

1200000 – EXCAVATION AND EMBANKMENT  
COMMENTS FROM INDUSTRY REVIEW

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Bob Dion  
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Comments:

Should paved shoulders or subgrade be included in the description of vehicular traffic construction in 120-8.1?

120-8.1 mentions '...for which 120-1.1 and 120-1.2 do not apply.' which areas is this referring to? Is this all shoulders?

Should shoulder construction be removed from non-vehicular traffic construction, isn't it part of the construction 'associated with' vehicular traffic construction?

120-8.1.2.2 includes 'The Engineer will perform 'IV' density and...'; can IV be deleted? If not, suggest defining it or referring to where it is defined.

Review the table for 'Non traffic Construction' in 120-10.3.1. Include all lines in the table, such as 'Density & Moisture Production'.

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Derek Fusco  
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Comments:

Should Subarticle 120-8.1 General include rest area parking lots under vehicular traffic construction?

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Jim Warren  
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Comments:

Is there any provision for verifying and accepting a shorter section of finished embankment, so the next layers of construction can commence? Everyone knows there are situations that merit an emphasis on speed of construction that will benefit the public. The contractor should have the opportunity to get loose ends tied up before covering it up. If the specification doesn't allow this now, it should.

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Ed Rodriguez  
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Comments:

With so much emphasis on the excavation and embankment areas I recommend preventive measures against erosion with reference to FDOT Index 199, E-5. I'd like to further discuss the requirement for using these materials against erosion control.

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Comments:

I disagree with the philosophy of moving away from Lots and calling them "Sections". It most likely will cause more problems than it fixes. Lots are standard term and need to be understood by those working in this industry. It is the basis of statistically based acceptance specifications and those in the field are more than capable of understanding these concepts. I have been teaching these basic statistical concepts for years in the CTQP courses and never get questions on what a Lot is, but rather what is the size of the Lot? Changing the terms mid-stream will cause confusion in the field, especially between different material areas. A Lot is a Lot is a Lot, whether it is in linear feet, cubic yards or tons depending on the type of material.

Also, there needs to be provision for accepting shorter segments. In changing the Lots to consecutive feet and increasing the distance/total number of tests - how does one handle a project that is built in short segments? Specifically, if the phasing of the project calls for building an area up that is less than the consecutive footage requirement, how do you accept lower layers of embankment, sub base or base? The same situation applies to areas that in the interest of getting the project built faster – the contractor wants to work smaller sections – is the contractor then placed at high risk in covering up lower layers? Why can't the layers be accepted as they are completed regardless of the length – if it will get the project done faster? If we can reduce the risk to both the contractor and the agency, the projects will undoubtedly be built right (quality) and faster and cheaper in the process. Seems the way that is proposed will be a paperwork nightmare.

There appears to be a push toward larger Lots and longer consecutive distances before reduced testing is an option. My question to the Department is how many projects are actually phased this way anymore, or is the trend to have projects built in shorter sections? Any specification that is developed must be flexible enough to work in both long continuous runs of production and short discontinuous runs of production. I'd go further to recommend to the Department that they consider looking at how they are doing business now (compared to 10 years ago) in terms of the type/scope/phasing of projects to see if the current specifications are applicable to the majority of that type of work.

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Comments:

1. 120-8.1.1: Define Section
2. 120-8.1.2.2: Fourth sentence: Define instability
3. 120-8.2: The proposed modification deletes A-1, Plastic materials and A-2-4 materials with greater than 15% fines. How this material be accepted in future?
4. 120-10.3.1: under Non-Traffic Construction, under Rolling Pattern add Witness for Verification instead of N.A.

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Comments:

I have reviewed the proposed changes to the subject specification and offer the following:  
120-8.1 – Consider removing or revising the statement requiring embankment to be built in sections at least 300 feet in length. Sections smaller than that happen regularly.

120-8.1.1 – why require the engineer’s approval before placing the next lift? If you are trying to explain where to perform a test maybe something along the lines of :  
Compaction tests will be performed on areas no greater than 500 feet in length and representing one lift of material. Do not place material on top of an untested area.

120-8.1.2 – If QC is not required, who is doing the testing?

120-8.1.2.1 - There are many materials that can be compacted to specified tolerances without being within 2% of optimum moisture. That requirement is not really necessary and only limits the contractors operations. My recommendation for test sections is to set the minimum at 300 feet. Some projects are small and 300 feet is more than adequate to prove a rolling pattern.

120-8.1.2.2 – Why specify the construction method? Let the contractor determine what he needs to do to achieve the specified compaction. The contractor may be able to complete the work with different or less equipment. The spec may be less confusing if you section off the non-vehicular section completely and place it at the end of the section. The bouncing from paragraph to paragraph trying to figure out what applies will create confusion.

120-8.2.1 – I know this statement was in the spec previously but, Why limit the last lift to 6 inches? If compaction is achieved the thickness of material should not matter.

