Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

June 23, 2026

Daniel Holt, PE, PTOE
Director, Project Delivery
Director, Technical Services
FHWA
400 West Washington Street, Suite 4200
Orlando, FL 32801

Re: State Specifications Office
Section: 334
Proposed Specification: **3340203 Superpave Asphalt Concrete**

Dear Mr. Holt:

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

The changes are proposed by Greg Sholar to improve the quality of the asphalt mix without adding cost.
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/am
Attachment
cc: Florida Transportation Builders' Assoc.
State Construction Engineer

SUPERPAVE ASPHALT CONCRETE
(REV 4-2-26)

SUBARTICLE 334-2.3.4 is deleted and the following substituted:

334-2.3.4 Pavement Coring Report: When the Contract includes removal and/or milling of the existing asphalt pavement, the Pavement Coring Report may be available on the Department's website. The URL for obtaining this information, if available, is: https://macreporting.fdot.gov/ReportsMainView.

SUBARTICLE 334-3.2.3.2 is deleted and the following substituted:

334-3.2.3.2 Fine Aggregate Angularity: When tested in accordance with AASHTO T 304, Method A, meet the uncompacted void content of fine aggregate specified in AASHTO M 323. For Traffic Level C and E base and structural course mixtures, a fine aggregate angularity value less than 45.0 and greater than or equal to 42.0 is allowable provided testing parameters of AASHTO T 340 ~~10 (2019)~~ meet the following requirements:

1. Rutting tests are performed on two gyratory specimens compacted to N_{design} level of gyrations with a height of 115 ± 5 mm and a diameter of 150 mm.
2. The air void (V_a) content of each gyratory specimen after compacting to N_{design} shall be within the following range: $3.0 \leq V_a \leq 4.8$.
3. Rutting tests are performed at 64.0 C.
4. The average rut depth for two specimens shall not exceed 4.5 mm.

SUBARTICLE 334-5.7.1.1 is deleted and the following substituted:

334-5.7.1.1 Asphalt Binder and Mixture Sampling for Determination of Asphalt Binder Quality: ~~At the Department's request~~As directed by the Engineer, obtain an asphalt binder sample, in accordance with AASHTO R 66, from the asphalt plant storage tank and a corresponding asphalt mixture sample using binder from the same storage tank. Samples of asphalt binder and mixture shall be sampled the same day. Sample High Polymer and PG 76-22 binders and mixtures at a minimum frequency of three samples per grade, per project, for each year of the Contract. Sample PG 67-22, PG 58-22, and PG 52-28 binders and mixtures at a minimum frequency of one sample per grade, per project, for each year of the Contract. The asphalt binder from the storage tank and the asphalt binder recovered from the asphalt mixture will be tested by the Department for compliance with Contract Documents. Should the test results of the asphalt binder from the storage tank and/or the asphalt binder recovered from the asphalt mixture not meet the requirements of the Contract Documents, address any material represented by the failing test results in accordance with 334-5.9.5.

SUBARTICLE 334-8.2.2 is deleted and the following substituted:

334-8.2.2 Two or Less Sublot Test Results: In the event that two or less sublot test results are available for a LOT, Pay Factors will be determined based on Table 334-8, using the average of the accumulated deviations from the target value. (Except for density, deviations are absolute values with no plus or minus signs.) Use the 1-Test column when there is only one sublot test result and use the 2-Tests column when there are two sublots.

