Florida Department of Transportation

JEB BUSH
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JOSÉ ABREU
SECRETARY

June 25, 2004

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

Re: Office of Design, Specifications
Section 160
Proposed Specification: 1600007.D01 – Acceptance Program

Dear Mr. Davis:

We are submitting, for your approval, two copies of a proposed Supplemental Specification for Acceptance Program.

This change was proposed by John Shoucair of the State Materials Office to add Modified Proctor to all references of maximum density throughout the Section.

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

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

Sincerely,

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

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

ACCEPTANCE PROGRAM.
(REV ~~5-17-04~~*6-25-04*)

ARTICLE 160-7 (Pages 184-187) is deleted and the following substituted:

160-7 Acceptance Program.

160-7.1 General Requirements: Meet the requirements of 120-10.1, except use 160-7.2 instead of 120-10.2.

160-7.2 Acceptance Criteria:

160-7.2.1 Bearing Value Requirements:

160-7.2.1.1 General: Within the entire limits of the width and depth of the areas to be stabilized, obtain the required minimum bearing value for each LOT. For any area where the bearing value obtained is deficient from the value indicated in the plans, in excess of the tolerances established herein, spread and mix additional stabilizing material in accordance with 160-5.3. Perform this reprocessing for the full width of the roadway being stabilized and longitudinally for a distance of 50 feet [15 m] beyond the limits of the area in which the bearing value is deficient.

Determine the quantity of additional stabilizing material to be used in reprocessing.

160-7.2.1.2 Undertolerances in Bearing Value Requirements: Use the following undertolerances from the specified bearing value, as based on tests performed on samples obtained after completing mixing operations:

Specified Bearing Value	Tolerance
LBR 40	5.0
LBR 35	4.0
LBR 30 (and under)	2.5

The following unsoaked bearing value requirement is based on tests performed on samples obtained after completing mixing operations:

Specified Bearing Value	Unsoaked Bearing Value Required	Tolerance
LBR 40	LBR 43	0.0

160-7.2.2 Mixing Depth Requirements: Do not exceed individual depth tolerance of 2 inches [50 mm] or LOT-average depth tolerance of 1 inch [25 mm].

As an exception to the above mixing requirements, where the subgrade is of rock, the Engineer may waive the mixing operations (and the work of stabilizing), and the Department will not pay for stabilization for such sections of the roadway.

160-7.2.3 Density Requirements:

160-7.2.3.1 General: Within the entire limits of the width and depth of the areas to be stabilized, other than as provided in 160-7.2.3.2, obtain a minimum density at any location of 98% of the ~~m~~*Modified* ~~p~~*Proctor* maximum density as determined by FM 1-T 180, Method D.

160-7.2.3.2 Exceptions to Density Requirements: The Contractor need not obtain the minimum density specified in 160-7.2.3.1 if within the following limits:

(a) The width and depth of areas which are to be subsequently incorporated into a base course under the same contract.

(b) The upper 6 inches [150 mm] of areas to be grassed under the same contract. Compact these areas to a reasonably firm condition as directed by the Engineer.

160-7.2.4 Frequency: Conduct QC sampling and testing at a minimum frequency listed in the table below. The Engineer will perform Verification sampling and tests at a minimum frequency listed in the table below.

Test Name	Quality Control	Verification
Modified Proctor Maximum Density	One per two consecutive LOTs	One per eight consecutive LOTs
Density	One per LOT	One per four LOTs
Limerock Bearing Ratio	One per two consecutive LOTs	One per eight consecutive LOTs
Stabilizing Mixing Depth	Three per LOT	One per LOT

160-7.3 Additional Requirements:

160-7.3.1 Quality Control Testing:

160-7.3.1.1 Bearing Values: Ensure compliance with 160-7.2.1 by sampling and testing the Stabilized Subgrade for determining the Limerock Bearing Ratio (LBR) in accordance with FM 5-515 and 160-7.2.4. Determine test locations including Stations and Offsets, using the Random Number generator provided by the Department, based on the two LOTs under consideration.

160-7.3.1.2 Mixing Depth Requirements: Meet required plan mixing-depths by measuring from the proposed Final Grade Line. Ensure compliance with 160-7.2.2. Determine test locations including Stations and Offsets, using the Random Number generator provided by the Department. *Record results on forms supplied by the Department.*

160-7.3.1.3 *Modified Proctor* Maximum Density Requirement: Collect enough material to split and create three separate samples. Retain a Verification sample and Resolution sample for the Engineer until the Engineer accepts the eight LOTs represented by the samples.

160-7.3.2 Department Verification Tests:

160-7.3.2.1 Bearing Value: The Engineer will sample and test the Stabilized Subgrade for determination of the LBR in accordance with FM 5-515. The Engineer will select test locations, including Stations and Offsets, using a Random Number generator, based on the eight LOTs under consideration.

160-7.3.2.2 Mixing Depth Requirements: The Engineer will measure the mixing depth from the proposed Final Grade Line. The Engineer will select test locations, including Stations and Offsets, using a Random Number generator.

