4510000 PRESTRESSED SOIL ANCHORS
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

Hagler, Marshall; Fallaha, Sam; Heung, Wing

Comments: (6-22-12)
451-5 Tendon Fabrication: Sam Fallaha (SRC), Marshall Hagler (D-3) & Wing Heung (Tpk) all independently commented that in the interest of safety during testing, 0.95 Fy should be changed to 0.90 Fy.

Response:

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Wing Heung
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Comments: (6-25-12)
1. Section 451-2 (page 2 of 16 of Adobe file), section (k) shows proof load as temporary prestressing load in an anchor at a force level greater than its design load for testing purpose. Based on the revised specifications, the proof load is the same as the factored design load (not greater). Suggest to replace the phrase “design load” to “service load”.

Response:

2. Section 451-2 (page 3 of 16), section (n) defines Alignment Load as “a nominal load maintained on a performance tested anchor when the anchor is unloaded. This load is left in the anchor to keep the testing equipment positioned.” Alignment load is not only applied to performance tests. Also, this load is not just used during unloading. It is applied at the beginning of all acceptance tests. For your considerations, suggest the following definition: “A nominal load applied to a tested anchor to keep the testing equipment positioned.”

Response:

3. Section 451-2 (page 3 of 16), section (r) indicates that the lift off reading should be within 5% of the desired transfer load. Please note that according to 451-7.4, the permissible limit is 10% of the specified lock-off load. Please reconcile the difference.

Response:

4. Section 451-2 (page 3 of 16), sections (s) and (t) refer residual movement and elastic movement as movements “of an anchor measured during a performance test.” The definition should be broadened to cover all acceptance testing (proof, performance, and creep tests). Suggest to replace the phrase “a performance test” to “an anchor load test”.

Response:

5. Section 451-2 (page 3 of 16), section (z) defines Service Load. Suggest to remove from the first sentence the phrase “in order to limit deflection” as it is not needed to define the Service Load”.

Response:

6. Section 451-3 (page 3 of 16), third paragraph shows “Assign a Specialty Engineer to supervise the work ….. Do not use consultants or manufacturers’ representatives in order to meet the requirements of this Section…..”. The reviewer agrees that a manufacturer representative is not appropriate but is there a reason why consultants are not allowed to be the Specialty Engineer. Must he/she be a staff of the Prime Contractor or Specialty Contractor?

Response:

7. The header of Section 451-4.3 (page 4 of 16) shows “Anchorage Covers (not applicable for temporary anchors)”. Similar to other changes proposed in this revision, suggest to revise the header to “Anchorage Covers (include for temporary anchors only when shown on the plans)”.

Response:

8. At several locations (451-5, 451-7.1, 451-7.6, and 451-9) the term “design load” is shown. Suggest to modify the term “design load” to “factored design load” so that they have the exact same terminology as in the definition of Section 451-2.

Response:

9. Section 451-5 requires the maximum test load not to exceed 95% of yield strength. Suggest allowing for additional safety margin and not to exceed 90% of yield strength.

Response:

10. Section 451-7.1, section (a) on page 8 of 16, shows “The purpose of these initial tests is to verify the Contractor’s installation procedures as well as the design loads.” Strictly speaking, performance tests cannot verify the design loads which comes from a design calculation. The reviewer understands that the meaning behind and suggest the following sentence to clarify the intent: “The purpose of these initial tests is to verify the Contractor’s installation procedures and details are generally acceptable for the factored design loads.”

Response:

11. Section 451-7.1 (page 9 of 16) shows “For the maximum test load, do not exceed 80% of the minimum specified ultimate tensile strength of the tendon.” This sentence belongs to the “old specifications” and needs to be reconciled with the currently proposed change on 451-5. Actually, this sentence can be deleted as it offers no additional new information/requirement over the proposed Section 451-5.

Response:

12. Section 451-7.1 (page 9 of 16), required Contractor to provide “a calibrated pressure gauge, graduated in 100 psi increments or less, or calibrated load cell to measure the applied load.”.

Suggest to show “calibrated load cell with readout box” to ensure that is the Contractor’s responsibility.

Response:

13. Section 451-7.1 (page 9 of 16) requires the Contractor to provide a load cell which is “calibrated by an independent firm and that the calibration is performed within 45 working days of the date submitted.” Calibration reports were submitted in the past by testing laboratories without a clear involvement of a professional engineer. Since prestressed anchors usually involve public safety and may be used in permanent structures, having a P.E.’s signed and sealed in this aspect of the acceptance testing appears reasonable. Suggest to require the calibration report to be signed and sealed by a registered professional engineer.

Response:

14. Section 451-7.2 (page 9 of 16), requires that during a proof or performance test, if the anchor cannot be accepted in the first 10 minutes, extend the reading schedule at 15, 20, 25, 30, 45 and 60 minutes. Suggest to replace the 45-minute reading with 40-minute and 50-minute readings. In that way the inspector may compare the movement in one log cycle of time by subtracting the 4-minute & 5-minute readings, respectively. This allows the inspector to compare directly with the acceptance criterion of 0.08 inch per log cycle of time.

Response:

15. Section 451-7.3 (page 11 of 16), requires reading schedule including a 45-minute reading. Suggest to replace the 45-minute reading with 40-minute and 50-minute readings for the same reason as suggested for the performance test (see comment above).

Response:

16. Section 451-7.3 (page 11 of 16) allows the use of either pressure gauge or load cell to measure the applied load during a creep test. Please note that 451-7.1 requires a calibrated load cell and a calibrated pressure gauge with jack, during an acceptance test when both calibrated equipments are used the situation exist that these calibration are not in agreement. This can definitely be an issue in a creep test but the situation may also exist in a proof test or a performance test. Suggest to make the calibrated load cell as the controlling device in such situation.

Response:

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Comments: (6-29-12)

1. Based on the below information regarding revisions to the drilled shaft specification, it appears as though the Department is no longer allowing the use of the dry construction method for drilled shafts installed to support mast arms, cantilever signs, overhead truss signs, high mast light poles or other miscellaneous structures. By altering the location of the verbiage for introduction of slurry (mineral or polymer) prior to drilling below bottom of casing (originally under "Wet Construction Method" and now under "General Methods & Equipment"), it appears FDOT is requiring the use of slurry, or wet construction method; but I wanted to see if this was the true intent.

Response:

2. Additionally, could you clarify the proposed changed for the wording in the polymer slurry spec (455-15.8.2) to say "provide documentation" rather than "certify"? Does this mean the Department is allowing contractors the use of uncertified polymer slurry as long as documentation can be provided showing that it meets required spec testing ranges? Just wondering if this change has something to do with the fact that no one seems to be able to get FDOT certified for polymer slurry even though product documentation details proper test ranges.

Response:

McCann, Patrick
Pat.McCann@dot.myflorida.com

Comments: (7-26-12) 451-4.3 Anchorage Covers: I believe you intended to revise the text here to " include for temporary anchors only when shown on the plans".

Response: Agree, thank-you for catching this one. I will make the change.

451-9 and 451-10 seem out of place, since they are about pre-construction information. Suggest moving 451-9 to follow 451-3 and 451-10 to follow 451-4.

Response: Although, I like your suggestion, I disagree that the position of these articles creates a problem. I agree they could be interpreted as "not in the best position," however, they have been in this position for many years without detriment, and moving the text would require renumbering the entire specification. When a specification is renumbered, all affected references in all other specification related documents must also be corrected. Therefore, I recommend against this change at this time.

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Response:

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