counsel for CCSD noted for the record that he had also intended to present testimony of J. Rhett Reidenbach, P.E. of Davis & Floyd to discuss CCSD Exhibit 23 which had been admitted into evidence and William Lewis of CCSD to discuss the change order granted to Terratec and the reasons for denial of the other Terratec claims, but that CCSD was unable to present these witness since the time allowed for the hearing had expired. CCSD submitted the following additional exhibits: Davis & Floyd rejection of Terratec initial Micropile Load Test Plan which was marked as CCSD Exhibit 23; LLR Order of Dismissal as to Thomas Clark

Smoak, marked as Exhibit 25; and LLR Order of Dismissal as to Donald Accardo marked as CCSD Exhibit 26.

IV. Findings of Fact

Based upon consideration of the sworn testimony heard by the Panel and the review of the exhibits entered into the record by the parties, the Panel makes the following findings of fact:

1. CCSD, as the Owner, entered into a contract with M.B. Kahn Construction Company, Inc. ("Kahn") dated as of March 28, 2011, to serve as the general contractor for the project known as the Rivers Educational Center Seismic Retrofit, Exterior Restoration and Core Utilities ("Project"), which was marked as CCSD Exhibit 1. The contract sum was \$9,323,000.00, prior to adjustment for change orders.

2. CCSD's contract with Kahn identified Heery International, Inc. ("Heery") as the Program Manager and Davis & Floyd, Inc. ("Davis & Floyd") as the Architect for the Project.

3. Article 15 of the General Conditions for the Project, which was marked as CCSD Exhibit 2, entitled "Claims and Disputes" governs the requirements for providing notice and processing of claims for additional cost or additional time. Article 15.2 requires claims to be referred to the Architect for decision. Article 15.3 provided for a Dispute Resolution Board ("DRB") to provide a fair and equitable resolution to claims.

4. Terratec entered into a Subcontract with Kahn dated February 28, 2011 to provide the Micropile scope of work in Section 2369 of the specifications for the Project for an initial contract price of \$1,992,835. Terratec's subcontract with Kahn was marked as Terratec Exhibit 5 and CCSD Exhibit 3. Article VIII, §1, bound Terratec to the terms of Kahn's contract with CCSD. Article VIII, § 29 bound Terratec to the dispute resolution procedures in Kahn's contract

with CCSD, except for disputes which did not involve CCSD, which were to be decided by arbitration between Terratec and Kahn.

5. Terratec, through Kahn, did request that a Dispute Resolution Board be convened to hear Terratec's claims by Terratec's October 26, 2012 letter, and Kahn's October 29, 2012, which were marked as CCSD Exhibit 11.

6. The DRB held a hearing on Terratec's claims for Terratec Change Order # 2 (also referred to as Kahn CO # 47); Terratec Change Order 3 (Kahn CO # 48); and Terratec Change Order # 4 (Kahn CO # 49). The DRB issued a decision dated February 26, 2013, which was marked as CCSD Exhibit 15, in which Terratec claims for Change Orders # 3 and # 4 were denied and Change Order # 4 was partially granted.

7. Terratec requested administrative review of its claims by the Chief Procurement Officer for CCSD on August 21, 2013 and the Decision of Interim Director of Contract and Procurement Lawrence Lutrario, marked as CCSD Exhibit 20, was posted on November 22, 2013.

8. Terratec timely submitted its request for administrative review by the Panel via Ward Bradley's letter to Wayne Wilcher of CCSD which was marked as CCSD Exhibit 19, (without the enclosures referenced in the letter).

9. The Panel is charged with the responsibility to review and determine requests for review de novo pursuant to §4410.1 of the CCSD Procurement Code, so these findings and conclusions are based upon the evidence and testimony presented at the hearing held before the Panel on March 11, 2014 as opposed to a review of the decisions by the DRB or the Interim Director of Contract and Procurement.

