

4550000 STRUCTURES FOUNDATIONS
COMMENTS FROM 2nd INDUSTRY REVIEW (3/25 –26/2008)

David A. Sadler, P.E.
State Construction Engineer
(850)414-5203, Fax (850)-414-4874
email: david.sadler@dot.state.fl.us

Comments:

Thanks for the comments Bob.

Larry Jones has been responding to the comments from the reviewers and I think his responses will address many of the comments below. Recognizing that this was a rush effort to meet the Spec processing deadlines, there will be subsequent changes in the next spec cycle and those will have industry opportunities from input.

JC Miseroy
JC.Miseroy@gcinc.com

Comments:

I would also like to state that it was refreshing to have Robert, Dave and Larry open to listening to our issues with the 455 specification and to have made quite a number of changes we had asked for. We would certainly like to thank them for their time and efforts in working with FTBA on this matter.

In addition to what Keith has listed below I have the following comments.

455-5.1.1 - The first sentence states that pre-formed holes are 4 foot, which seems to be in conflict with changes made to 10 feet or 20% on the next page.

Response: Agree, will make the change.

455-5.3.2 - Pile Cushions. As Keith stated, FDOT has not addressed driving criteria that provide for cushion replacement after a number of hammer blows. I will be sending Larry some examples of driving criteria that include this restriction, and ask that others do this also.

Response: At this time there are no plans to implement payment for additional pile cushions since the Contractor chooses the pile driving hammer and cushions. Efforts are underway to identify pile cushions during the test pile program that will start thick enough to drive the entire pile. Will continue discussions with industry on this point.

455-5.10 - Bearing Requirements. The specification still does not provide guidance on how to handle piles with rebound > 1/4". Personally I think the 1/4" is too low, especially with long piles. It would be helpful if the specification included direction on ways to handle piles

with rebound > 1/4", other than just to keep driving these piles.

Response: Will not address in this round of changes but will discuss further with industry.

455-7.7.3 - Precast Reinforced Build-Ups. This sub-article still states that the build up should be constructed using the same form materials and the same mix design used for casting the pile originally. This is typically not possible.

Response: This is being considered for revision at future date. It should be understood that these are precast reinforced build-ups that should be coming from the same producer that made the pile needing build-up so meeting form materials and mix design shouldn't be an issue.

455-8.7 - Coating (of steel piles). I still feel this work should be defined in the plans.

Response: The need for coatings is being addressed in a change to Specification 560.

455-11.2.7 - Replacing Piles. FDOT has added that the extraction of piles will be paid at 30 feet of piling. See comment on 455-11.10 below.

Response: Agree. The last sentence was changed to: The Contractor will be paid 30 feet of piling as full compensation for extracting the original pile.

455-11.6 - Steel Sheet Piling. FDOT has not addressed issues with the payment of (temporary) sheet piles. Often changes are made by the contractor (as allowed by the plans and specifications) in the design of these walls. This redesign might be for a different type of wall or a wall with reduced area and it is very difficult to determine how we will be paid. Typically FDOT wants to pay the reduced area, but not any increase in area. We had proposed payment by the linear feet of wall, but this does not address all issues. We need a specification that provides payment to the contractor for the amount bid for wall shown in the plans, even if the contractor's wall design has less area. The amount would be adjusted for plan errors or wall area added beyond what was shown in the plans. I also agree with Keith that walls with tie backs should be priced separately or the anchors should be paid under separate bid items as was the case previously. Having one bid item for both types of wall makes it impossible to compare pricing to District wide averages.

Response: This is being considered for a later revision date, after the appropriate pay items can be established. Will continue discussions with industry on this point.

455-11.10 - This sub-article states that pile extracted as authorized by the Engineer will be paid as unforeseeable work. This seems to be in conflict with 455-11.2.7. I like the idea of force account for this work, since it would be impossible to figure out what this will cost ahead of time.

Response: 455-11.10 is Pile Redrive. Section 455-11.11 is Pile Extraction, Reference in 455-11.11 to section 455-11.2.9 is incorrect – correct reference should be 455-11.2.7. Agree that there is a conflict. Suggested change to spec is as follows:

“455-11.11 Pile Extraction: Piles authorized to be extracted by the Engineer and successfully extracted as provided in 455-11.2.97 will be paid for as defined in 455-11.2.7 ~~Unforeseeable Work~~. No payment for extraction will be made for piles shown in the plans to be extracted or piling damaged or mislocated by the Contractor that are ordered to be extracted by the Engineer.”

455-12.6.1 - Permanent Sheet Piling. This sub-article states that payment includes preformed holes. Sub-article 455-9.3.1 states that when the existence of rock or strong material is not indicated on the plans, drilling will be paid as unforeseeable work. It would be good if this sub-article references 455-9.3.1.

Response: Reason it was not referenced herein is because the intent is for contractor to include the costs of preforming when the rock or strong materials are shown in the plans but if the plans do not indicate these materials, then the preforming would be paid as unforeseeable work as described in 455-9.3.1.

455-12.9 - Preformed Holes. I would still like to consider excluding casing from the last sentence of this sub-article. 455-5.9.4 discusses the construction of pre-formed holes by drilling, using a suitable punch or chisel. If the hole will not stay open using these methods and a casing is required, this should be paid as unforeseeable work.

Response: This was discussed in the meeting; casings were moved from predrilled holes where there is not any compensation to preformed holes which are compensated.

Keith Waugh
kwaugh@lewarecc.com
UserTel: 352-787-1616, UserFAX: 352-787-3161

Comments:

1. Delete all reference to Static Load Tests and include this work as a TSP on a project by project basis.

Response: This is being considered for a later revision date.

2. In 455-5.1.1 20% is good but I'd like to see 25%.

Response: This can be discussed more with industry but change at this point will remain as drafted.

3. In 455-5.3.1 the word "cushion" needs to be added after capblock and before "constructed of durable" in second sentence.

Response: The capblock is the hammer cushion; the first sentence has been revised to: Provide a capblock (also called the hammer cushion) as recommended by the hammer manufacturer.

4. In 455-5.3.2 payment for additional pads was not addressed.

Response: At this time there are no plans to implement payment for additional pile cushions since the Contractor chooses the pile driving hammer and cushions. Efforts are underway to identify pile cushions during the test pile program that will start thick enough to drive the entire pile. Will continue discussions with industry on this point.

5. In 455-5.12.1 regarding water jets, replace "allowed" with "required".

Response: When jetting is allowed has been added for clarification. Jetting is considered an installation aid and intent is to note when jetting is prohibited and leave to contractor's option if not prohibited.

6. In 455-5.14.2 overruns and underruns in excess of 10 or 15% need to be addressed.

Response: This is already addressed in specifications which allow for adjustment to price for major items of work that overrun or underrun quantities by more than 25% of original quantity – reference section 4-3.1.

7. In 455-5.15.5 replace "Unforeseeable Work" with "all additional work". Generally in Specs, "Unforeseeable Work" has a tag with extra work/extra compensation/changed condition.

Response: Disagree. This addresses work caused by actions of the Contractor.

8. In 455-12.6.1 I believe that temporary soil anchors should be paid on a per each basis.

Response: This can be discussed for a later revision date.

It was good to see that time frames were addressed. I know some Contractor's want higher multipliers for certain items (splices, redrives, etc). Although we did not provide the Department with any backup documentation, we all know that costs have risen tremendously since Previous agreement. Even tho unit prices have risen, the old multipliers don't adequately cover the extra costs.

