Florida Department of Transportation

JEB BUSH
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

DENVER J. STUTLER, JR.
SECRETARY

November 17, 2005

Mr. Donald Davis
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 455
Proposed Specification: 4550028 – Structures Foundations.

Dear Mr. Davis:

We are submitting, for your approval, two copies of a proposed Supplemental Specification for Structures Foundations.

This change is one of a group of changes proposed by Robert Robertson of the State Structures Office to split existing Specifications references to Specialty Engineer into a redefined Specialty Engineer and a newly defined term, Contractor's Engineer of Record.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to SP965DB or duane.brautigam@dot.state.fl.us.

If you have any questions relating to this specification change, please call Duane F. Brautigam, State Specifications Engineer at 414-4110.

Sincerely,

Signature on file

Duane F. Brautigam, P.E.
State Specifications Engineer

DFB/jo
Attachment
cc: General Counsel
Florida Transportation Builders' Assoc.
State Construction Engineer

STRUCTURES FOUNDATIONS.
(REV 9-21-05)

SUBARTICLE 455-2.8 (Pages 471-472) is deleted and the following substituted:

455-2.8 Required Reports: Submit a preliminary static load test report to the Engineer within five days after completing the load test. When the Contract Documents do not require internal instrumentation, submit the final report within ten days after completing the load test. Furnish the final report of test results for internally instrumented shafts within 30 days after completing the load test. Include in the report of the load test the following information:

(1) A tabulation of the time of, and the amount of, the load and settlement readings, and the load and recovery readings taken during the loading and unloading of the pile/shaft.

(2) A graphic representation of the test results, during loading and unloading of pile/shaft top movement as measured by the average of the dial gauge readings, from wireline readings and from level readings.

(3) A graphic representation of the test results, when using telltales, showing pile/shaft compression and pile/shaft tip movement.

(4) The estimated failure and safe loads according to the criteria described herein.

(5) Remarks concerning any unusual occurrences during the loading of the pile/shaft.

(6) The names of those making the required observations of the results of the load test, the weather conditions prevailing during the load test, and the effect of weather conditions on the load test.

(7) All supporting data including jack and load cell calibrations and certificates and other equipment requiring calibration.

(8) When the Contract Document requires internal instrumentation of the pile/shaft, furnish all of the data taken during the load test together with instrument calibration certifications. In addition, provide a report showing an analysis of the results of axial load and lateral load tests in which soil resistance along and against the pile/shaft is reported as a function of deflection.

Provide the necessary report(s) prepared by a ~~qualified Geotechnical Engineer registered in Florida as a~~ Specialty Engineer except when the Contract Documents show that the Department will provide a Geotechnical Engineer.

SUBARTICLE 455-5.15.5 (Page 487) is deleted and the following substituted:

455-5.15.5 Deviation From Above Tolerances: When the Contractor has failed to meet the above tolerances, the Contractor may request design changes in the pile caps or footings to incorporate piles driven out of tolerance. Bear the expense of redesign and Unforeseeable Work resulting from approved design changes to incorporate piles driven out of tolerance. ~~Employ a Specialty Engineer~~ ~~The~~*Ensure the Contractor's*

Engineer of Record ~~to~~*will* perform*s* any redesign and ~~who shall~~*will* sign*s* and seal*s* the redesign drawings and computations. Do not begin any proposed redesign until it has been reviewed for acceptability and approved by the Engineer.

ARTICLE 455-21 (Page 518) is deleted and the following substituted:

455-21 Drilled Shaft Excavations Constructed out of Tolerance.

Do not construct drilled shaft excavations in such a manner that the concrete shaft cannot be completed within the required tolerances. The Contractor may make corrections to an unacceptable drilled shaft excavation by any combination of the following methods:

(a) Over drilling the shaft excavation to a larger diameter to permit accurate placement of the reinforcing steel cage with the required minimum concrete cover.

(b) Increasing the number and/or size of the steel reinforcement bars.

(c) Enlargement of the bearing area of the bell excavation within tolerance allowed.

When the tolerances are not met, the Contractor may request design changes in the caps or footings to incorporate shafts installed out of tolerance. The Contractor shall bear the costs of redesign and Unforeseeable Work resulting from approved design changes to incorporate shafts installed out of tolerance. ~~Employ a Specialty Engineer~~ *The Contractor's Engineer of Record* ~~to~~ *will* perform any redesign and ~~who shall~~ *will* sign and seal the redesign drawings and computations. Do not begin any proposed redesign until it has been reviewed for acceptability and approved by the Engineer.

Backfill any out of tolerance shafts in an approved manner when directed by the Engineer until the redesign is complete and approved. Furnish additional materials and work necessary, including engineering analysis and redesign, to effect corrections of out of tolerance drilled shaft excavations at no expense to the Department.

ARTICLE 455-43 (Pages 529-530) is deleted and the following substituted:

455-43 Testing Cement Grout.

Make four cubes, 2 by 2 inch [50.8 by 50.8 mm] each, for each 50 yd^3 [38 m^3] of grout placed, per day of pile placement. The Engineer will test two cubes at seven days and two cubes at 28 days. The minimum required strength will be specified on the plans. When a cement grout acceptance strength test falls more than 10% or 500 psi [3.5 MPa] below the specified minimum strength, whichever is less deviation from the specified minimum strength, perform one of the following:

(a) Remove and replace the LOT of concrete in question at no additional cost to the Department, or

(b) Submit a structural analysis performed by ~~a Specialty Engineer~~*the Contractor's Engineer of Record*. If the results of the analysis, approved by the Department, indicate adequate strength to serve the intended purpose with adequate

durability, the concrete may remain in place. Otherwise, remove and replace the LOT of concrete in question at no additional cost to the Department.

All low strength cement grout accepted by the Engineer will be subject to reduced payment as follows: $0.80/yd^3 for each 10 psi [$1.05/m^3 for each 70 kPa] of strength test value below the specified minimum strength.

Reduction in pay will be applied to the entire length of all piles containing low strength cement grout, in any quantity. The quantity of cement grout affected by the price reduction may exceed the quantity of cement grout contained in the LOT. The dollar reduction will be equated to an equivalent length of pile not to exceed the total pile length constructed utilizing the subject LOT based on the following formula:

PLR = RC/UC

Where: PLR = Equivalent Pile Length Reduction in feet [meters]

RC = Total Reduction in payment, dollars

UC = Unit Cost of pile, dollars /foot [dollars /meter]

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redesign and signs and seals the redesign drawings and computations. Do not begin any proposed redesign until it has been reviewed for acceptability and approved by the Engineer.

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