10. Item A is identified in the Terratec Index of Claims as "Additional testing and engineering work made necessary by poor information provided on ground conditions and refusal to allow test in proper area" and lists:

CO # 2 (47) Tests	\$65,000.00
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CO # 3 (48) Engineering	\$46,143.27
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11. Terratec's Change Order Request No. 2 for \$65,000.00 was marked as Terratec Exhibit 9 and Terratec's Change Order Request No. 3 for \$46,143.27 was marked as Terratec Exhibit 10. Terratec claims that it should be paid for both of these change orders because the subsurface soil conditions encountered at the location where Terratec was required by Kahn to conduct its first test pile load test differed from the subsurface soil conditions represented in the Geotechnical Report prepared by S&ME, which was included in the design and contract documents put out for bid, and that this anomaly was the cause of the failure of the first load test. In Change Order # 2 (47) Terratec seeks compensation for having to perform a second test pile program at a different location when only one load test was required under the contract documents. In Change Order # 3 (48) Terratec seeks compensation for additional engineering and soils testing which Terratec claims it incurred to prove the existence of the unforeseen conditions at the site of the failed first load test and to test the soils at the location of the second pile load test program.

12. The entire file maintained by Heery, as Program Manager for CCSD, regarding the processing and consideration of Terratec Change Order No. 2, submitted through Kahn as Proposal CW-47, was marked as CCSD Exhibit 8, containing pages 001 through 082. This file indicates that Kahn submitted the Change Proposal Form dated May 8, 2012 (CCSD Exhibit 8, at page 016). This file indicates that Kahn actually received Terratec Change Order No. 2 dated

September 1, 2011 on March 12, 2012. The White Paper on Micropile Load Test Program Failure dated September 11, 2011, authored by John Orvin of Davis and Floyd (CCSD Exhibit 8, at page 014), shows that the first load test program was performed on June 9, 2011. CCSD has stated its position that this change order request was not timely submitted in accordance with the provisions of Article 15.1.2 of the General Conditions marked as CCSD Exhibit 2.

13. The entire file maintained by Heery, as Program Manager for CCSD, regarding the processing and consideration of Terratec Change Order No. 3, submitted through Kahn as Proposal CW-48, was marked as CCSD Exhibit 9, containing pages 001 through 0061. CCSD has stated its position that this change order request was not timely submitted in accordance with the provisions of Article 15.1.2 of the General Conditions marked as CCSD Exhibit 2.

14. The Panel has considered the merits of Terratec's claims for Change Orders 2 and 3 notwithstanding CCSD's position that these Change Order were not submitted timely.

15. Terratec's Pile Load Test Program Submittal dated March 11, 2011, with the mark-up during review and rejection by Davis and Floyd, was marked as CCSD Exhibit 23. The Pile Test Area identified on the site location sheet prepared by Kyzer & Timmerman dated April 7, 2011 showed the proposed location of the test pile program to be adjacent to Kahn's construction trailer. This document is located 5 pages from the back of CCSD Exhibit 23.

16. Terratec's resubmittal for the Pile Load Test Program dated May 10, 2011, which was approved by Davis & Floyd on May 10, 2011, was marked as Terratec Exhibit 9. The pile test area shown in the approved resubmittal is the same test pile location which had been indicated in the earlier submittal.

17. Chris Morrison of Terratec testified that the superintendent for Kahn required Terratec to relocate the test pile site further away from the building. There is no submittal in the

evidence presented at the hearing for the alternate location where the first test pile program was actually installed and tested. John Orvin of Davis & Floyd testified that he did not participate or have any input into the decision to move the test pile program to the alternate location directed by Kahn's superintendent. William Wright of WPC/Terracon which, was under contract with CCSD to observe the load test on test piles, testified that he was unaware of the alternate location until he came to the site to observe the load test.

18. It is undisputed that the test pile program performed by Terratec at the first location failed to meet the performance requirements of the specifications and the pertinent drawings for the project. The issues in dispute are whether the design team participated in the decision to relocate the test site from that approved in the submittal, whether the subsurface soils at the first test site differed from that represented in the S&ME Geotechnical Report provided to the bidders and the cause of the failure of the first test pile program.

