



*Florida Department of Transportation*

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GOVERNOR

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JARED W. PERDUE, P.E.  
SECRETARY

October 12, 2023

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

Re: State Specifications Office  
Section: 200  
Proposed Specification: **2000502 Rock Base.**

Dear Mr. Nguyen:

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

The changes are proposed by Dino Jameson to clarify base thick lift language, add missing language for surface testing requirements, and move the cross slope testing requirements to appropriate places.

Please review and transmit your comments, if any, within two weeks (10 business days). Comments should be sent via email [daniel.strickland@dot.state.fl.us](mailto:daniel.strickland@dot.state.fl.us).

If you have any questions relating to this specification change, please call me at (850) 414-4130.

Sincerely,

Signature on File

Daniel Strickland, P.E.  
State Specifications Engineer

DS/dh

Attachment

cc: Florida Transportation Builders' Assoc.  
State Construction Engineer

Note: There are numerous instances of original language moved to new Articles.

**ROCK BASE.**  
**(REV 8-21-23)**

SUBARTICLE 200-5.2 is deleted and the following substituted:

**200-5.2 Number of Courses:** When the specified compacted thickness of the base is greater than 6 inches, construct the base in multiple courses of equal thickness. Individual courses shall not be less than 3 inches. The thickness of the first course may be increased to bear the weight of the construction equipment without disturbing the subgrade.

If, through field tests, the Contractor can demonstrate that the compaction equipment can achieve density for the full depth of a thicker lift, and if approved by the Engineer, the base may be constructed in successive courses of not more than 8 inches compacted thickness.

~~\_\_\_\_\_~~ The Engineer's approval of thick lift compaction will be based ~~Engineer will base approval~~ on results of a successful test section constructed using the Contractor's specified compaction effort. Notify the Engineer prior to beginning construction of a test section. Construct a test section of the length of one full LOT. Perform two sets of QC density tests per source ~~five QC density tests~~ at random locations within the test section. Each set will include five density tests. One set will include the entire lift thickness and the second set a dig down test of the bottom 6 inches at the same location where the thick lift test was taken.

~~\_\_\_\_\_~~ ~~At each test site, test the bottom 6 inches in addition to the entire course thickness.~~ All QC tests and a Department Verification test must meet the density required by 200-7.2.1. Identify the test section with the compaction effort and thickness in the Earthwork Records System (ERS) portion of the Department's database. Remove the materials above the bottom 6 inches, at no expense to the Department. After completion of a successful test section, ~~T~~the minimum density required on the thicker lift from thereon will be the average of the five density test results obtained on the thick lift ~~in the passing test section.~~

~~\_\_\_\_\_~~ Maintain the exposed surface as close to "undisturbed" as possible; no further compaction will be permitted during the test preparation. If unable to achieve the required density, remove and replace or repair the test section to comply with the specifications at no additional expense to the Department. The Contractor may elect to place material in 6 inches compacted thickness at any time.

Once approved, a change in the source of base material will require the construction of a new test section. Do not change the compaction effort once the test section is approved. The Engineer will periodically verify the density of the bottom 6 inches during thick lift operations.

The Engineer may terminate the use of thick lift construction and instruct the Contractor to revert to the 6 inches maximum lift thickness if the Contractor fails to achieve satisfactory results or meet applicable specifications.

**200-5.3 Rock Base for Shoulder Pavement:** Unless otherwise permitted, complete all rock base shoulder construction at any particular location before placing the final course of pavement on the traveled roadway. When dumping material for the construction of a rock base on the shoulders, do not allow material capable of scarring or contaminating the pavement surface on the adjacent pavement. Immediately sweep off any rock material that is deposited on the surface course.

SUBARTICLE 200-7.2.3.1.2 is deleted and the following substituted:

**200-7.3.1.2 ~~Depth~~ Thickness & 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 using a Global Navigation Satellite System enabled Automated Machine Guidance technology in accordance with Section 5. Alternately, the finished surface of the base course can be verified using stringline method with stakes or 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.