Other than the above, I'm pretty pleased.

Response: Thanks for the efforts of industry in developing these changes. As for the multipliers, as discussed at the meeting, FDOT will consider information provided by industry regarding this.

4550000 STRUCTURES FOUNDATIONS
COMMENTS FROM INDUSTRY REVIEW

John Previte
D1 Specifications Engineer

Comments:

Last sentence of 455-5.9

[Fill all voids between the pile and soil remaining after driving through preformed holes with concrete sand or clean sand *after the pile has achieved the required minimum tip elevation and before driving ceases, unless grouting of preformed pile holes is shown in the plans.*]

Improve flow and understanding of this sentence as follows:

[*After the pile has achieved the required minimum tip elevation and before driving through preformed holes ceases, fill all voids remaining* voids between the pile and soil ~~remaining after driving through preformed holes~~ with concrete sand or clean sand *unless grouting of preformed pile holes is shown in the plans.*]

Response: The sentence has been revised, however, not in the manner suggested. Sand should not be added prior to driving the pile completely through the preformed pile hole.

455-5.9.3 Conditions Under Which Payment Will Be Made: The Department will make payment for Preformed Pile Holes *shown in the plans, required by the Engineer and* where the Contractor demonstrates that such work is necessary to achieve the required penetration of the pile.

District One had issue with this; would like it to be abundantly clear whether there are one, two or three conditions to be met to justify payment.

Either: The Department will make payment for Preformed Pile Holes *shown in the plans, and required by the Engineer and* where the Contractor demonstrates...

Or: The Department will make payment for Preformed Pile Holes *either shown in the plans, or required by the Engineer and* where the Contractor demonstrates...

Or: The Department will make payment for Preformed Pile Holes *either shown in the plans, or required by the Engineer or ~~and~~* where the Contractor demonstrates...

Etc, there are more possibilities...

Response: The sentence has been revised similarly to the third suggestion.

455-17.6.1.5 Coring and/or Repair of Drilled Shafts: [If the Engineer determines a drilled shaft is unacceptable based on the CSL tests and tomographic analyses, *or problems observed during drilled shaft construction,*]

Either: [If the Engineer determines a drilled shaft is unacceptable based on the CSL tests and tomographic analyses, *or problems are observed during drilled shaft construction,*]

Or: [If the Engineer determines a drilled shaft is unacceptable based on the CSL tests and tomographic analyses, *or observes problems ~~observed~~ during drilled shaft construction,*]

Response: The sentence has been revised similarly to the third suggestion.

Mike Bone
mbone@ceconstruct.com
UserTel: 954-922-6917, UserFAX: 954-922-3755

Comments:

Ref. 455-5.9.1 - I recommend weighing the need to place sand in the whole during driving against the safety hazzard of requiring additional work under the hammer while it is running. Concrete piles may spall at the top during driving. The only person under the hammer should be the foreman as he occasionally places a level on the pile.

Response: Provisions have been added to permit temporary halting of driving during filling.

Keith Waugh
kwaugh@lewarecc.com
UserTel: 352-787-1616, UserFAX: 352-787-3161

Comments:

455-5.3.2 Pile Cushion: Most driving criteria specifies changes pads after a maximum hammer blows regardless of condition. How will payment be addressed for the costs associated with stopping driving operations to change pads?

Response: At this time there are no plans to implement payment for additional pile cushions since the Contractor chooses the pile driving hammer and cushions. Efforts are underway to identify pile cushions during the test pile program that will start thick enough to drive the entire pile.

455-5.14.3 Authorized Pile Lengths: Lengths should be set after driving of individual test piles or all test piles within a specified distance, not after "all". Second paragraph gives direction for authorizing lengths within seven days if the Contractor is willing to start "in phases designated by the Engineer". This needs to be revised so that the Contractor makes a request based on his planned sequence and his schedule to expedite the project.

Response: This has been revised.

455-7.8 Pre-Planned Splices: Will dynamic test loads also be required for the driving of a drivable splice that is not preplanned? Further, will an epoxy doweled non-driveable splice be tested for integrity? If so, the non-driveable build-up must be tested using methods that do not require pile driving equipment. The Pile Integrity Test (PIT) can be performed by the Engineer without the Contractor supplying heavy equipment.

Response: Yes; No; N/A

455-11.5 Dynamic Load Tests: Will payment be made as 15' of Test Pile for test piling and 15' of regular Pile for production piling?

Response: This change has been withdrawn and being reconsidered for a later revision date.

455-11.9 Pile Splices: Since the Department authorizes the lengths, then the Department should pay for splices that are required to furnish piling in excess of the lengths shown as on Index 20600 for maximum lengths with a three-point pickup.

Response: This has been revised. Splices to obtain lengths greater than shown in Index 20600 will be paid in projects let after the revision becomes effective.

455-12.6.2 Temporary Sheet Piling: Payment should be the same basis as for Permanent Sheet Piles as stated in 455-12.6.1. Anchors, etc., both permanent and temporary, are installed in accordance with Section 451 and therefore payment should be allowed on a unit price basis for each as stated in 451-12, regardless of the condition.

Response: This is being considered for a later revision date.

Juan F. Castellanos, PE
District 4-6 Geotechnical Engineer
Ph: 954 677 7011

Comments:

Section 455-5.10.4, item c): Add the following (in italics blue) at the end of paragraph: "Instrumented set-checks.....exceeds 95% of the required pile resistance, *and the static capacity observed in subsequent blows is at least 90% of the required pile resistance.*"

Response: Agree; this has been revised.

Section 455-11.5 Second paragraph last sentence: Add the following (in italics blue) "No payment will be made for dynamic load testing to evaluate the integrity of an epoxy-bonded dowel splice, *for pre-planned splices.*"

Response: This has been revised to: *to evaluate the integrity of a pre-planned epoxy-bonded dowel splice.*

Section 455-11.5 Last paragraph, last sentence. To include set-checks and re-drives of piles that have not been previously instrumented add the following sentence: *In the event the Engineer requires an instrumented re-drive or set-check of a pile not instrumented previously, it will be paid at 8 feet of additional driving.*

Response: The pay item change has been withdrawn and being reconsidered for a later revision date.

Section 455-16.3 Last sentence: “Use concrete spacers....” The word *concrete* here seems redundant and unnecessary.

Response: This change has been withdrawn.

Bob dion
bob_dion@urscorp.com
UserTel: 386 740-0665

Comments:

You have included the Basis of Payment for Dynamic Test Loads in the Method of Measurement, 455-11.5. Suggest moving ‘Payment for Dynamic Load Tests will consist of 15 feet of additional piling’ and ‘In the event the Engineer requires an instrumented redrive of a pile previously instrumented more than 72 hours after initial driving, it will be paid for as 8 feet of additional piling from 455-11.5 to 455-12.5.’

Response: The pay item change has been withdrawn and being reconsidered for a later revision date.

Since your intent is to delete the pay item for Dynamic tests suggest you Reword 455-12.5 to:

455-12.5 Dynamic Test Loads: There will be no separate pay item for Dynamic Load Tests. Payment for Dynamic Load Tests will consist of 15 feet of additional piling. In the event the Engineer requires an instrumented redrive of a pile previously instrumented more than 72 hours after initial driving, it will be paid for as 8 feet of additional piling. Price and payment will be full compensation for all labor, equipment, and materials required to assist the engineer in performing this work.

