



Florida Department of Transportation

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GOVERNOR

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Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
INTERIM SECRETARY

February 28, 2007

Dr. Leslie McCarthy, PhD, P.E.
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 200
Proposed Specification: 200100 Rock Base

Dear Dr. McCarthy:

We are submitting, for your approval, two copies of a proposed Special Provision for Rock Base.

This change was proposed by Tom Malerk of the State Materials Office to reflect new requirements for shoulder only construction, bike/shared use paths and sidewalks.

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,

Signature on File

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

DFB/ft

Attachment

cc: General Counsel
Florida Transportation Builders' Assoc.
State Construction Engineer

ROCK BASE.**(REV ~~11-1-06~~2-12-07)**

ARTICLE 200-1 (of the Supplemental Specifications) is deleted and the following substituted:

200-1 Description.

Construct a base composed of base rock. ~~Perform work in accordance with an approved Quality Control Plan meeting the requirements of 6-8.~~

SUBARTICLE 200-6.1 (of the Supplemental Specifications) is deleted and the following substituted:

~~200-6 Compacting and Finishing Base.~~

200-6.1 General: ~~A LOT is defined as a single lift of finished base not to exceed 500 feet~~

~~—Shoulders compacted separately shall be considered separate LOTS. Isolated compaction operations will be considered as separate LOTS. For multiple phase construction, a LOT shall not extend beyond the limits of the phase **Traffic Areas:** Construct Traffic Areas associated with the placement or construction of mainline pavement lanes, turn lanes, ramps, parking lots, concrete box culverts and retaining wall systems. Meet the requirements of 120-8.1.1, except replace “Embankment” with “Base”.~~

~~—————For shoulder-only construction, sidewalk, and bike/shared use paths construction, and sidewalks. Includes construction unattached to the roadway for bike paths, sidewalks, non traffic applications and shoulder only construction. Meet the requirements of 120-8.1.21 except replace “Embankment” with “Base” and replace substituting base for embankment. Do not proof roll base. Substitute “AASHTO T 99, Method C” with “AASHTO FM 1 T 180, Method D” AASHTO T 180 for AASHTO T 99. Meet the acceptance criteria of 200-7.2. Do not proof roll base. Shoulders compacted separately shall be considered separate LOTS.~~

~~**Traffic Areas:** Includes construction associated with the placement and/or construction of mainline pavement lanes, turn lanes, ramps, parking lots, concrete box culverts, and retaining wall systems. Meet the requirements of 120-8.1.1 substituting base for embankment.~~

SUBARTICLE 200-7 (of the Supplemental Specifications) is deleted and the following substituted:

200-7 Acceptance Program.

200-7.1 General Requirements: Meet the requirements of 120-10-1, except use 200-7.2 instead of 120-10.2-, ~~200-7.3 instead of 120-710.3 and 200-7.4 instead of 120-710.4.~~

200-7.2 Acceptance Criteria:

200-7.2.1 Density: Within the entire limits of the width and depth of the base, obtain a minimum density in any LOT of 98% of modified Proctor maximum

density as determined by ~~AASHTO~~ FM 1-T 180, Method D. Compact the base of any LOT of shoulder pavement to not less than 95% of the modified Proctor maximum density as determined by FM 1-T 180, Method D.

200-7.2.2 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 tables below.

Test Name	Quality Control	Verification
Modified Proctor Maximum Density	One per eight consecutive LOTs	One per 16 consecutive LOTs
Density	One per LOT	One per four LOTs
Roadway Surface	Ten per LOT	Three per LOT
Shoulder/widening* Surface	Five per LOT	One per LOT
Roadway Thickness	Three per LOT	Three per four LOTs
Shoulder/widening* Thickness	Three per two consecutive LOTs	Three per eight consecutive LOTs

~~* Note = For widening less than or equal to 5ft.~~

<i>Test Name</i>	<i>Quality Control</i>	<i>Verification</i>
<i>Modified Proctor Maximum Density</i>	<i>One per two days LOTs</i>	<i>One per four days LOTs</i>
<i>Density – Rolling Pattern Test Section</i>	<i>Five per 500 feet</i>	<i>Two per 500 feet</i>
<i>Rolling Pattern</i>	<i>One per section per day LOT</i>	<i>N.A.</i>
<i>Density & Moisture – Production</i>	<i>N.A.</i>	<i>One per two days LOTs</i>
<i>Shoulder/widening Surface</i>	<i>Five per 500 feet</i>	<i>Witness</i>
<i>Shoulder/widening Thickness</i>	<i>Three per 1000 consecutive feet</i>	<i>Witness</i>

200-7.3 Additional Requirements:

200-7.3.1 Quality Control Testing:

200-7.3.1.1 Modified Proctor Maximum Density Requirement:

Collect enough material to split and create three separate samples and retain *two* for the Engineer's Verification and Resolution testing until the Engineer accepts the ~~16 LOTs~~ *four LOTs* represented by the samples.