Table 334-8 Small Quantity Pay Table		
Pay Factor	1 Sublot Test Deviation	2 Sublot Test Average Deviation
Asphalt Binder Content		
1.05	0.00-0.23	0.00-0.16
1.00	0.24-0.45	0.17-0.32
0.90	0.46-0.55	0.33-0.39
0.80	>0.55	>0.39
No. 8 Sieve		
1.05	0.00-2.25	0.00-1.59
1.00	2.26-4.50	1.60-3.18
0.90	4.51-5.50	3.19-3.89
0.80	>5.50	>3.89
No. 200 Sieve		
1.05	0.00-0.55	0.00-0.39
1.00	0.56-1.10	0.40-0.78
0.90	1.11-1.50	0.79-1.06
0.80	>1.50	>1.06
Air Voids		
1.05	0.00-0.50	0.00-0.35
1.00	0.51-1.00	0.36-0.71
0.90	1.01-1.70	0.72-1.20
0.80	1.71-2.00	1.21-1.41
0.70	2.01-2.50	1.42-1.77
0.55	>2.50	>1.77
Density [1] Target = ~~93.00~~94.00 percent of G_{mm}		
1.05	+ (0.00-~~3.50~~6.00), - (0.00-~~0.50~~1.50)	+ (0.00-~~3.25~~6.00), - (0.00-~~0.35~~1.35)
1.00	~~+ (3.51-4.50), -~~ (~~0.51-1.00~~1.51-2.00)	~~+ (3.26-4.25), -~~ (~~0.36-0.71~~1.36-1.71)
0.95	~~+ (4.51-5.00), -~~ (~~1.01-2.00~~2.01-3.00)	~~+ (4.26-4.75), -~~ (~~0.72-1.41~~1.72-2.41)
0.90	~~+ (5.01-5.50), -~~ (~~2.01-3.00~~3.01-4.00)	~~+ (4.76-5.25) -~~ (~~1.42-2.12~~2.42-3.12)
0.80	~~+ (>5.50), -~~ (>~~3.00~~4.00)	~~+ (>5.25), -~~ (>~~2.12~~3.12)
Density [1] Target = ~~92.00~~93.00 percent of G_{mm}		
1.05	+ (0.00-~~4.50~~7.00), - (0.00-~~0.50~~1.50)	+ (0.00-~~4.25~~7.00), - (0.00-~~0.35~~1.35)
1.00	~~+ (4.51-5.50), -~~ (~~0.51-1.00~~1.51-2.00)	~~+ (4.26-5.25), -~~ (~~0.36-0.71~~1.36-1.71)
0.95	~~+ (5.51-6.00), -~~ (~~1.01-1.50~~2.01-2.50)	~~+ (5.26-5.75), -~~ (~~0.72-1.41~~1.72-2.41)
0.90	~~+ (6.01-6.50), -~~ (~~1.51-2.00~~2.51-3.00)	~~+ (5.76-6.25) -~~ (~~1.42-2.12~~2.42-3.12)
0.80	~~+ (>6.50), -~~ (>~~2.00~~3.00)	~~+ (>6.25), -~~ (>~~2.12~~3.12)

(1). Each density test result is the average of three to five randomly located cores. The target density is ~~93.00~~94.00 percent of G_{mm} (~~92.00~~93.00 percent when compaction is limited to the static mode or for layers specified to be one inch thick). When compaction is limited to the static mode, no vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer. In this case, the target density is ~~92.00~~93.00 percent of G_{mm}.

SUBARTICLE 334-8.2.3 is deleted and the following substituted:

334-8.2.3 Three or More Sublot Test Results: When three or more sublot test results are available for a LOT, the variability-unknown, standard deviation method will be used to determine the estimated percentage of the LOT that is within the specification limits. The number of significant figures used in the calculations will be in accordance with requirements of AASHTO R 11/ASTM E29, Absolute Method.

334-8.2.3.1 Percent Within Limits: The percent within limits (PWL) and Pay Factors for the LOT will be calculated as described below. Variables used in the calculations are as follows:

x = individual test value (sublot)
n = number of tests (sublots)
s = sample standard deviation
$\Sigma(x^2)$ = summation of squares of individual test values
$(\Sigma x)^2$ = summation of individual test values squared
Q_U = upper quality index
USL = upper specification limit (target value plus upper specification limit from Table 334-9)
Q_L = lower quality index
LSL = lower specification limit (target value minus lower specification limit from Table 334-9)
P_U = estimated percentage below the USL
P_L = estimated percentage above the LSL

1. Calculate the arithmetic mean $(\overline{X})$ of the test values:

$$\overline{X} = \frac{\sum x}{n}$$

2. Calculate the sample standard deviation (s):

$$s = \sqrt{\frac{n\sum\left(x^2\right) - \left(\sum x\right)^2}{n(n-1)}}$$

3. Calculate the upper quality index (Q_U):

$$Q_U = \frac{\text{USL} - \overline{X}}{s}$$

4. Calculate the lower quality index (Q_L):

$$Q_L = \frac{\overline{X} - LSL}{s}$$

5. From Table 334-10, determine the percentage of work below the USL (P_U).

6. From Table 334-10, determine percentage of work above the LSL (P_L) Note: If USL or LSL is not specified; percentages within (USL or LSL) will be 100.