Response: The pay item change has been withdrawn and being reconsidered for a later revision date.

Bob Dion
URS Corporation
232 N. Amelia Ave.
DeLand, FL 32720

phone # (386) 740-0665
cell phone (386) 956-6181
fax # (386) 740-1275
bob_dion@urscorp.com

Comments:

FYI

In looking at the industry review spec for section 455, noticed that the present special provision for embedded data collectors, sp4550512, will need to be modified when this is added to a workbook.

The industry review spec deletes item 455-137, the special provision includes it. Suggest you delete this item from the payment items in the special provision.

Also, a subarticle, 455-12.8, was added to the industry review spec for Fiberglass Structurally Reinforced Composite Piles: This will require the renumbering 455-12.14 in the special provision to 455-12.15

(from sp4550512)

SUBARTICLE 455-12.14 15(of the Supplemental Specifications) is deleted and the following substituted:

455-12.145 Embedded Data Collector: Price and payment will be full compensation for furnishing and installing the Embedded Data Collector.

455-12.156 Payment Items: Payment will be made under:

Item No. 455- 2- Treated Timber Piling - per foot.

Item No. 455- 14- Concrete Sheet Piling - per foot.

Item No. 455- 18- Protection of Existing Structures - lump sum.

Item No. 455- 34- Prestressed Concrete Piling - per foot.

Item No. 455- 35- Steel Piling - per foot.

Item No. 455-119- Test Loads- each.

Item No. 455-120- Point Protection - each.

Item No. 455-133- Steel Sheet Piling - per square foot.

~~Item No. 455-137- Dynamic Load Tests - each.~~

Item No. 455-143- Test Piles (Prestressed Concrete) - per foot.

Item No. 455-144- Test Piles (Steel) - per foot.

Item No. 455-145- Test Piles (Concrete Cylinder) - per foot.

Response: The pay item change has been withdrawn and being reconsidered for a later revision date.

(from ss455000)

455-12.14 Prestressed Concrete Pile Cut-Off: There will be no separate pay item for pile cut-off. ~~Payment for each cut-off will be made as 5 feet of additional piling furnished.~~ *Anticipate all piles will require cutting-off, and include all costs associated with pile cut-off in Pay Item 455-34.*

455-12.15 Payment Items: Payment will be made under:

Item No. 455- 2- Treated Timber Piling - per foot.

Item No. 455- 14- Concrete Sheet Piling - per foot.

Item No. 455- 18- Protection of Existing Structures - lump sum.

Item No. 455- 34- Prestressed Concrete Piling - per foot.
Item No. 455- 35- Steel Piling - per foot.
Item No. 455- 37- Fiberglass Structurally Reinforced Composite Piles-per
foot.
Item No. 455-119- Test Loads- each.
Item No. 455-120- Point Protection - each.
Item No. 455-133- Steel Sheet Piling - per square foot.
~~Item No. 455-137- Dynamic Load Tests - each.~~
Item No. 455-143- Test Piles (Prestressed Concrete) - per foot.
Item No. 455-144- Test Piles (Steel) - per foot.

Response: The pay item change has been withdrawn and being reconsidered for a later revision date.

Greg Weich
District 1 & 7 Materials Precast / Special Materials Coordinator
Tampa Branch Materials Office
2922 Leslie Road, Tampa, Florida, 33619
Office# 813-744-6070, Fax# 813-744-6069, Cell # 813-545-6786
gregory.weich@dot.state.fl.us

Comments:

Good afternoon Duane, the only comment I offer is that under 455-4 Classification, at the bottom of the list shown, that a statement is made as follows; " Obtain Precast / Prestress Pile products from a plant that is currently on the Department's list of qualified Precast / Prestress Concrete plants." This statement is currently used in several other Specifications and the Materials Manual for off site fabricated products.

Response: This is being considered for a later revision date.

From: Nolan, Steve
Sent: Friday, December 28, 2007 8:45 AM
To: Jones, Larry
Cc: Pavlov, Andre; Shaw, Clinton
Subject: Drilled Shaft specification 455-16.3

Comments:

Please see the following request to review Specification Section 455-16.3 from District 1 Structures:

" We also suggest that Subsection 455-16.3 of the Standard Specifications be looked at again; it appears that reference to subsection 455-8 is in correct. We think it should be 455-20."

Regards,

Steven Nolan, P.E.
Structures Design Engineer
FDOT Structures Design Office
605 Suwannee Street MS-33
Tallahassee, FL 32399-0450
(850)414-4272, FAX (850)414-4955
Email: steven.nolan@dot.state.fl.us

From: Moliere, Gerard
Sent: Friday, December 21, 2007 11:55 AM
To: Nolan, Steve
Cc: Powell, Jr., Rudy; Andres, Tom; Pavlov, Andre; Robertson, Robert
Subject: Concrete Cover for Drilled Shafts

Steve,
The 2008 Design Standards specify concrete cover for drilled shaft in various ways. For instance,
1. Index 11310 sheet 2 of 5 shows 6" (Typ.)
2. Index 11320 sheet 5 of 5 shows 6" (Typ.)
3. Index 17502 sheet 5 of 7 shows 6" clear
4. Index 17723 sheet 2 of 3 shows 6" (minimum)
5. Index 17745 Sheet 2 of 5 shows 6" with a note ' 6" minimum cover on shaft reinforcement'

We would like to suggest that the concrete cover for drilled shafts be specified the same way in all related standard indices, and we prefer " 6" typ." or " 6" clear" instead of "6" minimum" since subsection 455-20 specifies the tolerances.

We also suggest that Subsection 455-16.3 of the Standard Specifications be looked at again; it appears that reference to subsection 455-8 is in correct. We think it should be 455-20.

District One Structures extends its gratitude to you all for the support you provided throughout 2007, and wishes you peace and all the joys of the holiday seasons and a happy new year.

Gerard Moliere, PE
District Structures Design Engineer
Florida Department of Transportation
801 North Broadway Avenue
Bartow, Florida 33831-1249
Telephone No. : 863-519-2260
Fax No. : 863- 519-2892
E-mail : gerard.moliere@dot.state.fl.us

**Response: The reference to 400-8 was changed to 400-20 in the original proposed revision.
The remaining items are being considered for a later revision date.**

Jesse Ortiz, P.E., Structures Design Engineer P: 813.975.6049

e: jesse.ortiz@dot.state.fl.us

Comments:

As requested, we reviewed the subject specifications and although no discrepancies were detected in the proposed revisions, please see below for minor comments/suggestions we have on section 455. Thanks.