200-7.3.1.2 Depth and Surface Testing Requirements: *Notify the Engineer a minimum of 24 hours before checking base depths and surface checking.*

Determine test locations including Stations and Offsets, using the Random Number generator ~~provided~~ *approved* by the Department. *- Do not perform depth and surface checks until the Engineer is present to witness.* Enter test results into the Department's database. Perform thickness check on the finished base or granular subbase component of a composite base. Provide traffic control, coring/boring equipment, and an operator for the coring/boring equipment. Traffic control is to be provided in accordance with the standard maintenance of traffic requirements of the Contract.

The thickness is considered deficient, if the measured depth is over 1/2 inch less than the specified thickness. Correct all deficient areas of the

completed base by scarifying and adding additional base material. As an exception, if authorized by the Department, such areas may be left in place without correction and with no payment.

Check the finished surface of the base course with a template cut to the required crown and with a 15 foot straightedge laid parallel to the centerline of the road. Correct all irregularities greater than 1/4 inch to the satisfaction of the Engineer by scarifying and removing or adding rock as required, and recompact the entire area as specified hereinbefore.

200-7.3.1.3 Surface & Thickness Reduced Testing Frequency:

When no Resolution testing is required for 12 consecutive verified LOTs, or if required, the QC test data was upheld, reduce the QC surface and/or thickness checks to one half the minimum requirements as stated in 200-7.2.2 (eg. Reduce frequency from ten per LOT to ten per two LOTs) by identifying the substantiating tests and notifying the Engineer in writing prior to starting reduced frequency of testing. If the Verification test fails, and Quality Control test data is not upheld by Resolution testing the Quality Control testing will revert to the original frequency of 200-7.2.2. The results of the Independent Verification testing will not affect the frequency of the Quality Control testing.

200-7.3.2 Department Verification Tests:

200-7.3.2.1 Maximum Density: The Engineer will randomly select one of the *remaining* two split samples and test in accordance with FM 1-T 180, Method D.

200-7.3.2.2 Thickness and Surface Testing Requirements: ~~the department will verify the Base thickness at the frequency listed in 200-7.2.2. The Department will select test locations, including Stations, Offsets, and Lifts using a Random Number generator, based on a set LOTs sections under consideration~~ *The Department will witness the base depth and surface checks to ensure compliance with 200-7.3.1.2.* If the ~~Verification QC~~ test results are not deficient as defined in 200-7.3.1.2, the ~~QC test data~~ LOT will be ~~considered verified~~ *accepted*. If the ~~Verification QC~~ test results are deficient, ~~the requirements the contractor will bring the base resolve deficiencies into compliance in accordance with 200-7.3.1.2. Repeat acceptance testing of 200-7.4.3 will apply in affected LOTs~~ Provide traffic control, coring/boring equipment, and an operator for the coring/boring equipment. ~~Traffic control is to be provided in accordance with the standard maintenance of traffic requirements of the Contract.~~

200-7.4 Verification Comparison Criteria and Resolution Procedures:

200-7.4.1 Modified Proctor Maximum Density: The Engineer will verify the Quality Control results of the ~~16 consecutive LOTs~~ *four LOTs* if the Verification test result compares within 4.5 lb/ft³ 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 lb/ft³ of the corresponding Quality Control test result, the Engineer will use the Quality Control test results for material acceptance purposes for each corresponding set of ~~eight LOTs~~ *two LOTs*. If the Resolution test result is not within 4.5 lb/ft³ of the corresponding Quality

Control test, the Engineer will collect the remaining Verification split sample for testing. Verification Test results will be used for material acceptance purposes for the ~~16 LOTS~~ *four LOTS* in question.

~~200-7.4.2 Density: When a Verification or Independent Verification density test does not meet the requirements of 200-7.2.1 (Acceptance Criteria), retest at a site within a 5 feet 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 *two 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 *two 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 120-10.1.1. Once acceptable comparison is achieved, retest the four LOTS *two 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.~~

200-7.4.3-2 Thickness and Surface Testing Requirements: *Resolve deficiencies in Resolution is in accordance with 200-7.3.1.2* ~~When a Verification or Independent Verification density test does not meet the requirements of 200-7.3.1.2 (Acceptance Criteria), perform a QC re-test within 5 feet of the Verification test site in each affected LOT. If the QC re-test meets the requirements, the LOT will be accepted using QC test results. If the QC re-test confirms deficient thickness or surface irregularity, the Contractor will rework and re-test that LOT by scarifying and adding additional base material. The Department will re-verify the group of those LOTS. As an exception, if authorized by the Engineer, such areas may be left in place without correction and with no payment.~~

ROCK BASE.
(REV 2-12-07)

ARTICLE 200-1 (of the Supplemental Specifications) is deleted and the following substituted:

200-1 Description.

Construct a base composed of base rock.