19. George Sambos of GS2, one of the consulting engineers hired by Terratec to participate in the design of the micropiles, testified that SBT soil testing was conducted at the location of the failure of the first test pile program, after the failure. Mr. Sambos testified that this testing conducted after the failure indicated that there was a layer of sand below the initial layer of marl encountered at the site of the first pile test program which was different from that represented in the initial S&ME Geotechnical Report upon which the micropile design for the Terratec test pile program was based. Mr. Sambos identified cross sections of soil testing performed on behalf of Terratec at the site of the first test pile program and the alternate site selected and proposed for the second test pile program which was marked as Terratec Exhibit 7. Mr. Sambos' offered the opinion that the site of the second test pile program, which was adjacent to the building, more closely resembled the soils data contained in the S&ME report and that the

test pile program performed at the second site met the performance specification for the project. Mr. Sambos attributed the cause of the failure of the first test pile program to meet the performance specification to be the difference between the subsurface soils located at the site of the first test pile program and the subsurface soil located where the second test pile program was installed and tested.

20. William Camp of S&ME, the geotechnical consultant to Davis & Floyd, testified that he authored the S&ME Geotechnical Report which was included as part of the bid package to general contractors for the project. Mr. Camp explained that Seismic Cone Penetration Testing (SCPT) was conducted by S&ME at three locations around the perimeter of the building, which Mr. Camp stated is the preferred type of testing utilized in Charleston. Mr. Camp identified an aerial photograph contained on the fourth page of CCSD Exhibit 14 which shows the 3 locations in yellow where the initial SCPT testing was conducted by S&ME and referenced in the geotechnical report. The aerial photograph also shows the approved load test location adjacent to the construction trailer reflected on Terratec's approved submittal which was within 120 feet of one of S&ME's initial test locations. The location of the first load test actually conducted by Terratec was 320 feet away from the closest SCPT testing conducted by S&ME initially. Mr. Camp testified that no representations were made by S&ME regarding the subsurface soils conditions at the site of the first load test and that he was unaware of the actual location of the first test pile program until he was asked to conduct additional soil testing after the failure.

21. Mr. Camp testified that after the failure of the first test pile load test, S&ME was asked to conduct three supplemental CPT soundings, two at the location of the failed test pile load test and one at the potential location for the second test pile load test. Mr. Camp identified the June 17, 2011 S&ME report marked as CCSD Exhibit 6 which he authored. This report

indicated that although the depth at which the Cooper Marl was encountered at the site of the failed load test was deeper by 7 to 9 feet from the potential second location, he did not believe this difference was the cause of the failure of the load test on the first test piles.

22. In his testimony, William Wright of WPC/Terracon concurred with Mr. Camp's opinion that SCPT testing is the preferred method of testing subsurface soils in the Charleston area and provides a more accurate indication than the SBT testing conducted by Mr. Sambos. Mr. Wright testified that Terratec had equipment on site to test the soil at the location where the first test piles were installed and tested prior to the installation of the test piles. Mr. Wright identified his letter of April 20, 2012, which is located at pages 2 and 3 of CCSD Exhibit 8, in which he opined that the cause of the multiple failures Test Pile Program Location # 1 was due to installation procedures and lack of significant grout volumes beyond the theoretical volume.

23. The specifications section for the scope of work for the Micropiles was marked as CCSD Exhibit 4. The pertinent pages of the engineering drawings and details stamped by Mr. Orvin of Davis & Floyd were marked as CCSD Exhibit 5. Both Mr. Orvin and Mr. Wright described these contractual documents as performance specifications whereby the Micropile contractor was required to design and install the micropiles to meet the specified performance criteria of a minimum ultimate load capacity of 200 KIPS in compression and tension as noted on the Micropile Foundation Notes # 2 on Sheet S-402 in CCSD Exhibit 5. Section 3.4.2.d of the Micropile Specifications on page 02369-8 of CCSD Exhibit 4 provides that: "Contractor guarantees that should the test pile fail to give acceptable results, he will modify his design and install and test another pile at his expense".