Section 455 (Revised 12-27-07) - Review Comments from D7 Structures Design			
No.	Sect #	Comment	Response
1	455-5.7	Suggest remove the word "[meters]" following "feet" in the second sentence of the second paragraph in section 455-5.7 for consistency with other locations in section 455 where "feet" is shown without "[meters]".	Agree. This has been revised.
2	455-10.8 & 11.2(a)	Suggest remove the text "(20 blows per inch)" following "practical refusal" in the first sentence of the third paragraph in section 455-10.8, and in the first sentence of the third paragraph in section 455-11.2(a). The reason for this is that "practical refusal" is previously defined in section 455-10.3.	Disagree. Section 455-10.3 does not exist.
3	455-45	Replace the word "plum" with "plumb" in the last sentence of section 455-45 for correctness.	Agree. This has been revised.
4	455-15	Consider adding text to state that in the case of miscellaneous structures like mast arms and overhead sign structures, the drilled shaft will be paid for using the pay items for Class IV Concrete (Drilled Shaft) and for Reinforcing Steel.	Disagree at this time. However, this is being considered for a future release date.
5	455-43	The term "LOT" as used in section 455-43 appears to be undefined in section 455. Should a reference to section 346-9.3 be added for the definition of this term for clarity?	This is being considered for a future release date.
6	455-12.15	Shouldn't the pay item 455-36- for CONCRETE CYLINDER PILES be shown in subsection 12.15 also? A separate pay item is currently shown for "Test Piles (Concrete Cylinder)", but not for the concrete cylinder pile itself.	Agree. Pay item added.

Response: See above table.

Paul Passe

paul.passe@psiusa.com

UserTel: 813-886-1075, UserFAX: 813-888-6514

Comments:

Under 455-5.10.4 c where it states 1 blow shall exceed RDR and the next 5 shall exceed 95% of RDR, I would recommend changing "next" to "other" for the highest capacity may not be the first blow.

Response: Disagree, the subsection does not require the first blow to be the highest blow. If the fourth blow is the first to exceed RDR, the next 5 (blows 5 through 9) must exceed 95% of RDR to assume the pile has achieved bearing during the instrumented set-check.

Jose Rodriguez
jsrodriguez@pbsj.com
813-281-8221

Comments:

- 1) 455-8.3: Verify whether the new AWS reference should be D1.5 (see 455-8.4).
- 2) 455-11.5: It appears the beginning of the first sentence should be modified, since payment will no longer be made by the number of dynamic load tests.

Response: The references are correct, please refer to AWS D1.1 and AWS D1.5 for details. At this time the pay item for dynamic load tests will remain.

Tom Casey
tcasey@wpceng.com
UserTel: 904-997-1400, UserFAX: 904-997-9150

Comments:

Curious if there has been any studies with the marl (Jacksonville area) for time dependent capacity gain with driven piles. Specifically if the 72 hour re-drive is sufficient time wise to determine, or take advantage of this phenomenon. Our experience with the Cooper Marl formation in the Greater Charleston area is that setup can be significant and quite a bit of economy can be added to projects when you design or plan to take advantage of this.

Response: No response required.

Daniel F. Haldi
daniel.haldi@dot.state.fl.us
UserTel: 386-740-3516, UserFAX: 386-736-5178

Contact_Requested

Comments:

9.2 Concrete with Air Entrainment ? Suggests there can be non-air entrained concrete, whereas all 346 concrete is air entrained ! So just say concrete ... remove air entrained.

17.2 Elapsed time should include time inclusive of bolt installation and finishing since concrete needs to be fluid to permit ease of embedment and bond and waterless durable smooth finishing.

17.6.1 CSL minimum number of tests is not always in the plans, so should state at engineer's descetion as deemed necessary.

40-(6) Fluidizer is not consistent terminology as in ASTM C 937 or 455-42(2)

Response: Comments regarding 9.2, 17.2 & 40-(6) are being considered for a later revision date.
17.6: *At his/her discretion* is superfluous text and not needed. The sentence has been revised without changing the meaning.

Christopher Wood
D2 Construction, Contract Support Specialist
2198 Edison Ave, Jacksonville, FL 32204-2619, MS 2803
(904) 360-5673, (386)623-0552- Cell
195*106*55925-Direct Connect
Email:Christopher.Wood@dot.state.fl.us

Comments:

Here are some comments I have received from District 2 personnel on this specification:

1. It seems they have cut off some of the pay items in 455-12.15, page 35 of this proposal. There are no costs shown for prestressed concrete pile or test piles, etc.
2. In 455-15.9, the section relating to tremies is incorrect. Section 400-8 is for Seal concrete and that is where they talk about tremies. Need to move 400-8.3 out of 400-8.3 and make it stand alone, or include this under the 455 spec.
3. In 455-17.3, need to modify this so that it reads metal or wood forms to be specific as to the type of forms to be used for the top of the drilled shaft. Need to eliminate the use of sonotube as this material is not suited for the top of drilled shafts. Using the word "sturdy" is misleading to a contractor.
4. In 455-17.6, they have eliminated a lot of text for this section. Also, they have eliminated 455-17.6.1.1
5. Need to include additional payment items in 455-24.13 and additional text for spread footings.
6. I recommend that someone read through this specification to verify that all the sections are included since this has occurred in my item 1, 4 and 5 above.
7. It does not seem practical to fill the space between the pile and the preform hole prior to completing driving.
8. I suggest we go back to the old way of driving piles and use the ENR formula.

Response: Pursuant to Mr. Wood's email of 2/14/2008, comments 1, 4, 5 & 6 have been disregarded as due to errors in printing for internal distribution. Comment 2: The reference has been changed to Specification 400. Comment 3: Disagree – new sonotube forms which hold the fresh concrete in the shape shown in the plans are acceptable. Comment 8: The ENR formula has been proven to be unreliable in most soil conditions and sometimes results in unsafe foundations (factor of safety as low as 1/2).

JC Miseroy
Granite Construction Company
1-14-2008

Comments:

455-5.3.2 Pile Cushions.

What happened to including a payment for additional pile cushions when the driving criteria require replacement of pile cushions before the conditions described in the 10th sentence of the first paragraph of this section? Many criteria now require replacement of pile cushions after a specific number of hammer blows, rather than because the cushion has compressed more than one half of the original thickness or caught on fire. There had been discussions about paying for additional cushions as X feet of pile. It is impossible to determine at bid time that more than one pile cushion per pile will be required because the pile is being overstressed.

Response: At this time there are no plans to implement payment for additional pile cushions since the Contractor chooses the pile driving hammer and cushions. Efforts are underway to identify pile cushions during the test pile program that will start thick enough to drive the entire pile.

455-5.10.2 Blow Count Criteria & 455-5.10.3 Practical Refusal.

These Specifications need more direction on what to do when rebound exceeds 1/4".

Response: This is being considered for a later revision date.

455-5.10.4 (c) Instrumented Set Checks and Instrumented Pile Re-Drive.

The final sentence includes the language 'The Engineer may consider the pile to have sufficient bearing resistance ..'. This leaves the Contractor totally at the mercy of the Engineer. This is another example of how the 455 specification grants so much latitude to the Engineer that a DRB can never rule against FDOT for any pile related issues.

Will a pile be accepted if it meets the criteria stated in this sub-article, even if the blow count is falling?

Response: A falling blow count would not be recorded during a short instrumented set-check.

455-7.8 Pre-Planned Splices.

This section requires that when the contractor elects to use dowel splices, a dynamic load test is required to verify the integrity of each splice.

Section 455-11.5 (Dynamic load tests) states that no payment will be made for dynamic load tests used to evaluate the integrity of an epoxy-bonded splice. What about un-planned splices? Epoxy-bonded splices may be the only option, and it is not reasonable that there would be no payment made for PDA testing in this instance.

Response: Agree. This has been clarified.

455-8.3 Pile Splices.

There is a reference in the last paragraph of this section to API 5L. What is API? Is it part of the Contract?

Response: API Specification 5L (Specification for Line Pipe) is published by the American Petroleum Institute. If the Contractor elects to supply pipe piles manufactured as meeting this standard mill certifications documenting compliance with the Specification is required.

