Florida Department of Transportation

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GOVERNOR

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Tallahassee, FL 32399-0450

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: 120
Proposed Specification: **1200503 Excavation and Embankment.**

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 gauge comparison language to include Low Activity Nuclear Density Gauge (L-NDG), tolerance criteria, replace the obsolete density test method FM 1-T 238 with the new FM 1-T310 that follows AASHTO's T310 guidelines, and clarify the density resolution procedures.

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.

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

EXCAVATION AND EMBANKMENT.
(REV 6-26-23)

SUBARTICLE 120-5.3 is deleted and the following substituted:

120-5.3 Disposal of Paving Materials: Unless otherwise noted, take ownership of paving materials, such as paving brick, asphalt block, concrete slab, sidewalk, curb and gutter, etc., excavated in the removal of existing pavements, and dispose of them outside the right-of-way. If the materials are to remain the property of the Department, place them in neat piles as directed. Existing base materials that are removed may be incorporated in the stabilized portion of the subgrade in accordance with Section 160. If the construction sequence ~~will~~ allows, incorporate all existing base material into the project as allowed by the Contract Documents.

SUBARTICLE 120-5.4 is deleted and the following substituted:

120-5.4 Disposal Areas: Where the Contract Documents require disposal of excavated materials outside the right-of-way, and the disposal area is not indicated in the Contract Documents, furnish the disposal area without additional compensation.

Provide areas for disposal of removed paving materials out of sight of the project and at least 300 feet from the nearest roadway right-of-way line of any State maintained road. If the materials are buried, disregard the 300-~~-~~foot limitation.

SUBARTICLE 120-8.2.1.2 is deleted and the following substituted:

120-8.2.1.2 Thick Lift Requirements: For embankment materials classified as Group 2 in Table 120-1 above, the option to perform thick lift construction in successive layers of not more than 12 inches compacted thickness may be used after meeting the following requirements:

1. Notify the Engineer and obtain approval in writing prior to beginning construction of a test section. Demonstrate the possession and control of compacting equipment sufficient to achieve density required by 120-10.2 for the full depth of a thicker lift.
2. Construct a test section of the length of one full LOT of not less than 500 feet.
3. Perform five Quality Control (QC) tests at random locations within the test section.
   a. All five QC tests and a Department Verification test must meet the density required by 120-10.2.
   b. Identify the test section with the compaction effort and soil classification in the Department's Earthwork Records System (ERS).
4. Obtain Engineer's approval in writing for the compaction effort after completing a successful test section.

In case of a change in compaction effort or soil classification, failing QC test 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. Construct all layers approximately parallel to the centerline profile of the road.

The Engineer reserves the right to terminate the Contractor's use of thick lift construction. Whenever the Engineer determines that the Contractor is not achieving satisfactory results, revert to the 6-inch compacted lifts.

SUBARTICLE 120-8.3.1 is deleted and the following substituted:

120-8.3.1 Method of Placing: When the hydraulic method is used, as far as practicable, place all dredged material in its final position in the embankment by such method. Place and compact any dredged material that is reworked, or moved and placed in its final position by any other method, as specified in 120-9.2. Baffles or any other form of construction may be used if the slopes of the embankments are not steeper than indicated in the Plans. Remove all timber used for temporary bulkheads or baffles from the embankment, and fill and thoroughly compact all voids. When placing fill on submerged land, construct dikes prior to beginning of dredging, and maintain the dikes throughout the dredging operation.

SUBARTICLE 120-8.4.1 is deleted and the following substituted:

120-8.4.1 General: Use only RAP material stored at facilities with an approved Florida Department of Environmental Protection Stormwater permit or, transferred directly from a milling project to the Department project. Certify the source if RAP material is from an identifiable Department project. Do not use RAP material in the following areas: construction areas that are below the seasonal high groundwater table elevation; MSE Wall backfill; underneath MSE Walls or the top 6 inches of embankment.

Prior to placement, submit documentation to the Engineer for his approval, outlining the proposed location of the RAP material.