24. The panel finds that Terratec has failed to meet its burden of proof on its position that the proximate cause of the failure of the first test piles to meet the load test requirements of

the contract documents was due to the alleged differing underlying soils at the location of the first test pile load test. No evidence was presented that CCSD or Heery or Davis & Floyd were provided with a revised submittal to approve the actual location where the first test piles were installed. Further the Geotechnical Report prepared by S&ME which was included with the contract documents did not make any representations as to the underlying soils at the location where the first test piles were installed and load tested. Therefore the Panel finds that Terratec has not proven entitlement to payment for Change Orders Requests 2 (47) or 3 (48) and these claims are denied.

25. Item B on the Terratec Index of Claims is described as follows: "Additional footage of micropiles. Original contract called for 66 foot micropiles with cost for each extra foot of \$45/foot. In fact, piles were required to be 86 feet. Terratec has been paid for 8 extra feet, but not the remaining 12 feet."

26. Terratec Change Order Request No. 1B dated May 17, 2012, was marked as Terratec Exhibit 14. In this document, Terratec outlines the basis for its claim that it is entitled to additional compensation of \$338,580.00. This Change Order Request was presented to Kahn, but there is no evidence in the record to indicate that this change order request was ever presented by Kahn as a change order request to Davis & Floyd as the Project Architect and the Initial Decision Maker under Article 6.1 of CCSD's Contract with Kahn and as required under Article 15 of the General Conditions.

27. CCSD's position is that its contract with Kahn, which was marked as CCSD Exhibit 1, is a fixed price contract for which the Contract Sum in Article 4.1 is \$9,323,000.00. CCSD argues that if Unit Prices had been established for additional compensation for pile lengths over a certain length, then this would have been provided for under Article 4.3 of its

contract with Kahn and this section was left blank and no "Schedule of Unit Prices" was attached as an exhibit to the contract.

28. According to Terratec Exhibit 18 entitled "Rivers Seismic Retrofit-Micropile Production Pile Project Timeline", Terratec installed its final pile on January 15, 2013, over four months prior to Terratec's submission of its Change Order No. 1B to Kahn.

29. CCSD Exhibit 7 indicates that Terratec, through Kahn, presented a timely change order request for additional pile length for which Kahn was granted additional compensation of \$247,874.00 and an increase in contract time of 44 days related to micropile installation. CCSD Exhibit 7 also reflects that this change order request went through the submission and review process called for under the contract and was approved by the Heery as Construction Manager, Davis & Floyd as Architect, Kahn as the Contractor and by CCSD as the Owner.

30. Mr. Morrison of Terratec testified that Terratec's change order request for additional pile length did not include the extra 12 feet Terratec is now requesting because Kahn told him to only request the extra 6 feet during the performance of the contract and that the claim for additional footage would be handled at the end of the job. Mr. Morrison did not indicate that the Architect, Construction Manager or the Owner was present or involved in this discussion. Mr. Morrison testified that he relied on Kahn to protect him on this claim.

31. Notwithstanding CCSD's position that Terratec's Change Order Request 1B was not timely submitted and that it was never presented by Kahn to CCSD, the Panel has considered the merits of Terratec's claim for additional pile length.

32. Terratec's claim for additional compensation for the increase in pile length from 66 feet to 78 feet is predicated on its position that the cross section shown on Sheet S-402 of Davis and Floyd's labeled as "TYPICAL MICROPILE ELEVATION" indicates "Pile Tip EL-

66" (Terratec Exhibit 2 and CCSD Exhibit 5). Mr. Morrison testified he interpreted this to mean that he should base his bid on a pile length of 66 feet. Mr. Timmerman also testified that he interpreted the drawing on Sheet S-4 the same way Mr. Morrison did.

33. Mr. Morrison testified that Terratec's bid to Kahn and other general contractors in the amount of \$1,992,835 for the micropile scope of work, which was marked as Terratec Exhibit 4, explained that although the geotechnical exploration details indicated a mean anticipated pile installation depth of 78 feet, Terratec based its proposal for the installation of piles to depths of 66 feet below ground surface. Mr. Morrison's testified that he interpreted "EL - 66" to be 66 feet "below ground surface".