455-11.5 Dynamic Load Tests.

This sub-article states that payment for dynamic load tests will consist of 15 feet of additional piling. Do we use unit pricing for test piles when performing dynamic load tests on test piles? This sub-article states that there will be no payment for dynamic load tests used to evaluate the Contractor's driving equipment. Does this mean that the PDA on the first test pile is not paid for? In the case of an instrumented re-drive of a pile previously instrumented, more than 72 hours after initial driving, will the Contractor be paid the 20 feet for the re-drive as described in 455-11.10 plus the 8 feet for the PDA as described in this sub-article? It makes sense that an instrumented re-drive would be more expensive. Do we use test pile unit prices for re-drive on test piles?

Response: The pay item for dynamic load tests has been left in the Specification for now, however, removal of the pay item is still planned in a future revision. The referenced Subarticle gives reasons why dynamic load tests (without payment) to check the contractors equipment may be needed; test piles are not one of the indicated reasons. The pay item for dynamic load tests has been left in the Specification for now, however, removal of the pay item is still planned in a future revision.

Max Holmes
Geo-Tech Services, LLC
220 N Zapata Hwy, Suite 11A, Laredo, TX 78043 USA,
tel 1-210-587-4758, cel 1-310-923-4160, fax 1-210-568-4567
mholmes@geotech.us

Comments:

I have gone through the 4550000 document and inserted notes on recommended changes. My notes were made in Adobe Acrobat, and are in the margins with a note icon in the text. These comments or notes should show up on screen when the document is reviewed. For printing, the "Print What" button should say "print documents and comments" in order to see the comments.

These comments are added here:

455-1.2: If slurry-drilled piles are expected, and the ground water is within about 15 feet of the surface, the pile foundation surface area should not be excavated or taken down unless the ground water table will be at least 6 to 10 feet below the new, lower ground surface of the foundation area. If the area is excavated such that the water table is less than 6 to 10 feet below the new surface, it may be impossible to maintain sufficient slurry column height above the water table to maintain hole stability. This is especially critical if drilled shaft piles will be more than about 60 feet deep, or if shaft diameters are 36 inches or less and if massive Kelly bars (European-type rigs) are used. Steel displacement can cause slurry levels in small holes to fluctuate greatly.

Response: This is a contractor's means & methods issue.

455-15.8.1: Need to cite a specification for attapulgite and bentonite, to assure that quality materials are used. In the absence of a specification, contractor can use anything that is labeled "attapulgite" or "bentonite", which can be any pulverized mineral from any supplier or source. A mixture of guar gum and pulverized limestone would look like bentonite, and might fool an inspector for a short while. It might also be relatively inexpensive. API Specification 13A contains specifications for various grades of bentonite and attapulgite. These standards should be studied to determine what grades of these processed clay minerals are acceptable to FDOT. Last sentence – replace "professional soil testing laboratory" with "drilling fluids engineer or technician".

In the table for mineral slurry, the viscosity of water is 26+/- 0.5 second. Allowing a 28 second slurry is allowing water. We suggest 35 minutes. Replace Test Method "Marsh Cone Method" with "API Marsh Funnel Method".

Response: The mixed mineral slurry must comply with the properties required in the table in 455-15.8.1 prior to its introduction into the hole. A minimum mineral slurry viscosity of 35 seconds being considered for a later revision date. The test method is based on the Florida Method (FM) test which is available at the Materials Office webpage.

455-15.8.1 – Second sentence should be as follows: Use polymer slurry only if the soils are not classified as organic, and the pH of the fluid in the hole can be maintained in the alkaline range and in accordance with the manufacturer's recommendations.

Response: This is being considered for a later revision date.

455-15-8.2 – Second paragraph, 1st sentence - Take samples of the fluid in the shaft from within 2 feet of shaft bottom and at midpoint of shaft the base of the shaft and at intervals not exceeding 10 feet up the shaft using an approved sampling tool.

Response: Disagree; the bottom foot of slurry is best indicator of slurry cleanliness.

As for recommendations as to what proofs should be required for polymers to added to the QPL, we suggest the following:

1. Independent lab tests to show no significant deleterious effects of polymer slurry on:

- a. concrete-to-rebar bonding (pull-out tests)
- b. concrete contamination when 10% of concrete mix water is replaced with polymer slurry
- c. Concrete curing when immersed in polymer slurry

NOTE: All candidate slurries should contain the products, concentrations (slurry

formulations) and properties (such as viscosity for which the slurry supplier is seeking QPL approval).

2. Independent lab evidence to show that the formulated slurry is non-toxic or of very low toxicity so as to facilitate disposal and to avoid contamination of Florida's natural environment. Also recommended disposal methods and treatments to facilitate acceptable disposal.

3. Data from 3 field load tests that show acceptable effects of the candidate polymer slurry on frictional load bearing, shaft geometry and integrity. These load tests must be constructed using a range of slurry viscosities and formulations for which the supplier seeks QPL approval.

I have attached to this email some documents that bear on what we have recommended, and that you may find useful. Please note that the attached documents are for the use of Florida DOT only, and are not to be copied or circulated outside the circle of people involved with this project. All the docs are copyrighted and are the sole property of Geo-Tech Services, LLC.

Response: The above proofs provided by you and another supplier have been incorporated into the specification requirements.

Joe Blasewitz
Project Administrator
PB Americas, Inc.

Comments:

I have reviewed the re-write of 455 and have the following comments/suggestions:

- 455-5.9.1 Preformed Pile Holes - Description - in the added language of paragraph 2 we suggest changing the phrase "**before driving ceases**" to "**before driving is completed**". Filling the void before driving ceases implies that the work is to be done while the hammer is running overhead. This *may* be a concern for the worker to be in close proximity to the pile during active driving. Stating it as before driving is completed allows the work to be done at any time determined by the Contractor and not while the hammer is running.
- 455-5.12.1 Test Piles - Description - in the 6th paragraph we suggest adding the phrase "**up to**" before the phrase "**60 minutes**". This allows for flexibility on the Geotech's part.
- 455-23.3 Method of Measurement - Unclassified Shaft Excavation - in the first sentence after the phrase "**ground surface elevation**" we suggest adding the phrase "**after any required excavation per 455-1.2**" to further clarify the pay limits of the item.

If you have any questions on these comments/suggestions, let us know.

Response: 455-5.9.1 – The original intent was to shovel sand at the pile during driving, after the pile achieves minimum tip because the vibrations of driving the pile densify

the sand. However, provisions have been added to give the option of temporarily halting driving during refilling of the space with sand.
455-5.12.1 – *Up to* has been incorporated into the revised text.
455-23.3 – Agree. This is being considered for a later revision date.

District 3 Comments
Sam Weede, Marshall Hagler, Jared Perdue

Comments:

SAM WEEDE’S REVIEW COMMENTS

- **455-5.10.4 (c) -**
reads somewhat confusing: suggest.... “set check or redrive will consist of a minimum of six hammer...”

Response: This is been revised.

- **455-5.11.2 (c) -**
For allowable pile tensile stress of mechanically sliced pile: this criteria is under section titled “Wave Equation” and limits stress to 500 psi within 20’ of splice. I question the accuracy of this prediction from WEAP analysis.

Response: The specification also includes the use of monitoring data and analysis to verify WEAP predictions.