160-7.3.2.3 *Modified Proctor* Maximum Density: The Engineer will randomly select one of the four split samples and test in accordance with FM 1-T 180, Methods D.

160-7.4 Verification Comparison Criteria and Resolution Procedures:

160-7.4.1 Bearing Value: If the Department's Verification test meets the requirements of 160-7.2.1, then the Engineer will accept the eight LOTs. Otherwise, the Engineer will obtain one additional sample of material taken from a randomly selected location within the eight LOTs 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 FM 5-515.

If the Resolution Testing results meet the requirements of 160-7.2.1 then the Engineer will accept the eight LOTs in question, otherwise reprocess all eight LOTs in accordance with 160-5 and retest in accordance with 160-7.3.1.1.

160-7.4.2 Mixing Depth Thickness: If the Department's Verification test meets the requirements of 160-7.2.2, then the Engineer will accept that LOT, otherwise retest the LOT at a site within a 5 feet (1.5 meter) radius of the Verification test location and observe the following:

1. If the Quality Control retest meets the requirements of 160-7.2.2, then the Engineer will accept that LOT.

2. If the QC Re-test confirms shallow depth, re-mix the LOT to an appropriate Depth and re-measure in accordance with 160-7.3.1.2. The Engineer may re-verify in accordance with 160-7.3.2.2.

3. If the QC re-test confirms extra deep mixing, conduct an additional QC density test after compaction for the bottom 12 inches [300 mm] of the subgrade for that LOT in addition to the QC Density testing for top 12 inches [300 mm]. The additional Density test must meet the requirements of 160-7.2.3.

160-7.4.3 ***Modified Proctor*** **Maximum Density Determination:** The Engineer will verify the Quality Control results of the eight consecutive LOTs if the Verification test result compares within 4.5 PCF [72 kg/m^3] of the QC result for the corresponding LOTs. Otherwise, the Engineer will collect the Resolution split sample corresponding to the Verification sample tested. 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 FM 1-T 180, Method D.

The Engineer will compare the Resolution Test results with the Quality Control test results. If the Resolution Test result is within 4.5 PCF [72 kg/m^3] of the corresponding Quality Control test result, the Engineer will use the Quality Control test results for material acceptance purposes for each corresponding pair of LOTs. If the Resolution test result is not within 4.5 PCF [72 kg/m^3] of the corresponding Quality Control test, the Engineer will collect the remaining Verification split samples for testing. Verification Test results will be used for material acceptance purposes for the eight LOTs in question**.**

160-7.4.4 Density: When a Verification or Independent Verification density test does not meet 160-7.2.3 (Acceptance Criteria), retest the LOT at a site within a 5 feet (1.5 meter) radius of the Verification test location and observe the following:

1. If the Quality Control retest meets the Acceptance Criteria and compares favorably with the Verification or Independent Verification test, the Engineer will accept the four LOTs in question.

2. If the Quality Control retest does not meet the Acceptance Criteria and compares favorably with the Verification or Independent Verification test, rework and retest the material in that LOT. The Engineer will re-verify the four LOTs in question.

3. If the Quality Control 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 four LOTs. The Engineer will perform new verification testing. Acceptance testing will not begin on a new LOTs until the Contractor has a gauge that meets the comparison requirements.

ACCEPTANCE PROGRAM.
(REV 6-25-04)

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160-7.1 General Requirements: Meet the requirements of 120-10.1, except use 160-7.2 instead of 120-10.2.

160-7.2 Acceptance Criteria:

160-7.2.1 Bearing Value Requirements:

160-7.2.1.1 General: Within the entire limits of the width and depth of the areas to be stabilized, obtain the required minimum bearing value for each LOT. For any area where the bearing value obtained is deficient from the value indicated in the plans, in excess of the tolerances established herein, spread and mix additional stabilizing material in accordance with 160-5.3. Perform this reprocessing for the full width of the roadway being stabilized and longitudinally for a distance of 50 feet [15 m] beyond the limits of the area in which the bearing value is deficient.

Determine the quantity of additional stabilizing material to be used in reprocessing.

160-7.2.1.2 Undertolerances in Bearing Value Requirements: Use the following undertolerances from the specified bearing value, as based on tests performed on samples obtained after completing mixing operations:

Specified Bearing Value	Tolerance
LBR 40	5.0
LBR 35	4.0
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Specified Bearing Value	Unsoaked Bearing Value Required	Tolerance
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160-7.2.2 Mixing Depth Requirements: Do not exceed individual depth tolerance of 2 inches [50 mm] or LOT-average depth tolerance of 1 inch [25 mm].

As an exception to the above mixing requirements, where the subgrade is of rock, the Engineer may waive the mixing operations (and the work of stabilizing), and the Department will not pay for stabilization for such sections of the roadway.

160-7.2.3 Density Requirements:

160-7.2.3.1 General: Within the entire limits of the width and depth of the areas to be stabilized, other than as provided in 160-7.2.3.2, obtain a minimum density at any location of 98% of the Modified Proctor maximum density as determined by FM 1-T 180, Method D.

160-7.2.3.2 Exceptions to Density Requirements: The Contractor need not obtain the minimum density specified in 160-7.2.3.1 if within the following limits:

(a) The width and depth of areas which are to be subsequently incorporated into a base course under the same contract.