**200-7.3.1.2.13 ~~Surface & Thickness~~ Surface 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 (e.g., 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 QC test data is not upheld by Resolution testing the QC 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 QC testing. Do not apply reduced testing frequency in construction of shoulder-only areas, shared use paths, and sidewalks.

SUBARTICLE 200-7.3.1.3 is deleted and the following substituted:

**200-7.3.1.3 ~~Surface & Thickness Reduced Testing Frequency~~ Cross**

**Slope:** ~~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 (e.g., 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 QC test data is not upheld by Resolution testing the QC 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 QC testing. Do not apply reduced testing frequency in construction of shoulder-only areas, shared use paths, and sidewalks~~ Construct base surface course to conform to the lines and grades shown in the Plans with cross slopes in compliance with the requirements of the Contract Documents. Furnish a level with a minimum length of 4 feet with a digital slope measuring device approved by the

Engineer for ~~the~~ control of the cross slope. Make this level ~~or measuring device~~ available at the jobsite at all times during base construction operations.

   Measure the cross slope of the base surface by placing the measuring device perpendicular to the roadway centerline. Report the cross slope to the nearest 0.1%. Record all the measurements and submit to the Engineer for documentation. Measure the cross slope at a minimum frequency of one measurement per ~~lot~~ LOT to ensure the cross slope is uniform and in compliance with the design cross slope. When the difference between the measured cross slope and the design cross slope exceeds ±0.2% for travel lanes (~~including turn lanes~~) or ±0.5% for shoulders, make all corrections ~~in accordance with 200-7.5.3~~ to bring the cross slope ~~into the~~ acceptable range by scarifying and removing or adding rock as required, and recompact the entire area as specified hereinbefore.

SUBARTICLE 200-7.3.1 is expanded by the following new Subarticle:

   **200-7.3.1.4 Elevation Data Collection:** Within curb ~~and~~ gutter and widening areas, ~~measure and~~ record the elevation of finished surface of base course every 500 feet by measuring the elevation of base adjacent to curb and gutter, as well as at each lane edge location. Provide the elevation measurements to the Engineer.

SUBARTICLE 200-7.3.2 is expanded by the following new Subarticle:

   **200-7.3.2.3 Cross Slope:** The Engineer will take cross slope measurements at random locations at a frequency of one per two LOTs.

SUBARTICLE 200-7.4.2 is deleted and the following substituted:

**200-7.4.2 Pit Proctor:** When using the Pit Proctor option, the Engineer will select a random location to sample and test at the minimum frequency in the table below, to obtain an Independent Verification (IV) maximum density as determined by FM 1-T180. The Engineer will collect enough material to split and hold a sample for Resolution testing.

Table <del>200-3</del>		
Test Name	Mainline Pavement Lanes, Turn Lanes, Ramps, Parking Lots, Concrete Box Culverts and Retaining Wall Systems	Shoulder-Only, Shared Use Path and Sidewalk Construction
IV Modified Proctor Maximum Density	One per 16 consecutive LOTs	One per 4 consecutive LOTs

The Engineer will compare the IV results with the Pit Proctor. If the IV result is lower than or equal to the Pit Proctor plus 4.5 pcf, keep the option to use the Pit Proctor. If the IV result is more than 4.5 pcf higher than the Pit Proctor the Engineer will test the Resolution sample and compare the Resolution result with the Pit Proctor. If the Resolution

result is lower than or equal to the Pit Proctor plus 4.5 pcf, keep the option to use the Pit Proctor. Otherwise return to the provisions of 200-7.2.2, 200-7.3.1.1, 200-7.3.2.1, and 200-7.4.1.