- **General Recommendation:** “All test piles to be dynamically monitored unless noted otherwise in the plans or by the Engineer. The cost of dynamically monitoring of test piles should be included with the cost of the test piles.” This statement needs to be included in the specification. It makes no sense to pay for 15’ of pile when all parties know TEST PILES are going to dynamically monitored.

Response: Agree. This is being considered for a later revision date.

- **455-7.7 -**
Refer to Marshall Hagler’s comments.

Response: See response to Marshall Hagler’s comment

- **455-7.8 -**
Pre-planned Splices: I support the new language requiring a dynamic load test on each dowel spliced pile to verify pile integrity. However, the language reads such that the Department will absorb the cost of this testing. Shouldn’t this cost be the responsibility of the contractor? If the splice is unforeseen, then I support the Department being responsible for the dynamic testing but not for Pre-Planned splice.

Response: The testing should be performed by the Department’s representative, however, language was also added to better define the length to be provided in one piece.

- **455-11.5 -**

(2nd paragraph: new language) include “unforeseen” before “epoxy-bound dowel splice”

Response: Agree, *preplanned* added.

- **455-15.3 -**

(2nd paragraph: new language)... “from at least one foot above ground surface to at least 1 ½ shaft diameters below ground surface”... This statement needs to apply to all Drilled Shaft Construction not just the Wet Construction Method. Also this definitely applies to Drilled Shafts for Miscellaneous Structures.

Response: Surface casing is required for all shafts.

- **455-15.9 -**

Include statement “Tremies constructed of PVC are prohibited under wet construction.”

Response: This is being considered for a later revision date.

MARSHALL HAGLER’S REVIEW COMMENTS

- **455-1.2 -** “...not less than 90% of the maximum density as determined by AASHTO T 180...”

Should be changed to 95% of the Standard Proctor maximum density as determined by AASHTO T 99. Usually at this stage of construction the material has a Standard Proctor but not a modified.

Response: Compaction in this area is considered to be the contractor’s responsibility. The following text has been deleted: *a density not less than 90% of the maximum density as determined by AASHTO T 180, and which will.*

- **455-5.10.4 (c) -** last sentence”...blows exceeds 95% of the required pile resistance.” For the sake of consistency, should it say “required driving resistance”. Whatever the LRFD nomenclature is, we should stay consistent throughout 455 and the SDG.

Response: This is being considered for a later revision date.

- **455-5.11.2 (c) (2) –** Sapt=500 within 20 feet of mechanical splice
This is hard to measure.

Response: Noted.

- **455-5.15.4 -** What does this sentence mean “Do not embed the pile less than 6 inches...”?

Response: This subsection refers to pile head elevation & embedment in the pile cap.

- **455-7.1 –** “...without the need for a special over length permit.” Most all of our trucked piles require permits. Should we put a hard number (e.g. 24” pile – 120’ length)

Response: This has been revised.

- **455-7.5 -** This section needs to be in 450. Cutting the lifting loops back one inch and patching is not covered in 450 and this work is performed at the prestress yards. It is an enforcement issue on occasion. Also, change sentence to “...minimum depth of 1 inch, thoroughly clean, dry and patch...”

Response: This is being coordinated with the Materials Office.

- **455-7.7.1 –** This section is confusing. Can you use a cutoff less than 21’ and use as a drivable splice? The specification seems to contradict the standard index. Look at one common example. We authorize a 25’ splice. The pile achieves RDR after 12’ of

driving. You just cut it off leaving a 13' splice. If this is acceptable, why couldn't you use a 20' cutoff for a splice to start with?

Response: This section has been revised to refer to the Standard Indexes.

- 455-7.8 - If the contractor uses preplanned dowel splices, he should pay for the PDA.

Response: The PDA operator should be a representative of the Department. However, additional guidance regarding when preplanned splices will be allowed has been added.

JARED PERDUE'S REVIEW COMMENTS

- 455-5.10.4 – The spec reads “six blows to 12in or more of driving”. This is confusing. Maybe it would be better to read “At least 6 inches” or something of that nature. It may be best for the PDA engineer to determine exactly how many blows are needed to achieve capacity based on the criteria set forth in this section.

Response: This has been revised.

- 455-7.8 – Contractor should foot the bill for dynamic monitoring of pre-planned epoxy dowel splices.

Response: The PDA operator should be a representative of the Department. However, additional guidance regarding when preplanned splices will be allowed has been added.

- 455-11.5 – The dynamic load testing of test piles should be absorbed in the cost of the test pile. This should also include the monitoring of a redrive for a test pile. Currently if a redrive is performed on a test pile, even though it is still part of the test pile program, the department has to pay for the redrive (20ft of pile) and the dynamic monitoring (8ft of pile) at the test pile price.

Response: Agree. This is being considered for a later revision date.

- 455-15.3 – Dimensions for temperature surface casing should be applied to both wet and dry construction methods. Currently, the dimensions are only listed in the wet construction method.

Response: This is being considered for a later revision date.

- 455-16.3 – There is a grammatical error. The word “maintain” is used twice in the 4th paragraph, 2nd sentence.

Response: There are only three paragraphs in 455-16.3. Additional revisions will be considered for a later revision date.

Kathy Gray, P.E.
District Geotechnical Engineer
D-5 Materials and Research
Florida Department of Transportation
(386) 740 - 3501 (office)
(386) 801 - 3593 (cell)

kathy.gray@dot.state.fl.us

Comments:

1. 455-7.1 Description: The requirement for driving piles full length without splices needs to be strengthened. The “special over length permit” criteria is too vague. I recommend we specify 100 feet as the minimum full length pile.

Response: This has been revised to 120 feet.

2. 455-15.3 Wet Construction Method: The requirement for temporary surface casing should be clarified to require the casing installation before beginning excavation.

Response: This has been revised.

3. 455-15.6.2 Cores: Cores below the shaft excavation are not usually needed for Miscellaneous Shafts. An exemption for Miscellaneous Shafts should be added.

Response: The proposed revision has been removed. A revised revision will be proposed for a future date.

4. 455-15.8.1 Slurry: A major revision of this section is needed to clarify when to test the slurry (i.e. before it’s in the hole or after it’s in the hole) and what tests are required for polymer and mineral slurry in each case. The wording is not clear enough. Maybe doing this with tables would work better.

Response: This has been revised.

5. 455-15.8.1 Slurry: The paper strip method of pH testing should be deleted as an option. This is not practical for testing slurry. The dark colored fluid obscures the result.

Response: Disagree. pH paper can be used to test dark colored fluids.

6. 455-15.9.3 Wet Excavations: The requirement for 10 feet of tremie embedment seems excessive. 5 feet should be sufficient.

Response: Disagree. There is a greater chance of lava flow behavior of fresh concrete with a short embedment such as five feet.

7. 455-16.3 Support, Alignment and Tolerance: Second paragraph, 6th sentence reads “Use *concrete* spacers constructed of approved *noncorrosive* material.” I’ve never seen a spacer made of concrete. The plastic spacers work fine. I recommend we allow them also.

Response: This has been revised.