(b) The upper 6 inches [150 mm] of areas to be grassed under the same contract. Compact these areas to a reasonably firm condition as directed by the Engineer.

160-7.2.4 Frequency: Conduct QC sampling and testing at a minimum frequency listed in the table below. The Engineer will perform Verification sampling and tests at a minimum frequency listed in the table below.

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160-7.3 Additional Requirements:

160-7.3.1 Quality Control Testing:

160-7.3.1.1 Bearing Values: Ensure compliance with 160-7.2.1 by sampling and testing the Stabilized Subgrade for determining the Limerock Bearing Ratio (LBR) in accordance with FM 5-515 and 160-7.2.4. Determine test locations including Stations and Offsets, using the Random Number generator provided by the Department, based on the two LOTs under consideration.

160-7.3.1.2 Mixing Depth Requirements: Meet required plan mixing-depths by measuring from the proposed Final Grade Line. Ensure compliance with 160-7.2.2. Determine test locations including Stations and Offsets, using the Random Number generator provided by the Department. Record results on forms supplied by the Department.

160-7.3.1.3 Modified Proctor Maximum Density Requirement: Collect enough material to split and create three separate samples. Retain a Verification sample and Resolution sample for the Engineer until the Engineer accepts the eight LOTs represented by the samples.

160-7.3.2 Department Verification Tests:

160-7.3.2.1 Bearing Value: The Engineer will sample and test the Stabilized Subgrade for determination of the LBR in accordance with FM 5-515. The Engineer will select test locations, including Stations and Offsets, using a Random Number generator, based on the eight LOTs under consideration.

160-7.3.2.2 Mixing Depth Requirements: The Engineer will measure the mixing depth from the proposed Final Grade Line. The Engineer will select test locations, including Stations and Offsets, using a Random Number generator.

160-7.3.2.3 Modified Proctor Maximum Density: The Engineer will randomly select one of the four split samples and test in accordance with FM 1-T 180, Methods D.

160-7.4 Verification Comparison Criteria and Resolution Procedures:

160-7.4.1 Bearing Value: If the Department's Verification test meets the requirements of 160-7.2.1, then the Engineer will accept the eight LOTs. Otherwise, the Engineer will obtain one additional sample of material taken from a randomly selected location within the eight LOTs 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 FM 5-515.

If the Resolution Testing results meet the requirements of 160-7.2.1 then the Engineer will accept the eight LOTs in question, otherwise reprocess all eight LOTs in accordance with 160-5 and retest in accordance with 160-7.3.1.1.

160-7.4.2 Mixing Depth Thickness: If the Department's Verification test meets the requirements of 160-7.2.2, then the Engineer will accept that LOT, otherwise retest the LOT at a site within a 5 feet (1.5 meter) radius of the Verification test location and observe the following:

1. If the Quality Control retest meets the requirements of 160-7.2.2, then the Engineer will accept that LOT.

2. If the QC Re-test confirms shallow depth, re-mix the LOT to an appropriate Depth and re-measure in accordance with 160-7.3.1.2. The Engineer may re-verify in accordance with 160-7.3.2.2.

3. If the QC re-test confirms extra deep mixing, conduct an additional QC density test after compaction for the bottom 12 inches [300 mm] of the subgrade for that LOT in addition to the QC Density testing for top 12 inches [300 mm]. The additional Density test must meet the requirements of 160-7.2.3.

160-7.4.3 Modified Proctor Maximum Density Determination: The Engineer will verify the Quality Control results of the eight consecutive LOTs if the Verification test result compares within 4.5 PCF [72 kg/m^3] of the QC result for the corresponding LOTs. Otherwise, the Engineer will collect the Resolution split sample corresponding to the Verification sample tested. 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 FM 1-T 180, Method D.

The Engineer will compare the Resolution Test results with the Quality Control test results. If the Resolution Test result is within 4.5 PCF [72 kg/m^3] of the corresponding Quality Control test result, the Engineer will use the Quality Control test results for material acceptance purposes for each corresponding pair of LOTs. If the Resolution test result is not within 4.5 PCF [72 kg/m^3] of the corresponding Quality Control test, the Engineer will collect the remaining Verification split samples for testing. Verification Test results will be used for material acceptance purposes for the eight LOTs in question**.**

160-7.4.4 Density: When a Verification or Independent Verification density test does not meet 160-7.2.3 (Acceptance Criteria), retest the LOT at a site within a 5 feet (1.5 meter) radius of the Verification test location and observe the following:

1. If the Quality Control retest meets the Acceptance Criteria and compares favorably with the Verification or Independent Verification test, the Engineer will accept the four LOTs in question.

2. If the Quality Control retest does not meet the Acceptance Criteria and compares favorably with the Verification or Independent Verification test, rework and retest the material in that LOT. The Engineer will re-verify the four LOTs in question.

3. If the Quality Control 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 four LOTs. The Engineer will perform new verification testing. Acceptance testing will not begin on a new LOTs until the Contractor has a gauge that meets the comparison requirements.