SUBARTICLE 120-8.4.2 is deleted and the following substituted:

120-8.4.2 Soil and RAP Mixture: Place the RAP material at the location and spread uniformly, using approved methods to obtain a maximum layer thickness of 4 inches. Mix this 4-inches maximum layer of RAP with a loose soil layer 8 to 10 inches thick. After mixing, meet all embankment utilization requirements of Standard Plans, Index 120-001 for the location used. The total RAP and other embankment material shall not exceed 12 inches per lift after mixing and compaction if the eContractor can demonstrate that the density of the mixture can be achieved. Perform mixing using rotary tillers or other equipment meeting the approval of the Engineer. The Engineer will determine the order in which to spread the two materials. Mix both materials to the full depth. Ensure that the finished layer will have the thickness and shape required by the typical section. Demonstrate the feasibility of this construction method by successfully completing a 500-foot long test section.

SUBARTICLE 120-8.4.3 is deleted and the following substituted:

120-8.4.3 Alternate Soil and RAP Layer Construction: Construct soil in 6-inch to 12-inch compacted lifts and RAP in alternate layers with 6-inch maximum compacted lifts. Use soil with a minimum LBR value of 40 to prevent failure during compaction of the overlying RAP layer. Demonstrate the feasibility of this construction method by successfully completing a 500-foot long test section.

SUBARTICLE 120-9.2.3 is deleted and the following substituted:

120-9.2.3 Compaction Where Plastic Material Has Been Removed: Where unsuitable material is removed and the remaining surface is of the A-4, A-5, A-6, or A-7 Soil Groups (see AASHTO M 145), as determined by the Engineer, compact the surface of the excavated area by rolling with a sheepsfoot roller exerting a compression of at least 250 psi on the tamper feet, for the full width of the roadbed (subgrade and shoulders). Perform rolling before beginning any backfill, and continue until the roller feet do not penetrate the surface more than 1 inch. Do not perform such rolling where the remaining surface is below the normal water table and covered with water. Vary the procedure and equipment required for this operation at the discretion of the Engineer.

SUBARTICLE 120-9.2.4 is deleted and the following substituted:

120-9.2.4 Compaction of Grassed Shoulder Areas: For the upper 6-inch layer of all shoulders which are to be grassed, since no specific density is required, compact only to the extent needed for planting.

SUBARTICLE 120-10.1.1 is deleted and the following substituted:

120-10.1.1 ~~Initial~~ Equipment Comparison: Before initial production, perform an initial three-way ~~nuclear moisture~~ density gauge comparison with ~~the~~ Verification and Independent Assurance (IA) gauges to validate QC and Verification gauges. When comparing the ~~computed dry~~ wet density ~~of one nuclear gauge to a second~~ between two density gauges, three sets of calculations must be performed (IA to QC, IA to Verification, and QC to Verification) within the same test hole and same test depth. Ensure that the difference between any two ~~computed dry~~ wet densities does not exceed ~~2 lb/ft^3 between gauges from the same manufacturer, and 3 lb/ft^3 between gauges from different manufacturers.~~ the tolerances listed in Table 120-2. Repair, calibrate, or replace any gauge that does not compare favorably with the IA gauge.

Table 120-2

Condition	Comparison Type	Manufacturer	Tolerance
Condition 1: When both gauges in the comparison are	NDG to NDG	Same Manufacturer	2 lb/ft^3

Nuclear Density Gauges (NDG)	NDG to NDG	Different Manufacturer	3 lb/ft^3
Condition 2: When one of the gauges in the comparison is a Low-Activity Nuclear Density Gauge (L-NDG)	L-NDG to L-NDG	Same Manufacturer	2 lb/ft^3
	L-NDG to L-NDG	Different Manufacturer	3 lb/ft^3
	NDG to L-NDG	Same/Different Manufacturer	

Ensure the equipment intended to determine the moisture content of soils by Speedy moisture tester in accordance with FM 5-507 has been calibrated and visually inspected by the Engineer.

To validate additional nuclear density gauges, ~~P~~perform a two-way comparison analysis between the QC nuclear gauge and the Verification nuclear gauge any time a nuclear gauge is first brought to the project or returns from annual calibration/~~or~~ repair~~ed nuclear gauge is first brought to the project~~. At least one of the nuclear gauges in the two-way comparison analysis must have been previously validated in a comparison. Repair ~~and~~ or replace any QC gauge that does not compare favorably with a validated ~~the~~ Verification gauge at any time during the remainder of the project. Calibrate all ~~QC~~ gauges annually.