Wing Heung, P.E.
Turnpike Lead Geotechnical Engineer
(954) 934-1154 (Office)
(954) 444-9742 (Mobile)
(954) 934-1349 (Fax)
Physical Address:
Milepost 65, Florida's Turnpike
Pompano Beach, FL 33069
Mailing Address:
P.O. Box 9828
Fort Lauderdale, FL 33310

Comments:

I have the following comments / questions for your consideration:

1./ Section 455-11.5: I agree with District 3 that we should not pay for the Dynamic Load Test for piles with pre-planned epoxy dowel splices. The only project that we have used the pre-planned splice is Contractor's decision due to his means and methods. Why should the Department pay the Contractor more money for a decision that is under the Contractor's control? However, I think that it is fair that we should pay the Contractor separately for unforeseen splices, since the Department's authorized pile length does not work in that situation. They should not anticipate that in the unit bid price before they get the project. My suggestion is a change in Section 455-11.5, showing "No payment will be made for dynamic load tests used to evaluate the integrity of pre-planned epoxy-bonded dowel splice"

Response: This has been revised.

2./ Section 455-11.6 shows "The quantity to be paid as shown in the Plans, with no allowance for variable depth surface profiles." Do you mean "with no allowance for variation of actual penetration depth or tip elevation"? If it is, I suggest a clarification is needed as the current phrase is difficult to understand. The following question is that if it is acceptable not to meet the minimum tip elevation. I guess the Engineer has to make the determination on a case-by-case situation after consulting with the Engineer of Record of the wall.

Response: No – this refers to the measurement of the wall length, not the length of the individual sheets.

3./ Section 455-15.4: The added paragraph indicates "If the temporary casing tip elevation is advanced deeper than the Top of Rock Socket Elevation shown in the plans, advance the excavation one-half of the distance between " Presumably, the distance is the additional length of the drilled shaft; not the total length. I know it does not make much sense to interpret otherwise, however, the sentence is not clear. Please consider substituting the phrase "advance the excavation" with "increase the required rock socket length by" for clarity (if our interpretation is correct).

Response: This has been revised.

4./ Section 455-15.4: Third paragraph (below the added text), show "if backfilling". Since the option to stabilize the excavation with slurry is now removed, the phrase "to backfill" seems more appropriate.

Response: This has been revised.

I have one more question / comment which is not directly related to the Industry Review, as follows:

A./ Initial Setcheck: According to 455-5.10.4 (a), “the Engineer may require the Contractor to interrupt driving **at least** 15 minutes prior to performing a set-check.” This is the “initial setcheck” in the Specifications. The current practice is that the initial setcheck is performed up to 15 minutes after initial drive. This is also taught in the CTQP class likewise. However, the phrase “at least” seems to indicate otherwise. It seems to mean the initial setcheck will be performed at least 15 minutes after initial drive. I think some clarification may be needed in 455-5.10.4 to reflect what is being done in the field.

Response: This has been revised. Your CTQP class instructor was in error.

If there are any questions, please let us know. Thank you.

Response: No response required.

Keith Waugh
Construction Conference
Feb 25, 2008

Comments:

455-1.1 When sheeting and shoring is not shown in the plans but required to prevent damage to existing structures it will be considered critical and designed by FDOT. Work would be considered extra work.

Response: This will not be implemented at this time, however, it will continue to be reviewed to determine whether it would have a limiting impact on the contractor’s means, methods and equipment selection for completing the work.

455-1.2 In lieu of excavation, predrill. Protection of the pile during excavation is Contractor’s responsibility. Need to delete density requirements.

Response: Predrilling instead of excavation is being considered for a later revision date. The following text has been deleted: *a density not less than 90% of the maximum density as determined by AASHTO T 180, and which will.*

455-2 Delete Static Load Tests and all references throughout 455. Write TSP on project by project basis.

Response: This is being considered for a later revision date.

455-5.1.1 Starter holes should be allowed for all piling up to 25% of initial length. Drill diameter: use minimum in lieu of specified. FDOT to review Industry concerns and possibly address suitability of hole/pile relationship instead of tabular requirements.

Response: Remove reference to “concrete sand”.
Discretionary starter hole depths were increased to 10 feet to 20% of pile length. Drill diameter was changed to a range for each pile size. Reference to casings was moved to the preformed pile holes section. Reference to *concrete sand* was changed to *clean A-3 sand or sand meeting the requirements of 902-3.3.*

455-5.2 Remove first sentence. This is covered in 455-10. Delete references to jump sticks.

- Response:** The first sentence was rephrased to *when requested* and moved to the end of the paragraph. The reference to jump sticks has been deleted.
- 455-5.3.1 Allow the use of commercially available and manufactured wire rope hammer cushions.
- Response:** The prohibition on commercially manufactured wire rope hammer cushions has been deleted.
- 455-5.3.2 Pile cushions should be adequately sized to protect the head during driving. Oak should be allowed. Remove “protect from weather and keep dry”. Pads that get rained on should not be considered “soaked”. Allow payment for additional pads as multiplier of pile unit price.
- Response:** Oak lumber has been allowed. *Protect from weather and keep dry* will remain, however, inspectors will be trained to consider the difference between soaked and slightly exposed to light rain. Additional pads should not be needed if sufficient thickness of pile cushion is used at the beginning of the drive. Hopefully the use of oak lumber cushions will help in this regard as well.
- 455-5.6 Reduce the section to providing template or fixed or semi-fixed leads adequate to maintain pile position during driving.
- Response:** Most of the text requested to be deleted has been deleted.
- 455-5.7 Address jetting. Pile installation data table in plans should be used.
- Response:** This is the jetting section. Jetting is addressed in this section. Do not jet *for end bents* has also been added. In addition, *when jetting is allowed* has been added to other subsections calling for jetting equipment.
- 455-5.8 A definition of “hole” is needed. Is it an open orifice or a disturbance of soil that will allow penetration to desired depth? Again, address jetting.
- Response:** Is the comment is intended to refer to 455-5.9? For clarification, the following was added to the end of the 455-5.9.4: *Loose material may remain in the preformed pile hole if the conditions in 455-5.9.3 are satisfied.*
- 455-5.9.3 Add “when shown in the plans, required by the Engineer” regarding when payment is authorized. Add limits used for measurement.
- Response:** This comment seems to endorse the change proposed by the Department. As discussed in the meeting, the erroneously proposed *and* has been changed to *or*.
- 455-5.9.4 If an open hole is required but not shown in the plans it should be considered extra work.
- Response:** For clarification, the following was added to the end of the subsection: *Loose material may remain in the preformed pile hole if the conditions in 455-5.9.3 are satisfied.*
- 455-5.9.5 Payment for grouting shown in the plans should be a multiplier of the unit price for piling.
- Response:** This is being considered for a later revision date.
- 455-5.10.1 Include skin friction and freeze.
- Response:** This is being considered for a later revision date.
- 455-5.10.2 Delete “the Contractor may”.
- Response:** Agree.
- 455-5.10.4 (a) The end of first sentence needs to reference “initial” set –check. Second sentence, “to 12 inches of driving”.

Response: Disagree. *Initial* is not needed at the end of the first sentence. Inches of driving is no longer addressed in this subsection.

455-5.10.4(c) The Contractor needs to be allowed input on the use of PDA for acceptance of redrives and set-checks.
Add “Payment for instrumented set-checks or redrives would be a combination of (a) or (b) plus a dynamic test load.

Response: The contractor can always request the Engineer to perform an instrumented set-check or redrive. Payment measurements should be addressed in other Subarticles.

455-5.10.5 Last sentence “due to pile heave in accordance with 455-5.10.4.”

