



Florida Department of Transportation

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605 Suwannee Street
Tallahassee, FL 32399-0450

MIKE DEW
SECRETARY

July 21, 2017

Khoa Nguyen
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section: **125**
Proposed Specification: **1250801 Excavation for Structures and Pipe.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Dino Jameson of the State Materials Office (SMO) to update the language.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to dan.hurtado@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on file

Dan Hurtado, P.E.
State Specifications Engineer

DH/dt

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

EXCAVATION FOR STRUCTURES AND PIPE.(REV ~~5-15-177-12-177-19-17~~)

SUBARTICLE 125-8.1.6 is deleted and the following substituted:

125-8.1.6 Placement and Compaction: Place the material in horizontal layers not exceeding 6 inches compacted thickness, in depth above water level, behind abutments, wingwalls and end bents or end rest piers, under the haunches of the pipes and around box culverts and all structures including pipe culverts. When the backfill material is deposited in water, compact as specified in 125-8.2.5 and 125-8.3.4.

125-8.1.6.1 Thick Lift Requirements: The Contractor may elect to place material in thicker lifts of no more than 12 inches compacted thickness above the Soil Envelope if ~~he can~~ the embankment material is classified under as Group 1 as shown in the table below. If the embankment material is classified under as Group 2 as shown in the table below and the Contractor chooses to place material in thicker lifts of no more than 12 inches compacted thickness above the soil envelope then the Contractor must demonstrate with a successful test section that density can be achieved. Notify the Engineer in writing prior to beginning construction of a test section. Construct a test section of the length of one LOT. Perform five quality control (QC) tests at random locations within the test section. All five tests must meet the density required by 125-9.2 and be verified by the Department. Identify the test section with the compaction effort and soil classification in the Log ~~b~~ Book. In case of a change in compaction effort or soil classification, construct a new test section. When a QC test fails the requirements of 125-9.2 or when the QC tests cannot be verified, construct a new test section. The Contractor may elect to place material in 6 inches compacted thickness at any time.

<u>Group</u>	<u>AASHTO Soil Class</u>	<u>Maximum Lift Thickness</u>		<u>Thick Lift Control Test Section Requirements</u>	
		<u>Within Cover Zone</u>	<u>Above Soil Envelope</u>	<u>Within Cover Zone</u>	<u>Above Soil Envelope</u>
<u>1</u>	<u>A-3</u>	<u>6 inches</u>	<u>12 inches</u>	<u>N/A</u>	<u>Not Needed</u>
	<u>A-2-4 (No. 200 Sieve ≤ 15%)</u>				
<u>2</u>	<u>A-1</u>	<u>6 inches without control test section</u>		<u>N/A</u>	<u>Maximum of 12 inches per 120-8.2.1.2</u>
	<u>A-2-4 (No. 200 Sieve > 15%)</u>				
	<u>A-2-5, A-2-6, A-2-7, A-4, A-5, A-6</u>				
	<u>A-7 (Liquid Limit < 50)</u>				

The title for 125-8.3 is deleted and the following substituted:

125-8.3 Additional Requirements for Pipe Greater than 15 12 Inches Inside Diameter ~~or Greater~~:

ARTICLE 125-9 is deleted and the following substituted:

125-9 Acceptance Program.

125-9.1 General Requirements: Meet the requirements of 120-10, except replace the requirements of 120-10.1.6 with 125-9.1.1, 120-10.2 with 125-9.2, and 120-10.3 with 125-9.3, and 120-10.4 with 125-10.

125-9.1.1 Reduced Testing Frequency: Obtain the Engineer's approval in writing for the option to reduce density testing frequency ~~When no resolution testing is required for six consecutive LOTs, or if required, the QC test data was upheld, reduce the QC density testing~~ to one test every two LOTs or one every four LOTs for trench box operations. if the following requirements are met:

a. Resolution testing was not required for six consecutive verified LOTs.

b. Resolution testing was required for any of the six consecutive verified LOTs, but QC test data was upheld.

- Identify the substantiating tests in the Density Log Book and notify the Engineer in writing prior to starting reduced frequency of testing. Generate random numbers for selecting test locations for the LOTs under consideration. When QC test frequency is reduced ~~to one every two LOTs~~, obtain the Engineer's approval in writing to place more than one LOT over an untested LOT. Do not apply reduced testing frequency for the first and last lift of pipe and last LOT. Assure similar compaction efforts for the untested sections. If the Verification test fails, and QC test data is not upheld by Resolution testing the QC testing will revert to the original frequency.