SUBARTICLE 120-10.1.2 is deleted and the following substituted:

120-10.1.2 Initial Production LOT: Before construction of any production LOT, prepare a 500~~-~~ foot initial control section consisting of one full LOT. Notify the Engineer in writing at least 24 hours prior to production of the initial control section. Perform all QC tests required in 120-10.1.4 with the Engineer present. Do not begin constructing another LOT until successfully completing the initial production LOT.

If the QC test result fails the density requirements of 120-10.2, correct the areas of non-compliance. The QC and Verification tests will then be repeated.

SUBARTICLE 120-10.1.4.2 is deleted and the following substituted:

120-10.1.4.2 Density Testing Requirements: Ensure compliance to the requirements of 120-10.2 by Nuclear Density testing in accordance with FM 1-T~~238~~310. Determine the in-place moisture content for each density test~~.~~ in accordance with ~~Use~~ FM 1-T~~238~~310, FM 5-507 (~~Determination of~~ Speedy Moisture ~~Content by Means of a Calcium Carbide Gas Pressure Moisture Tester~~), or ASTM D-4643 (~~Laboratory Determination of Moisture Content of Granular Soils by use of a~~ Microwave Oven), whichever is applicable. ~~for moisture determination.~~

SUBARTICLE 120-10.2 is deleted and the following substituted:

120-10.2 Acceptance Criteria: Obtain a minimum QC density of 100% of the standard Proctor maximum density as determined by FM 1-T099~~, Method C~~, with the following exceptions: embankment constructed by the hydraulic method as specified in 120-8.3; material

placed outside the standard minimum slope as specified in 120-8.2.4 except when a structure is supported on existing embankment; and~~,~~ other areas specifically excluded herein.

SUBARTICLE 120-10.3.1 is deleted and the following substituted:

120-10.3.1 Frequency: Conduct QC sampling and testing at a minimum frequency listed in Table 120-3~~2~~ below. The Engineer will perform Verification sampling and tests at a minimum frequency listed in Table 120-~~2~~3 below.

Table 120-3~~2~~

Test Name	Quality Control	Verification	Verification of Shoulder-Only Areas, Shared Use Paths, and Sidewalks
Standard Proctor Maximum Density	One per soil type	One per soil type	One per soil type
Density	One per LOT	One per four LOTS and for wet conditions, the first lift not affected by water	One per two LOTs
Soil Classification and Organic Content	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density

SUBARTICLE 120-10.3.2 is deleted and the following substituted:

120-10.3.2 Test Selection and Reporting: Determine test locations including stations and offsets, using the random number generator approved by the Engineer. Record data directly in the ERS section of the Department's database. Do not use notepads or worksheets to record data for later transfer to the ERS. Notify the Engineer upon successful completion of QC testing on each LOT prior to placing another lift on top.

SUBARTICLE 120-10.4.2 is deleted and the following substituted:

120-10.4.2 Density Testing: When a Verification or IV density test fails the acceptance criteria, perform an equipment comparison analysis using the same test hole and same test depth in accordance with 120-10.1.1. If the equipment compares favorably, then retest the site within a 5~~-~~-foot radius of the failing Verification's test. Otherwise, repair, calibrate, or replace density gauge in accordance with 120-10.1.1.~~and the following actions will be taken:~~

~~1.~~ If the QC retest meets the acceptance criteria~~ and meets the 120-10.1.1 criteria when compared with the Verification or IV test~~, the Engineer will accept those LOTs in question.

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

~~3. If the QC retest and the Verification or IV test do not compare favorably, complete a new 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.~~

Record the equipment comparison data and the QC test results in the ERS section of the Department's database.

SUBARTICLE 120-10.4.3 is deleted and the following substituted:

120-10.4.3 Soil Classification: The Engineer will verify the QC test results if the Verification and the QC test results both match the soil utilization symbol listed in Standard Plans, Index 120-001. Otherwise, the Engineer will test the sample retained for Resolution testing. The SMO or an AASHTO accredited laboratory designated by the SMO will perform the Resolution testing. The material will be sampled and tested in accordance with AASHTO T 88, T 89, and T 90, and classified in accordance with AASHTO M 145.