SUBARTICLE 200-7.4.3 is deleted and the following substituted:

**200-7.4.3 Density:** When a Verification or Independent Verification density test does not meet the requirements of 200-7.2.1 (Acceptance Criteria), meet the resolution requirements of 120-10.4.2, ~~retest at a site within a 5-foot radius of the Verification test location and observe the following:~~

- ~~1. If the QC retest meets the Acceptance Criteria and compares favorably with the Verification or Independent Verification test, the Engineer will accept the LOTS in question.~~
- ~~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 material in that LOT. The Engineer will re-verify the LOTS in question.~~
- ~~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 120-10.1.1. 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.~~

SUBARTICLE 200-7.4 is expanded by the following new Subarticle:

**200-7.4.5 Cross Slope:** ~~Construct base surface with cross-slopes in compliance with the requirements of the Contract Documents. Furnish a level with a minimum length of 4 feet with a digital slope measuring device approved by the Engineer for the control of cross slope. Make this level or measuring device available at the jobsite at all times during base construction operations.~~

**200-7.5.1 Quality Control Requirements:** ~~Measure the cross-slope of the base surface by placing the measuring device perpendicular to the roadway centerline. Report the cross-slope to the nearest 0.1%. Record all the measurements and submit to the Engineer for documentation. Measure the cross-slope at a minimum frequency of one measurement per lot to ensure the cross-slope is uniform and in compliance with the design cross-slope. When the difference between the measured cross-slope and the design cross-slope exceeds  $\pm 0.2\%$  for travel lanes (including turn lanes) or  $\pm 0.5\%$  for shoulders, make all corrections in accordance with 200-7.5.3 to bring the cross-slope into the acceptable range.~~

**200-7.5.2 Verification:** The Engineer will verify the Contractor's cross slope measurements ~~by randomly taking one measurement every two lots. If the average cross slope of the ten random measurements does not exceed~~ varies more than the allowable tolerance from the design cross slope ( $\pm 0.2\%$  for travel lanes (including turn lanes) and  $\pm 0.5\%$  for shoulders); Otherwise reprocess the LOTS in question by making ~~make~~ corrections in accordance with ~~200-7.5.3.1.3~~ to bring the cross slope ~~into the~~ acceptable range. A recheck of the cross slope will be made following any corrections or additional work performed on the base surface. This process will be repeated until the base cross slope meets the requirements of this specification.

The Engineer may waive the corrections specified above ~~(at no reduction in payment)~~ if the following conditions are met:

1. the deficiencies are sufficiently separated so as not to affect the overall ride quality, traffic safety, and surface drainage characteristics of the pavement and;

2. the Contractor agrees to use asphalt to fill in areas where the earthwork is low at no additional cost to the Department when the overall project amount is greater than the 10% allowed in Sections 234, 334, 337, and 339.

For intersections, tapers, crossovers, transitions at beginning and end of project and similar areas, adjust the cross slope to match the actual site conditions or as directed by the Engineer.

SUBARTICLE 200-7.5 is deleted.

~~**200-7.5 Cross Slope:** Construct base surface with cross slopes in compliance with the requirements of the Contract Documents. Furnish a level with a minimum length of 4 feet with a digital slope measuring device approved by the Engineer for the control of cross slope. Make this level or measuring device available at the jobsite at all times during base construction operations.~~

~~**200-7.5.1 Quality Control Requirements:** Measure the cross slope of the base surface by placing the measuring device perpendicular to the roadway centerline. Report the cross slope to the nearest 0.1%. Record all the measurements and submit to the Engineer for documentation. Measure the cross slope at a minimum frequency of one measurement per lot to ensure the cross slope is uniform and in compliance with the design cross slope. When the difference between the measured cross slope and the design cross slope exceeds  $\pm 0.2\%$  for travel lanes (including turn lanes) or  $\pm 0.5\%$  for shoulders, make all corrections in accordance with 200-7.5.3 to bring the cross slope into the acceptable range.~~

~~**200-7.5.2 Verification:** The Engineer will verify the Contractor's cross slope measurements by randomly taking one measurement every two lots. If the average cross slope of the ten random measurements varies more than the allowable tolerance from the design cross slope ( $\pm 0.2\%$  for travel lanes (including turn lanes) and  $\pm 0.5\%$  for shoulders), make corrections in accordance with 200-7.5.3 to bring the cross slope into the acceptable range. A recheck of the cross slope will be made following any corrections or additional work performed on the base surface. This process will be repeated until the base cross slope meets the requirements of this specification.~~

~~The Engineer may waive the corrections specified above (at no reduction in payment) if:~~

~~1. the deficiencies are sufficiently separated so as not to affect the overall ride quality, traffic safety and surface drainage characteristics of the pavement and;~~