34. Terratec's witnesses admitted under cross-examination that, to the best of their knowledge, Terratec's bid to the general contractors was not provided to CCSD, Heery or Davis & Floyd prior to the submission of bids by the general contractors. John Orvin of Davis & Floyd testified that he did not see Teratec's bid document (Terratec Exhibit 4) until Terratec submitted documents to the Dispute Resolution Board prior to the DRB hearing in February of 2013.

35. Mr. Camp of S&ME testified that all of the depths referred to in the Geotechnical Report referred to depth below ground surface because S&ME conducts its testing before there is a formal survey at the site to establish elevations.

36. John Orvin of Davis & Floyd is the engineer who sealed the structural drawings including Sheet S-4 identified the September 12, 2011 White Paper on Micropile Design-Contract Document Requirements Mr. Orvin authored, which is located in CCSD Exhibit 8 at pages 10-13. This document explains the relationship between the relevant parts of the Contract Documents (drawings, specifications and geotechnical report) which the micropile subcontractor needed to interpret to design and construct micropiles to meet the design intent. Mr. Orvin

explained in paragraph D. of Exhibit 8 at page 11 as follows: "From these elevations on sheet S-402 and the ground elevation of 12 feet (NAVD 88 Datum) given on the site plan shown on CS 102 and the elevations of the bottom of the first floor slab of 14.91 feet (NAVD 88 Datum) given in Section 1 on S-100, the lengths of each micropile can be determined." Mr. Ovin's White Paper further explained that: "The total length of the vertical exterior piles can be determined by subtracting the pile top and the pile tip elevations. The length of the vertical exterior piles is $7.5' - (-66) = 73.5'$. The length of the 30 degree batter piles can similarly be determined as $73.5' / \cos 30 \text{ degrees} = 84.9'$. For micropiles supporting new exterior shear walls, their top elevations can similarly be determined as $14.91' - 4.91' - 4 + 0.33' = 6.33'$. The length of the vertical interior piles is $6.33' - (-66) = 72.33$ feet and the length of the 30 degree batter piles is $72.33' / \cos 30 \text{ degrees} = 83.5'$." In his testimony at the hearing, Mr. Orvin explained that the designer of the micropiles would need to verify the data used by reviewing the Civil Site Drawings in addition to the Structural Drawings.

37. All of Terratec's witnesses admitted under cross examination that no formal requests for clarification or informal questions were asked of the design team prior to bid as to the datum reference for "PILE TIP EL -66" shown on Sheet S-402.

38. CCSD Exhibit 22 is a power point presentation entitled "Response to Claim for Additional Pile Length". The second page of this document includes excerpts of the pertinent pages of the S&ME Geotechnical Report adjacent to the Typical Micropile Elevation shown on S-402. The third page shows the relationship between Elevation 12 (NAVD 88) and the 0'bgs used in S&ME's report and the correlations to EL -66 shown on the Typical Micropile Detail. The excerpt from the Rejected Micopile Submittal highlighted on page 6 of Exhibit 22 shows that when Terratec submitted their first micropile submittal stating that the Marl is understood to

be present at a depth of roughly 43 feet bgs, the submittal reviewer for Davis & Floyd corrected Terratec to show that "Elevation is given as EL -43 ft or roughly 55 ft bgs. See Geotech Report". A full copy of this initial submittal by Terratec was marked as CCSD Exhibit 23. The approved resubmittal was marked as Terratec Exhibit 6. This document shows that Terratec understood that mean installation depth of the micropiles was 78 feet as noted on page 1 of Terratec Exhibit 6. Terratec also made the correction on page 2 requested by the Davis & Floyd reviewer of the submittal to show that the marl is understood to be 55 feet bgs rather than the 43 feet bgs Terratec had stated in the original submittal.