The Engineer will compare the Resolution test results with the QC test results. If the Resolution test matches the QC soil utilization symbol, the Engineer will use the QC soil utilization symbol for material acceptance purposes. If the Resolution test result does not match the Contractor's QC soil utilization symbol, the Verification test results will be used for material acceptance purposes.

ARTICLE 120-11 is deleted and the following substituted:

120-11 Maintenance and Protection of Work.

While construction is in progress, maintain adequate drainage for the roadbed at all times. Maintain a shoulder at least 3 feet wide adjacent to all pavement or base construction in order to provide support for the edges.

Maintain all earthwork construction throughout the life of the Contract~~,~~ and take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. Repair, at no expense to the Department except as otherwise provided herein, any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work. Perform maintenance and protection of earthwork construction in accordance with Section 104.

Maintain all channels excavated as a part of the Contract work against natural shoaling or other encroachments to the lines and grades, shown in the Plans, until final acceptance of the project.

Note: Revision contains numerous Admin changes and content changes

SUBARTICLE 120-12.1 is deleted and the following substituted:

120-12.1 Construction Tolerances: Shape the surface of the earthwork to conform to the lines and grades~~,~~ as~~and~~ shown in the Plans. In final shaping of the surface of earthwork, maintain a tolerance of 0.3 foot above or below the finished graded surface with the following exceptions:

1. Shape the surface of shoulders to within 0.1 foot of the finished graded surface shown in the Plans.
2. Shape the earthwork to match adjacent pavement, curb, sidewalk, structures, etc.
3. Shape the bottom of conveyance ditches so that the ditch impounds no water.
4. When the work does not include construction of base or pavement, shape the entire roadbed (shoulder point to shoulder point) to within 0.1 foot above or below the Plan finished graded surface~~.~~.
5. When the work includes permitted linear stormwater management facilities, shape the swales and ditch blocks to within 0.1 foot of the finished graded surface shown in the Plans.

Ensure that the shoulder lines do not vary horizontally more than 0.3 foot from the true lines shown in the Plans.

SUBARTICLE 120-14.2.2 is deleted and the following substituted:

120-14.2.2 Basic Work Included in Payments: Prices and payments will be full compensation for all work described under this Section, except for any excavation, or embankment which is specified to be included for payment under other items. Such prices and payments will include hauling; any reworking that may be necessary to accomplish final disposal as shown in the Plans; the dressing of shoulders, ditches, and slopes; removal of trash, vegetation, etc., from the previously graded roadway where no item for clearing and grubbing is shown in the Plans; and compacting as required.

Note: Revision contains numerous Admin changes and content changes

EXCAVATION AND EMBANKMENT.
(REV 6-26-23)

SUBARTICLE 120-5.3 is deleted and the following substituted:

120-5.3 Disposal of Paving Materials: Unless otherwise noted, take ownership of paving materials, such as paving brick, asphalt block, concrete slab, sidewalk, curb and gutter, etc., excavated in the removal of existing pavements, and dispose of them outside the right-of-way. If the materials are to remain the property of the Department, place them in neat piles as directed. Existing base materials that are removed may be incorporated in the stabilized portion of the subgrade in accordance with Section 160. If the construction sequence allows, incorporate all existing base material into the project as allowed by the Contract Documents.

SUBARTICLE 120-5.4 is deleted and the following substituted:

120-5.4 Disposal Areas: Where the Contract Documents require disposal of excavated materials outside the right-of-way, and the disposal area is not indicated in the Contract Documents, furnish the disposal area without additional compensation.

Provide areas for disposal of removed paving materials out of sight of the project and at least 300 feet from the nearest roadway right-of-way line of any State maintained road. If the materials are buried, disregard the 300-foot limitation.