~~2. the Contractor agrees to use asphalt to fill in areas where the earthwork is low at no additional cost to the Department greater than the 10% allowed in Sections 234, 334, 337, and 339.~~

~~For intersections, tapers, crossovers, transitions at beginning and end of project and similar areas, adjust the cross slope to match the actual site conditions or as directed by the Engineer.~~

~~**200-7.5.3 Cross Slope Corrections:** Correct all cross slopes out of tolerance per 200-7.5.1 and 200-7.5.2 in accordance with 200-7.3.1.2.~~

~~**200-7.5.4 Elevation Data Collection:** Within curb and gutter areas and in widening areas, measure and record elevation of finished surface of base course every 500 feet~~

by measuring elevation of base adjacent to curb and gutter, as well as at each lane edge location. Provide the elevation measurements to the Engineer.

**ROCK BASE.**  
**(REV 8-21-23)**

SUBARTICLE 200-5.2 is deleted and the following substituted:

**200-5.2 Number of Courses:** When the specified compacted thickness of the base is greater than 6 inches, construct the base in multiple courses of equal thickness. Individual courses shall not be less than 3 inches. The thickness of the first course may be increased to bear the weight of the construction equipment without disturbing the subgrade.

If, through field tests, the Contractor can demonstrate that the compaction equipment can achieve density for the full depth of a thicker lift, and if approved by the Engineer, the base may be constructed in successive courses of not more than 8 inches compacted thickness. The Engineer's approval of thick lift compaction will be based on results of a successful test section constructed using the Contractor's specified compaction effort. Notify the Engineer prior to beginning construction of a test section. Construct a test section of the length of one full LOT. Perform two sets of QC density tests per source at random locations within the test section. Each set will include five density tests. One set will include the entire lift thickness and the second set a dig down test of the bottom 6 inches at the same location where the thick lift test was taken.

All QC tests and a Department Verification test must meet the density required by 200-7.2.1. Identify the test section with the compaction effort and thickness in the Earthwork Records System (ERS) portion of the Department's database. Remove the materials above the bottom 6 inches, at no expense to the Department. After completion of a successful test section, the minimum density required on the thicker lift from thereon will be the average of the five density test results obtained on the thick lift.

Maintain the exposed surface as close to "undisturbed" as possible; no further compaction will be permitted during the test preparation. If unable to achieve the required density, remove and replace or repair the test section to comply with the specifications at no additional expense to the Department. The Contractor may elect to place material in 6 inches compacted thickness at any time.

Once approved, a change in the source of base material will require the construction of a new test section. Do not change the compaction effort once the test section is approved. The Engineer will periodically verify the density of the bottom 6 inches during thick lift operations.

The Engineer may terminate the use of thick lift construction and instruct the Contractor to revert to the 6 inches maximum lift thickness if the Contractor fails to achieve satisfactory results or meet applicable specifications.

**200-5.3 Rock Base for Shoulder Pavement:** Unless otherwise permitted, complete all rock base shoulder construction at any particular location before placing the final course of pavement on the traveled roadway. When dumping material for the construction of a rock base on the shoulders, do not allow material capable of scarring or contaminating the pavement surface on the adjacent pavement. Immediately sweep off any rock material that is deposited on the surface course.



SUBARTICLE 200-7.2.3.1.2 is deleted and the following substituted:

**200-7.3.1.2 Thickness & 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 using a Global Navigation Satellite System enabled Automated Machine Guidance technology in accordance with Section 5. Alternately, the finished surface of the base course can be verified using stringline method with stakes or 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.

**200-7.3.1.2.1 Thickness & Surface 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 (e.g., 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 QC test data is not upheld by Resolution testing the QC 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 QC testing. Do not apply reduced testing frequency in construction of shoulder-only areas, shared use paths, and sidewalks.

SUBARTICLE 200-7.3.1.3 is deleted and the following substituted:

**200-7.3.1.3 Cross Slope:** Construct base surface course to conform to the lines and grades shown in the Plans. Furnish a level with a minimum length of 4 feet with a digital slope measuring device approved by the Engineer for control of the cross slope. Make this level available at the jobsite at all times during base construction operations.