120-10.1.2 – Initial control section should be a minimum of 300 feet. Why does the engineer need 3 days to look at data he has available to him at the moment of testing? Let’s make it 24 hours.

120-10.1.6 – Reduced testing... 6000 consecutive feet? This would require someone to measure and count all areas tested. How about some alternative language here:

“When the contractor QC has achieved 12 consecutive passing tests (per operation such as pipe backfill or roadway embankment) , that have been verified or upheld during resolution testing, reduce testing to one every 1000 feet horizontally or one every other vertical lift.”

120-10.3.1 – Consider deleting the table. This can be accomplished by a couple of statements:

“Perform QC testing at a frequency of one test every 500 lineal feet per lift.

Perform verification testing at a frequency of one for every four sections tested and passed by QC (Per operation, i.e. embankment, pipe backfill,..). Both QC and VT will sample materials used for embankment construction at a frequency of one per soil type and color.”

You guys are doing a great job, I appreciate the direction that we appear to be headed. As someone who deals day to day with these issues I have found that simplicity is the key. I know we are dealing with contracts but the people reading these specs are far from lawyers and some can be easily confused.

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Greg Schiess  
FHWA

Comments:

120-1.1, 2<sup>nd</sup> sentence – Poorly worded sentence...the Contractor must also dispose of unsuitable material.

120-8.1 – DO NOT agree with shoulder construction as NON TRAFFIC. It is the same condition as box culverts

120-8.1.1 - DO not see the need to change from lot to section. It will only add confusion. Need to define a section in order to be sure we verify only sections with LIKE materials and construction operations.

*“For multiple phase construction, a section shall not extend beyond the limits of the Phase.”* - DO not understand why this is needed?

120-8.1.2 - Documentation of rolling pattern by contractor QC Manager?? Whom and where...log book ...How are the areas to tracked to ensure all nontraffic areas a are tested? Need a QC plan to control the nontraffic areas and place responsibility on the QC manager or his rep. Will certified QCs be required

120-8.1.2.1 - Proof roll each day for each operation or once for multiple locations

120-8.1.2.2 - Proof rolling; how is test conducted? are measurement taken and recorded? what passes and what fails. What is another means to accept w/o a 10 wheeler. Some non traffic areas will not be of sufficient width to run a 10 wheeler Suggest reverting back to std SOP

120-8.2.1 - At one time we required a test at 6" below the surface for a 12 " lift. Is that still needed and is it required?

120-10.1.5 - I thought the Districts wanted this changed to include soil classifications???

120-10.1.6 - It is not consecutive feet it is consecutive sections!

120-10.3.1 Non- Traffic Table –

Soil Classification – Quality Control – One per Rolling Pattern Test Section - Why isn't this per soil type?

Rolling Pattern – One per Section per Day - Per section per day is too restrictive. If you are going to develop a rolling pattern per section you don't need to proof roll.

Density and Moisture Protection – NA - Section 8.1.2.1 requires this. How can it be NA?

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#### Comments:

Following are comments from State Construction Office (David Sadler and Stefanie Maxwell) for specs 120, 125, 160, 161 and 200. Also, we agree with a lot of the comments made by FHWA, so we tried not to duplicate.

#### **Section 120: Excavation and Embankment**

120-1.1 General - First paragraph - leave as written

120-1.1 General - Second paragraph - Insert the word "Section" in front of 125 and add it back in front of 110.

120-2.4 Lateral Ditch Excavation - Leave as original.

120-8.1 General - This is not active voice. We are not building vehicular traffic. This section needs to be rewritten to define "Traffic Areas" and "Non-traffic Areas" instead of "Traffic Construction" and "Non-Traffic Construction".

120-8.1.1 Traffic Construction - Change all references to "Traffic Construction" to "Traffic Areas". Keep the LOT language. The specifications already have a definition for section - "A numbered prime division of these Specifications". Prefer LOT language.

120-8.1.2 Non-Traffic Construction - Change all references to "Non-Traffic Construction" to "Non-Traffic Areas". Change the first sentence to read "A Quality Control Plan is not required."

120-8.1.2.1 Initial Rolling Pattern Test Section - Change second sentence to read "Prepare a minimum 500 ft long test section."

120-8.1.2.2 Production - Fourth sentence - Delete (500 mm). Fifth sentence, Change "evidenced" to "observed". Last sentence - Delete and change to "Correct any sections failing Engineer's tests".

120-8.2 Dry Fill Method - Why no separation between traffic and non-traffic areas?

120-8.2.1 General - The spec default should be placement of the material in 6" lifts. As drafted, the Contractor would be bidding the work to do it in 12" lifts, with the Department reserving its right to require placement of the material in 6" lifts should compaction be a problem. Should the Department exercise this right, the Contractor might be able to claim loss of production since he based his bid on 12" lifts and now being required to do it in 6" lifts.

120-12.3.1 Frequency - Part of the table border is missing on the Non-Traffic Construction.

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