SUBARTICLE 120-8.2.1.2 is deleted and the following substituted:

120-8.2.1.2 Thick Lift Requirements: For embankment materials classified as Group 2 in Table 120-1 above, the option to perform thick lift construction in successive layers of not more than 12 inches compacted thickness may be used after meeting the following requirements:

1. Notify the Engineer and obtain approval in writing prior to beginning construction of a test section. Demonstrate the possession and control of compacting equipment sufficient to achieve density required by 120-10.2 for the full depth of a thicker lift.
2. Construct a test section of the length of one full LOT of not less than 500 feet.
3. Perform five Quality Control (QC) tests at random locations within the test section.
    a. All five QC tests and a Department Verification test must meet the density required by 120-10.2.
    b. Identify the test section with the compaction effort and soil classification in the Department’s Earthwork Records System (ERS).
4. Obtain Engineer’s approval in writing for the compaction effort after completing a successful test section.

In case of a change in compaction effort or soil classification, failing QC test 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. Construct all layers approximately parallel to the centerline profile of the road.

The Engineer reserves the right to terminate the Contractor's use of thick lift construction. Whenever the Engineer determines that the Contractor is not achieving satisfactory results, revert to the 6-inch compacted lifts.

SUBARTICLE 120-8.3.1 is deleted and the following substituted:

120-8.3.1 Method of Placing: When the hydraulic method is used, as far as practicable, place all dredged material in its final position in the embankment by such method. Place and compact any dredged material that is reworked or moved and placed in its final position by any other method, as specified in 120-9.2. Baffles or any other form of construction may be used if the slopes of the embankments are not steeper than indicated in the Plans. Remove all timber used for temporary bulkheads or baffles from the embankment, and fill and thoroughly compact all voids. When placing fill on submerged land, construct dikes prior to beginning of dredging, and maintain the dikes throughout the dredging operation.

SUBARTICLE 120-8.4.1 is deleted and the following substituted:

120-8.4.1 General: Use only RAP material stored at facilities with an approved Florida Department of Environmental Protection Stormwater permit or transferred directly from a milling project to the Department project. Certify the source if RAP material is from an identifiable Department project. Do not use RAP material in the following areas: construction areas that are below the seasonal high groundwater table elevation; MSE Wall backfill; underneath MSE Walls or the top 6 inches of embankment.

Prior to placement, submit documentation to the Engineer for his approval, outlining the proposed location of the RAP material.

SUBARTICLE 120-8.4.2 is deleted and the following substituted:

120-8.4.2 Soil and RAP Mixture: Place the RAP material at the location and spread uniformly, using approved methods to obtain a maximum layer thickness of 4 inches. Mix this 4-inches maximum layer of RAP with a loose soil layer 8 to 10 inches thick. After mixing, meet all embankment utilization requirements of Standard Plans, Index 120-001 for the location used. The total RAP and other embankment material shall not exceed 12 inches per lift after mixing and compaction if the Contractor can demonstrate that the density of the mixture can be achieved. Perform mixing using rotary tillers or other equipment meeting the approval of the Engineer. The Engineer will determine the order in which to spread the two materials. Mix both materials to the full depth. Ensure that the finished layer will have the thickness and shape required by the typical section. Demonstrate the feasibility of this construction method by successfully completing a 500-foot long test section.

Note: Revision contains numerous Admin changes and content changes

SUBARTICLE 120-8.4.3 is deleted and the following substituted:

120-8.4.3 Alternate Soil and RAP Layer Construction: Construct soil in 6-inch to 12-inch compacted lifts and RAP in alternate layers with 6-inch maximum compacted lifts. Use soil with a minimum LBR value of 40 to prevent failure during compaction of the overlying RAP layer. Demonstrate the feasibility of this construction method by successfully completing a 500-foot long test section.

SUBARTICLE 120-9.2.3 is deleted and the following substituted:

120-9.2.3 Compaction Where Plastic Material Has Been Removed: Where unsuitable material is removed and the remaining surface is of the A-4, A-5, A-6, or A-7 Soil Groups (see AASHTO M 145), as determined by the Engineer, compact the surface of the excavated area by rolling with a sheepsfoot roller exerting a compression of at least 250 psi on the tamper feet, for the full width of the roadbed (subgrade and shoulders). Perform rolling before beginning any backfill and continue until the roller feet do not penetrate the surface more than 1 inch. Do not perform such rolling where the remaining surface is below the normal water table and covered with water. Vary the procedure and equipment required for this operation at the discretion of the Engineer.