SUBARTICLE 200-6.1 (of the Supplemental Specifications) is deleted and the following substituted:

200-6.1 General: For shoulder-only, sidewalk, and bike/shared use path construction, meet the requirements of 120-8.1.1 except replace “Embankment” with “Base” and replace “AASHTO T 99, Method C” with “FM 1 T 180, Method D”. Meet the acceptance criteria of 200-7.2. Do not proof roll base. Shoulders compacted separately shall be considered separate LOTs.

ARTICLE 200-7 (of the Supplemental Specifications) is deleted and the following substituted:

200-7 Acceptance Program.

200-7.1 General Requirements: Meet the requirements of 120-10, except use 200-7.2 instead of 120-10.2, 200-7.3 instead of 120-10.3 and 200-7.4 instead of 120-10.4.

200-7.2 Acceptance Criteria:

200-7.2.1 Density: Within the entire limits of the width and depth of the base, obtain a minimum density in any LOT of 98% of modified Proctor maximum density as determined by FM 1-T 180, Method D. Compact the base of any LOT of shoulder pavement to not less than 95% of the modified Proctor maximum density as determined by FM 1-T 180, Method D.

200-7.2.2 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 tables below.

Test Name	Quality Control	Verification
Modified Proctor Maximum Density	One per two LOTs	One per four LOTs
Density – Rolling Pattern Test Section	Five per 500 feet	Two per 500 feet
Rolling Pattern	One per LOT	N.A.
Density – Production	N.A.	One per two LOTs
Surface	Five per 500 feet	Witness
Thickness	Three per 1000 consecutive feet	Witness

200-7.3 Additional Requirements:**200-7.3.1 Quality Control Testing:****200-7.3.1.1 Modified Proctor Maximum Density Requirement:**

Collect enough material to split and create three separate samples and retain two for the Engineer's Verification and Resolution testing until the Engineer accepts the four LOTs represented by the samples.

200-7.3.1.2 Depth and Surface Testing Requirements: Notify the Engineer a minimum of 24 hours before checking base depths and surface checking. Determine test locations including Stations and Offsets, using the Random Number generator approved by the Department. Do not perform depth and surface checks until the Engineer is present to witness. Enter test results into the Department's database. Perform thickness check on the finished base or granular subbase component of a composite base. Provide traffic control, coring/boring equipment, and an operator for the coring/boring equipment. Traffic control is to be provided in accordance with the standard maintenance of traffic requirements of the Contract.

The thickness is considered deficient, if the measured depth is over 1/2 inch less than the specified thickness. Correct all deficient areas of the completed base by scarifying and adding additional base material. As an exception, if authorized by the Department, such areas may be left in place without correction and with no payment.

Check the finished surface of the base course with a template cut to the required crown and with a 15 foot straightedge laid parallel to the centerline of the road. Correct all irregularities greater than 1/4 inch to the satisfaction of the Engineer by scarifying and removing or adding rock as required, and recompact the entire area as specified hereinbefore.

200-7.3.1.3 Surface & Thickness Reduced Testing Frequency:

When no Resolution testing is required for 12 consecutive verified LOTs, or if required, the QC test data was upheld, reduce the QC surface and/or thickness checks to one half the minimum requirements as stated in 200-7.2.2 (eg. Reduce frequency from ten per LOT to ten per two LOTs) by identifying the substantiating tests and notifying the Engineer in writing prior to starting reduced frequency of testing. If the Verification test fails, and Quality Control test data is not upheld by Resolution testing the Quality Control testing will revert to the original frequency of 200-7.2.2. The results of the Independent Verification testing will not affect the frequency of the Quality Control testing.

200-7.3.2 Department Verification Tests:

200-7.3.2.1 Maximum Density: The Engineer will randomly select one of the remaining two split samples and test in accordance with FM 1-T 180, Method D.

200-7.3.2.2 Thickness and Surface Testing Requirements: The Department will witness the base depth and surface checks to ensure compliance with 200-7.3.1.2. If the QC test results are not deficient as defined in 200-7.3.1.2, the LOT will be accepted. If the QC test results are deficient, resolve deficiencies in accordance with 200-7.3.1.2. Repeat acceptance testing. Provide traffic control, coring/boring equipment, and an operator for the coring/boring equipment.

200-7.4 Verification Comparison Criteria and Resolution Procedures:

200-7.4.1 Modified Proctor Maximum Density: The Engineer will verify the Quality Control results of the four LOTs if the Verification test result compares within 4.5 lb/ft^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 lb/ft^3 of the corresponding Quality Control test result, the Engineer will use the Quality Control test results for material acceptance purposes for each corresponding set of two LOTs. If the Resolution test result is not within 4.5 lb/ft^3 of the corresponding Quality Control test, the Engineer will collect the remaining Verification split sample for testing. Verification Test results will be used for material acceptance purposes for the four LOTs in question.

200-7.4.2 Thickness and Surface Testing Requirements: Resolve deficiencies in accordance with 200-7.3.1.2