125-9.2 Acceptance Criteria:

125-9.2.1 Density: Obtain a minimum QC density in any LOT of 100% of the Standard Proctor maximum density as determined by ~~AASHTO FM 1-T099~~, Method C, or the requirements of 125-8.3.3.1 when applicable. When the cover height below the bottom of base under asphalt pavement, below concrete pavement, or below unpaved ground, exceeds 15 inches, compact the pipe backfill in the cover zone to a density of at least 95% of the Standard Proctor maximum density as determined by ~~AASHTO FM1-T099~~, Method C.

For density requirements around drainage structures, obtain a minimum QC density in any LOT of 100% of the Standard Proctor maximum density as determined by ~~AASHTO FM 1-T099~~ for a distance of one pipe diameter but not less than 3 feet from the outside face of the structure.

125-9.2.2 Exceptions to Structures and Pipe Density Requirements: Compact the backfill to a firmness approximately equal to that of the soil next to the pipe trench in locations outside the plane described by a ~~two (horizontal) to one (vertical)~~ slope to two (horizontal) slope downward from the roadway shoulder ~~linepoint~~ or the gutter line ~~as applicable referenced~~ in accordance with Design Standards, Index No. 500 or 505. Apply 125-9.2.1 when compacting side-drain pipe backfill under driveways serving a property that is not a single residential lot.

125-9.3 Additional Requirements:

125-9.3.1 Frequency: Conduct ~~QC~~ Standard Proctor maximum density sampling and testing at a minimum frequency of one test per soil type. ~~The verification test will be at a minimum of one test per soil type.~~ The summary of tests and frequency is shown in the table below.

Test Name	Quality Control	Verification
Standard Proctor Maximum Density	One per soil type	One per soil type
Density	One per LOT	One per four consecutive LOTs and for wet conditions, the first lift not affected by water
Soil Classification <u>and Organic Content</u>	One per Standard Proctor Maximum density	One per Standard Proctor Maximum density

ARTICLE 125-10 is deleted and the following substituted:

125-10 Verification Comparison Criteria and Resolution Procedures.

~~**125-10.1 Standard Proctor Maximum Density Determination:** The Engineer will verify the QC results if the results compare within 4.5 PCF of the verification test result. Otherwise, the Engineer will take one additional sample of material from the soil type in question. The State Materials Office or an AASHTO accredited laboratory designated by the State Materials Office will perform resolution testing. The material will be sampled and tested in accordance with AASHTO T99, Method C.~~

~~————— The Engineer will compare the resolution test result with the QC test results. If the resolution test result is within 4.5 PCF of the corresponding QC test results, the Engineer will use the QC test results for material acceptance purposes for each LOT with that soil type. If the resolution test result is not within 4.5 PCF of the Contractor's QC test, the verification test result will be used for material acceptance purposes.~~

~~**125-10.2 Density Testing:** When a verification or independent verification density test fails the acceptance criteria, retest the site within a 5 feet radius and the following actions will be taken:~~

~~————— 1. If the QC retest meets the acceptance criteria and compares favorably with the verification or independent verification test, the Engineer will accept those LOTs.~~

~~————— 2. If the QC retest does not meet the acceptance criteria and compares favorably with the verification or independent verification test, rework and retest the LOT. The Engineer will re-verify those LOTs.~~

~~————— 3. If the QC retest and the verification or independent verification test do not compare favorably, complete a new equipment comparison analysis as defined in 120-10.1.2. Once acceptable comparison is achieved, retest the LOTs. The Engineer will perform new verification testing. Acceptance testing will not begin on a new LOT until the Contractor has a gauge that meets the comparison requirements.~~

~~**125-10.3 Soil Classification:** Meet the requirements of 120-10.4.3.~~

EXCAVATION FOR STRUCTURES AND PIPE.**(REV 7-19-17)**

SUBARTICLE 125-8.1.6 is deleted and the following substituted:

125-8.1.6 Placement and Compaction: Place the material in horizontal layers not exceeding 6 inches compacted thickness, in depth above water level, behind abutments, wingwalls and end bents or end rest piers, under the haunches of the pipes and around box culverts and all structures including pipe culverts. When the backfill material is deposited in water, compact as specified in 125-8.2.5 and 125-8.3.4.