SUBARTICLE 120-9.2.4 is deleted and the following substituted:

120-9.2.4 Compaction of Grassed Shoulder Areas: For the upper 6-inch layer of all shoulders which are to be grassed, since no specific density is required, compact only to the extent needed for planting.

SUBARTICLE 120-10.1.1 is deleted and the following substituted:

120-10.1.1 Equipment Comparison: Before initial production, perform an initial three-way density gauge comparison with Verification and Independent Assurance (IA) gauges to validate QC and Verification gauges. When comparing the wet density between two density gauges, three sets of calculations must be performed (IA to QC, IA to Verification, and QC to Verification) within the same test hole and same test depth. Ensure that the difference between any two wet densities does not exceed the tolerances listed in Table 120-2. Repair, calibrate, or replace any gauge that does not compare favorably with the IA gauge.

Table 120-2

Condition	Comparison Type	Manufacturer	Tolerance
Condition 1: When both gauges in the comparison are Nuclear Density Gauges (NDG)	NDG to NDG	Same Manufacturer	2 lb/ft^3
	NDG to NDG	Different Manufacturer	3 lb/ft^3
Condition 2: When one of the gauges in the comparison	L-NDG to L-NDG	Same Manufacturer	2 lb/ft^3
	L-NDG to L-NDG	Different Manufacturer	3 lb/ft^3

is a Low-Activity Nuclear Density Gauge (L-NDG)	NDG to L-NDG	Same/Different Manufacturer	

Ensure the equipment intended to determine the moisture content of soils by Speedy moisture tester in accordance with FM 5-507 has been calibrated and visually inspected by the Engineer.

To validate additional nuclear density gauges, perform a two-way comparison analysis between the QC nuclear gauge and the Verification nuclear gauge any time a nuclear gauge is first brought to the project or returns from annual calibration/repair. At least one of the nuclear gauges in the two-way comparison analysis must have been previously validated in a comparison. Repair or replace any QC gauge that does not compare favorably with a validated Verification gauge at any time during the remainder of the project. Calibrate all gauges annually.

SUBARTICLE 120-10.1.2 is deleted and the following substituted:

120-10.1.2 Initial Production LOT: Before construction of any production LOT, prepare a 500-foot initial control section consisting of one full LOT. Notify the Engineer in writing at least 24 hours prior to production of the initial control section. Perform all QC tests required in 120-10.1.4 with the Engineer present. Do not begin constructing another LOT until successfully completing the initial production LOT.

If the QC test result fails the density requirements of 120-10.2, correct the areas of non-compliance. The QC and Verification tests will then be repeated.

SUBARTICLE 120-10.1.4.2 is deleted and the following substituted:

120-10.1.4.2 Density Testing Requirements: Ensure compliance to the requirements of 120-10.2 by Nuclear Density testing in accordance with FM 1-T310. Determine the in-place moisture content for each density test in accordance with FM 1-T310, FM 5-507 (Speedy Moisture), or ASTM D-4643 (Microwave Oven), whichever is applicable.

SUBARTICLE 120-10.2 is deleted and the following substituted:

120-10.2 Acceptance Criteria: Obtain a minimum QC density of 100% of the standard Proctor maximum density as determined by FM 1-T099, with the following exceptions: embankment constructed by the hydraulic method as specified in 120-8.3; material placed outside the standard minimum slope as specified in 120-8.2.4 except when a structure is supported on existing embankment; and other areas specifically excluded herein.

Note: Revision contains numerous Admin changes and content changes

SUBARTICLE 120-10.3.1 is deleted and the following substituted:

120-10.3.1 Frequency: Conduct QC sampling and testing at a minimum frequency listed in Table 120-3 below. The Engineer will perform Verification sampling and tests at a minimum frequency listed in Table 120-3 below.