Measure the cross slope of the base surface by placing the measuring device perpendicular to the roadway centerline. Report the cross slope to the nearest 0.1%. Record all the measurements and submit to the Engineer for documentation. Measure the cross slope at a minimum frequency of one measurement per LOT to ensure the cross slope is uniform and in compliance with the design cross slope. When the difference between the measured cross slope and the design cross slope exceeds  $\pm 0.2\%$  for travel lanes including turn lanes or  $\pm 0.5\%$  for shoulders, make all corrections to bring the cross slope to acceptable range by scarifying and removing or adding rock as required, and recompact the entire area as specified hereinbefore.

SUBARTICLE 200-7.3.1 is expanded by the following new Subarticle:

**200-7.3.1.4 Elevation Data Collection:** Within curb-and-gutter and widening areas, record the elevation of finished surface of base course every 500 feet by measuring the elevation of base adjacent to curb and gutter, as well as at each lane edge location. Provide the elevation measurements to the Engineer.

SUBARTICLE 200-7.3.2 is expanded by the following new Subarticle:

**200-7.3.2.3 Cross Slope:** The Engineer will take cross slope measurements at random locations at a frequency of one per two LOTs.

SUBARTICLE 200-7.4.2 is deleted and the following substituted:

**200-7.4.2 Pit Proctor:** When using the Pit Proctor option, the Engineer will select a random location to sample and test at the minimum frequency in the table below, to obtain an Independent Verification (IV) maximum density as determined by FM 1-T180. The Engineer will collect enough material to split and hold a sample for Resolution testing.

Test Name	Mainline Pavement Lanes, Turn Lanes, Ramps, Parking Lots, Concrete Box Culverts and Retaining Wall Systems	Shoulder-Only, Shared Use Path and Sidewalk Construction
IV Modified Proctor Maximum Density	One per 16 consecutive LOTs	One per 4 consecutive LOTs

The Engineer will compare the IV results with the Pit Proctor. If the IV result is lower than or equal to the Pit Proctor plus 4.5 pcf, keep the option to use the Pit Proctor. If the IV result is more than 4.5 pcf higher than the Pit Proctor the Engineer will test the Resolution sample and compare the Resolution result with the Pit Proctor. If the Resolution result is lower than or equal to the Pit Proctor plus 4.5 pcf, keep the option to use the Pit Proctor. Otherwise return to the provisions of 200-7.2.2, 200-7.3.1.1, 200-7.3.2.1, and 200-7.4.1.

SUBARTICLE 200-7.4.3 is deleted and the following substituted:

**200-7.4.3 Density:** When a Verification or Independent Verification density test does not meet the requirements of 200-7.2.1 (Acceptance Criteria), meet the resolution requirements of 120-10.4.2.

SUBARTICLE 200-7.4 is expanded by the following new Subarticle:

**200-7.4.5 Cross Slope:** The Engineer will verify the Contractor's cross slope measurements if the average cross slope of ten random measurements does not exceed the allowable tolerance from the design cross slope ( $\pm 0.2\%$  for travel lanes including turn lanes and  $\pm 0.5\%$  for shoulders). Otherwise reprocess the LOTs in question by making corrections in accordance with 200-7.3.1.3 to bring the cross slope to acceptable range. A recheck of the cross slope will be made following any corrections or additional work performed on the base surface. This process will be repeated until the base cross slope meets the requirements of this specification.

The Engineer may waive the corrections specified above at no reduction in payment if the following conditions are met:

1. the deficiencies are sufficiently separated so as not to affect the overall ride quality, traffic safety, and surface drainage characteristics of the pavement.
2. the Contractor agrees to use asphalt to fill in areas where the earthwork is low at no additional cost to the Department when the overall project amount is greater than the 10% allowed in Sections 234, 334, 337, and 339.

For intersections, tapers, crossovers, transitions at beginning and end of project and similar areas, adjust the cross slope to match the actual site conditions or as directed by the Engineer.

SUBARTICLE 200-7.5 is deleted.