125-8.1.6.1 Thick Lift Requirements: The Contractor may elect to place material in thicker lifts of no more than 12 inches compacted thickness above the Soil Envelope if the embankment material is classified as Group 1 in the table below. If the embankment material is classified as Group 2 in the table below and the Contractor chooses to place material in thicker lifts of no more than 12 inches compacted thickness above the soil envelope then the Contractor must demonstrate with a successful test section that density can be achieved. Notify the Engineer in writing prior to beginning construction of a test section. Construct a test section of the length of one LOT. Perform five quality control (QC) tests at random locations within the test section. All five tests must meet the density required by 125-9.2 and be verified by the Department. Identify the test section with the compaction effort and soil classification in the Log Book. In case of a change in compaction effort or soil classification, construct a new test section. When a QC test fails the requirements of 125-9.2 or when the QC tests cannot be verified, construct a new test section. The Contractor may elect to place material in 6 inches compacted thickness at any time.

Group	AASHTO Soil Class	Maximum Lift Thickness		Thick Lift Control Test Section Requirements	
		Within Cover Zone	Above Soil Envelope	Within Cover Zone	Above Soil Envelope
1	A-3	6 inches	12 inches	N/A	Not Needed
	A-2-4 (No. 200 Sieve \leq 15%)				
2	A-1	6 inches without control test section		N/A	Maximum of 12 inches per 120-8.2.1.2
	A-2-4 (No. 200 Sieve $>$ 15%)				
	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6				
	A-7 (Liquid Limit $<$ 50)				

The title for 125-8.3 is deleted and the following substituted:

125-8.3 Additional Requirements for Pipe Greater than 12 Inches Inside Diameter:

ARTICLE 125-9 is deleted and the following substituted:

125-9 Acceptance Program.

125-9.1 General Requirements: Meet the requirements of 120-10, except replace the requirements of 120-10.1.6 with 125-9.1.1, 120-10.2 with 125-9.2, and 120-10.3 with 125-9.3.

125-9.1.1 Reduced Testing Frequency: Obtain the Engineer's approval in writing for the option to reduce density testing frequency to one test every two LOTs or one every four LOTs for trench box operations if the following requirements are met:

a. Resolution testing was not required for six consecutive verified LOTs.

b. Resolution testing was required for any of the six consecutive verified LOTs, but QC test data was upheld.

Identify the substantiating tests in the Density Log Book and notify the Engineer in writing prior to starting reduced frequency of testing. Generate random numbers for selecting test locations for the LOTs under consideration. When QC test frequency is reduced, obtain the Engineer's approval in writing to place more than one LOT over an untested LOT. Do not apply reduced testing frequency for the first and last lift of pipe. Assure similar compaction efforts for the untested sections. If the Verification test fails, and QC test data is not upheld by Resolution testing the QC testing will revert to the original frequency.

125-9.2 Acceptance Criteria:

125-9.2.1 Density: Obtain a minimum QC density in any LOT of 100% of the Standard Proctor maximum density as determined by FM 1-T099, Method C, or the requirements of 125-8.3.3.1 when applicable. When the cover height below the bottom of base under asphalt pavement, below concrete pavement, or below unpaved ground, exceeds 15 inches, compact the pipe backfill in the cover zone to a density of at least 95% of the Standard Proctor maximum density as determined by FM1-T099, Method C.

For density requirements around drainage structures, obtain a minimum QC density in any LOT of 100% of the Standard Proctor maximum density as determined by FM 1-T099 for a distance of one pipe diameter but not less than 3 feet from the outside face of the structure.

125-9.2.2 Exceptions to Structures and Pipe Density Requirements: Compact the backfill to a firmness approximately equal to that of the soil next to the pipe trench in locations outside the plane described by a one (vertical) to two (horizontal) slope downward from the roadway shoulder point or the gutter line in accordance with Design Standards, Index No. 500 or 505. Apply 125-9.2.1 when compacting side-drain pipe backfill under driveways serving a property that is not a single residential lot.

125-9.3 Additional Requirements:

125-9.3.1 Frequency: Conduct Standard Proctor maximum density sampling and testing at a minimum frequency of one test per soil type. The summary of tests and frequency is shown in the table below.

Test Name	Quality Control	Verification
Standard Proctor Maximum Density	One per soil type	One per soil type

Test Name	Quality Control	Verification
Standard Proctor Maximum Density	One per soil type	One per soil type
Density	One per LOT	One per four consecutive LOTs and for wet conditions, the first lift not affected by water
Soil Classification and Organic Content	One per Standard Proctor Maximum density	One per Standard Proctor Maximum density

ARTICLE 125-10 is deleted and the following substituted:

125-10 Verification Comparison Criteria and Resolution Procedures.

Meet the requirements of 120-10.4.