Table 120-3			
Test Name	Quality Control	Verification	Verification of Shoulder-Only Areas, Shared Use Paths, and Sidewalks
Standard Proctor Maximum Density	One per soil type	One per soil type	One per soil type
Density	One per LOT	One per four LOTS and for wet conditions, the first lift not affected by water	One per two LOTs
Soil Classification and Organic Content	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density

SUBARTICLE 120-10.3.2 is deleted and the following substituted:

120-10.3.2 Test Selection and Reporting: Determine test locations including stations and offsets, using the random number generator approved by the Engineer. Record data directly in the ERS section of the Department's database. Do not use notepads or worksheets to record data for later transfer to the ERS. Notify the Engineer upon successful completion of QC testing on each LOT prior to placing another lift on top.

SUBARTICLE 120-10.4.2 is deleted and the following substituted:

120-10.4.2 Density Testing: When a Verification or IV density test fails the acceptance criteria, perform an equipment comparison analysis using the same test hole and same test depth in accordance with 120-10.1.1. If the equipment compares favorably, then retest the site within a 5-foot radius of the failing Verification's test. Otherwise, repair, calibrate, or replace density gauge in accordance with 120-10.1.1.

If the QC retest meets the acceptance criteria, the Engineer will accept those LOTs in question. Otherwise, rework and retest the LOT. The Engineer will perform new verification testing. Record the equipment comparison data and the QC test results in the ERS section of the Department's database.

SUBARTICLE 120-10.4.3 is deleted and the following substituted:

120-10.4.3 Soil Classification: The Engineer will verify the QC test results if the Verification and the QC test results both match the soil utilization symbol listed in Standard Plans, Index 120-001. Otherwise, the Engineer will test the sample retained for Resolution testing. The SMO or an AASHTO accredited laboratory designated by the SMO will perform the Resolution testing. The material will be sampled and tested in accordance with AASHTO T 88, T 89, and T 90, and classified in accordance with AASHTO M 145.

The Engineer will compare the Resolution test results with the QC test results. If the Resolution test matches the QC soil utilization symbol, the Engineer will use the QC soil utilization symbol for material acceptance purposes. If the Resolution test result does not match the Contractor's QC soil utilization symbol, the Verification test results will be used for material acceptance purposes.

ARTICLE 120-11 is deleted and the following substituted:

120-11 Maintenance and Protection of Work.

While construction is in progress, maintain adequate drainage for the roadbed at all times. Maintain a shoulder at least 3 feet wide adjacent to all pavement or base construction in order to provide support for the edges.

Maintain all earthwork construction throughout the life of the Contract and take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. Repair, at no expense to the Department except as otherwise provided herein, any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work. Perform maintenance and protection of earthwork construction in accordance with Section 104.

Maintain all channels excavated as a part of the Contract work against natural shoaling or other encroachments to the lines and grades, shown in the Plans, until final acceptance of the project.

SUBARTICLE 120-12.1 is deleted and the following substituted:

120-12.1 Construction Tolerances: Shape the surface of the earthwork to conform to the lines and grades as shown in the Plans. In final shaping of the surface of earthwork, maintain a tolerance of 0.3 foot above or below the finished graded surface with the following exceptions:

1. Shape the surface of shoulders to within 0.1 foot of the finished graded surface shown in the Plans.
2. Shape the earthwork to match adjacent pavement, curb, sidewalk, structures, etc.
3. Shape the bottom of conveyance ditches so that the ditch impounds no water.
4. When the work does not include construction of base or pavement, shape the entire roadbed (shoulder point to shoulder point) to within 0.1 foot above or below the Plan finished graded surface.

5. When the work includes permitted linear stormwater management facilities, shape the swales and ditch blocks to within 0.1 foot of the finished graded surface shown in the Plans.

Ensure that the shoulder lines do not vary horizontally more than 0.3 foot from the true lines shown in the Plans.

SUBARTICLE 120-14.2.2 is deleted and the following substituted:

120-14.2.2 Basic Work Included in Payments: Prices and payments will be full compensation for all work described under this Section, except for any excavation, or embankment which is specified to be included for payment under other items. Such prices and payments will include hauling; any reworking that may be necessary to accomplish final disposal as shown in the Plans; the dressing of shoulders, ditches, and slopes; removal of trash, vegetation, etc., from the previously graded roadway where no item for clearing and grubbing is shown in the Plans; and compacting as required.