Response: Disagree. Pile heave needs to be addressed regardless of whether nearby piles were set-checked or redriven.

455-5.11.3 Review safety factors for temporary piles

Response: Disagree. This comment was also deleted at the meeting.

455-5.12.1 Delete requirement of having jet pump on-site for test piles.

Response: *When jetting is allowed* has been added for clarification.

455-5.12.4 Delete last sentence.

Response: This section was entirely deleted, however, the first sentence was added to 455-5.6

455-5.13 Delete 9. Other

Response: Disagree with the need to delete this item.
Delete references to Contractor supplied generator, shelter, etc.

Response: Agree with deleting most of this text, however, the need for a pile penetration reference was moved to 455-5.6
Address payment of additional cushions when directed and pads are still in compliance with 455-5.3.2.
Waiting period for the two set-checks should be a combined 60 minutes.

Response: Pile cushions compressed to the point that no longer protect the pile are not in compliance with 455-5.3.2.
Combined waiting periods total to two hours during initial drive.

455-5.14.2 Address overruns and underruns that vary more than 15%. Changed conditions require compensation.

Response: Disagree, this contradicts other language in the specification.

455-5.14.3 Delete “These lengths represent.....remain in the completed structure.”
Address time for supplying lengths and criteria. Five work days is reasonable.
Address substructure elements in lieu of “all test piles”. Address “operations in phases designated by the Engineer”.

Response: There is not a need for the referenced sentence; it has been deleted. Time for supplying pile lengths has been changed to five days; criteria will be supplied within eight. The other issues were addressed in the revised text.

455-5.15.2 Address tolerances in accordance with DCE Memo 22-07.

Response: *Laterally in the X or Y coordinate* has been added.

455-5.15.5 Delete “Unforseeable Work” and replace with “all additional work”

Response: Disagree. This addresses work caused by actions of the Contractor.

455-5.16.1 Delete all references to steel pile and the Department retaining ownership of cutoffs.

- Response:** Not at this time. These pile sections are paid for by the Department and desired by some of the Maintenance Offices.
- 455-5.16.2 Second sentence, delete “at no expense to the Department”. Add “All work of pulling, cutting off, or disposing of unsuitable test piles will be considered as extra work.
- Response:** *Due to actions of the Contractor has been added after found not suitable for use. This has the same result.*
- 455-7.3.1 Delete “aged for at least 7 days” and add “been cured in accordance with Section 450”
- Response:** Agree. This has been revised.
- 455-7.3 Delete references to “plans” and replace with Standard Index.
- Response:** Agree. This has been revised.
- 455-7.6 Delete entirely. This is covered in 455-5
- Response:** This is being considered for a later revision date. However, *when jetting is allowed* has been added for clarification.
- 455-7.7.2 Move (f) Place forms.... To after (c).
- Response:** Agree. This has been revised.
- 455-7.7.3 Allow the use of forms that provide similar appearance and concrete the same Class as the substructure.
- Response:** This is being considered for a later revision date.
- 455-8.3 Delete references to AWS D1.1 or API 5L.
- Response:** Disagree, however, AWS D1.1 and API 5L are defined in this section.
- 455-8.7 Coatings needed better clarification. All coatings should be shown in the plans.
- Response:** The need for coatings is being addressed in a change to Specification 560.
- 455-9.3.1 Add “drilling” to last sentence.
- Response:** Agree. This has been revised.
- 455-9.4.1 Remove “prestressed” and “driven”. Replace driven with installed.
- Response:** Disagree with removing *prestressed*.
Driven replaced with *installed*.
- 455-9.4.3 Add “drilling” similar to 455-9.4.1
- Response:** Agree. This has been revised.
- 455-10 Revise completely, removing items that are discussed elsewhere in the specifications.
- Response:** This is being considered for a later revision date.
- 455-10.2 Replace “at no additional cost to the Department” with “with no additional compensation to the Contractor.”
- Response:** Agree. This has been revised.
- 455-11.2.2 “subject to provisions of 455-11.2.3 through 455-11.2.10, 455-11.9, 455-11.10 and 455-11.14.
- Response:** Agree. This has been revised.
- 455-11.2.5 “the length of pile will be measured” (Deleted “driven”)
- Response:** Agree. This has been revised.
- 455-11.2.7 Add “by the Contractor” after “otherwise damaged..”
Delete last sentence.
- Response:** Agree. The last sentence was changed to: *The Contractor will be paid 30 feet of piling as full compensation for extracting the original pile.*

- 455-11.2.9 “no separate pay for the initial two set checks within 60 minutes. Two additional set checks with xx hours of initial driving will be paid as xx feet of piling”.
- Response:** Both occurrences of *72 hours* was changed to *two working days*, the remaining text remains intact.
- 455-11.2.10 “no separate pay for one initial set checks within 15 minutes” Set-checks performed more than xx hours/days after end of initial drive will be considered extra work.
- Response:** *72 hours* was changed to *two working days*, the remaining text remains intact.
- 455-11.4 Delete last sentence
- Response:** Disagree.
- 455-11.6 Some wanted payment by linear feet, others by square feet, others by lump sum. Still need more input....
- Response:** This is being considered for a later revision date, after the appropriate pay items can be established.
- 455-11.9 Allow payment for splices when authorized lengths are in excess of lengths allowed on Index 20600 and for splices shown in the plans. Delete last sentence.
- Response:** Agree. This has been revised. The last sentence of the first paragraph has been deleted.
- 455-11.9 (a) add “generally conform”
- Response:** Agree. This has been revised.
- 455-11.14 add “required penetration after driving” to last sentence. Grouting of pile holes, when shown in the plans, should be paid for as an additional 50% of one foot of piling for each foot of grouting. Payment for all holes shall be measured from existing ground or bottom of excavation to the bottom of the disturbance.
- Response:** The additional text does not appear to be needed. X feet of piling payment issues will be considered for addressing at a future date. Payment will be measured from the bottom of any required excavation to the bottom of the preformed hole.
- 455-12.3 Delete “and the cost of predrilling pile holes described in 455-5.1.1.
- Response:** Disagree, this refers to predrilling rather than performing.
- 455-12.5 “required to assist the Engineer in performing this work.”
- Response:** This comment seems to endorse the change proposed by the Department.
- 455-12.6.1 Delete “including preformed holes and painting”. Use “coating” in lieu of “painting”.
- Response:** Text was added to indicate preformed holes are included only when included in the plans. *Coating* is used in lieu of *painting*.
Anchors for temporary walls should be paid per each as done for permanent walls.
- Response:** This is being considered for a later revision date, after the appropriate pay items can be established.
- 455-12.9 Address points of measurement similar to 455-11.14. Casings required to maintain an open hole, should be considered extra work.
- Response:** This was discussed in the meeting; casings were moved from predrilled holes where there is not any compensation to preformed holes which are compensated.
- 455-12.13 Address integrity of a non-driveable splice.
- Response:** *Integrity verified* was deleted and replaced with *approved*.
- 455-12.14 Industry believes that payment for cutoff should remain as is.

Response: The Department disagrees; there is no additional risk to Industry. The bidder is notified prior to the bid that all piles will require cutting off and to include that cost in the price for the piling.

General:

All time frames in the specifications need review and possible revision.

All factors for miscellaneous work (splices, redrives, set-checks, holes, PDA, pads, etc) need review. Industry needs to supply FDOT with current backup documentation.

Response: Thank-you for your comments.