39. After hearing the sworn testimony of the witnesses, and after review and consideration of the documents entered into evidence, the Panel finds that Terratec has not met its burden of proof to support its claim for Item B. -Additional micropile length in the amount of \$338,580.00 based upon our findings that:

- (a) This claim was never presented by Terratec, through Kahn, to Davis & Floyd for review as a Change Order Request during the performance of the work within the timeframe called for under the General Conditions to Kahn's Contract with CCSD;
- (b) CCSD has closed out its contract with Kahn and made final payment as reflected in the Final Pay Application dated July 31, 2012, which was marked as CCSD Exhibit 21;
- (c) neither CCSD, nor its consultants, were privy to any qualification in Terratec's Bid to Kahn limiting its quoted price to 66 foot micropiles and no such qualification was included in Kahn's contract with CCSD;
- (d) Terratec's alleged assumption in its bid to Kahn limiting its price to a pile length of 66 feet was a unilateral mistake by Terratec, which was not based upon any representation or misrepresentation made by CCSD or its consultants, particularly in view of Terratec's

admission in both its bid to Kahn and its submittal and resubmittal to Davis & Floyd that the S&ME Geotechnical Report indicated a mean pile depth of 78 feet;

(e) a correct interpretation of the Contract Documents put out to bid would indicate that varying lengths of piles would be necessary as follows: vertical exterior piles of 73.5'; 30 degree batter piles of 84.9'; vertical interior piles of 72.3' and 30 degree batter piles of 83.5'; and

(f) CCSD and Kahn reached an accord and satisfaction as to any claim by Terratec for additional pile footage when Change Order Number 7 dated October 25, 2011 (CCSD Exhibit 7) was issued, approved and paid without any reservation or agreement to allow submission of an additional claim after Terratec had completed its work at the site.

VII. Conclusion

Based on the findings set forth above, it is the decision of the Panel that Terratec's claims for additional compensation from CCSD, listed as Items A. and B. on the Terratec Index of Claims attached to this document, are denied, with each party to be responsible for their respective costs and attorneys' fees.

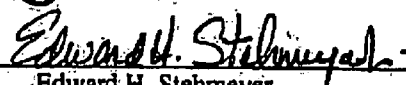
Claim items C. and D. on the Terratec Index of Claims are disputes between Terratec and Kahn, which do not involve CCSD, so no decision is being rendered on these claims by the Panel as the Panel does not have jurisdiction to hear and decide these claims.

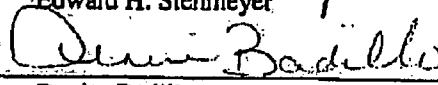
IT IS SO ORDERED.

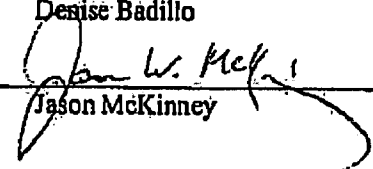
**PROCUREMENT REVIEW PANEL OF THE
CHARLESTON COUNTY SCHOOL DISTRICT**

By: _____
George T. Ducker, Chairman

By:  _____
Matthew Brewer

By:  _____
Edward H. Stehmyer

By:  _____
Denise Badillo

By:  _____
Jason McKinney

Charleston, South Carolina
~~March~~ 10th, 2014
April

CONFIDENTIAL

APR 09 2014

APPROVED BY [Signature]

By: [Signature]
George T. Ducker, Chairman

By: _____
Matthew Brewer

By: _____
Edward H. Stehmeyer

By: _____
Denise Badillo

By: _____
Jason McKinney

Charleston, South Carolina
March 10th, 2014
April

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THE STATE OF SOUTH CAROLINA
In The Court of Appeals

APPEAL FROM CHARLESTON COUNTY
Court of Common Pleas

J.C. Nicholson, Jr., Circuit Court Judge

Appellate Case No. 2016-002003

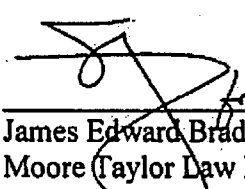
Terratec, Inc., ... Appellant,

v.

Charleston County School District, ...Respondent.

CERTIFICATE OF COUNSEL

The undersigned hereby certifies that the Record on Appeal contains all material
proposed to be included by any of the parties and not any other material.

By: 

James Edward Bradley, SC Bar # 66130
Moore Taylor Law Firm, P.A.
1700 Sunset Boulevard (29169)
P.O. Box 5709
West Columbia, SC 29171
(803) 796-9160
ward@mttlaw.com
Attorney for Appellant Terratec, Inc.

West Columbia, South Carolina

March 16, 2017

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