7. If Q_U or Q_L is a negative number, then calculate the percent within limits for Q_U or Q_L as follows: enter Table 334-10 with the positive value of Q_U or Q_L and obtain the corresponding percent within limits for the proper sample size. Subtract this number from 100.00. The resulting number is the value to be used in the next step (Step 8) for the calculation of quality level.

8. Calculate the percent within limits (PWL) = ($P_U + P_L$) – 100

9. Calculate the Pay Factor (PF) for each quality characteristic using the equation given in 334-8.2.3.2.

Table 334-9
Specification Limits

Quality Characteristic	Specification Limits
Passing No. 8 sieve (percent)	Target ± 3.1
Passing No. 200 sieve (percent)	Target ± 1.0
Asphalt Content (percent)	Target ± 0.40
Air Voids (percent)	4.00 ± 1.20
Density, vibratory mode (percent of G_{mm}):	~~93.00~~94.00 + ~~4.00~~6.00, - ~~1.20~~2.20
Density, static mode (percent of G_{mm}):	~~92.00~~93.00 + ~~5.00~~7.00, - ~~1.50~~2.50 (1)

(1): No vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer.

Table 334-10
Percent Within Limits

Quality Index	Percent within Limits for Selected Sample Size	
	n = 3	n = 4
0.00	50.00	50.00
0.05	51.38	51.67
0.10	52.76	53.33
0.15	54.15	55.00
0.20	55.54	56.67
0.25	56.95	58.33
0.30	58.37	60.00

Table 334-10 Percent Within Limits		
Quality Index	Percent within Limits for Selected Sample Size	
	n = 3	n = 4
0.35	59.80	61.67
0.40	61.26	63.33
0.45	62.74	65.00
0.50	64.25	66.67
0.55	65.80	68.33
0.60	67.39	70.00
0.65	69.03	71.67
0.70	70.73	73.33
0.75	72.50	75.00
0.80	74.36	76.67
0.85	76.33	78.33
0.90	78.45	80.00
0.95	80.75	81.67
1.00	83.33	83.33
1.05	86.34	85.00
1.10	90.16	86.67
1.15	97.13	88.33
1.20	100.00	90.00
1.25	100.00	91.67
1.30	100.00	93.33
1.35	100.00	95.00
1.40	100.00	96.67
1.45	100.00	98.33
1.50	100.00	100.00
1.55	100.00	100.00
1.60	100.00	100.00
1.65	100.00	100.00
1.70	100.00	100.00
1.75	100.00	100.00
1.80	100.00	100.00
1.85	100.00	100.00
1.90	100.00	100.00
1.95	100.00	100.00
2.00	100.00	100.00
2.05	100.00	100.00
2.10	100.00	100.00
2.15	100.00	100.00
2.20	100.00	100.00
2.25	100.00	100.00
2.30	100.00	100.00
2.35	100.00	100.00

Table 334-10 Percent Within Limits		
Quality Index	Percent within Limits for Selected Sample Size	
	n = 3	n = 4
2.40	100.00	100.00
2.45	100.00	100.00
2.50	100.00	100.00
2.55	100.00	100.00
2.60	100.00	100.00
2.65	100.00	100.00

SUPERPAVE ASPHALT CONCRETE
(REV 4-2-26)

SUBARTICLE 334-2.3.4 is deleted and the following substituted:

334-2.3.4 Pavement Coring Report: When the Contract includes removal and/or milling of the existing asphalt pavement, the Pavement Coring Report may be available on the Department's website. The URL for obtaining this information, if available, is: https://macreporting.fdot.gov/ReportsMainView.

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1. Rutting tests are performed on two gyratory specimens compacted to N_{design} level of gyrations with a height of 115 ± 5 mm and a diameter of 150 mm.
2. The air void (V_a) content of each gyratory specimen after compacting to N_{design} shall be within the following range: $3.0 \leq V_a \leq 4.8$.
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SUBARTICLE 334-8.2.2 is deleted and the following substituted:

334-8.2.2 Two or Less Sublot Test Results: In the event that two or less sublot test results are available for a LOT, Pay Factors will be determined based on Table 334-8, using the average of the accumulated deviations from the target value. (Except for density, deviations are absolute values with no plus or minus signs.) Use the 1-Test column when there is only one sublot test result and use the 2-Tests column when there are two sublots.

Table 334-8 Small Quantity Pay Table		
Pay Factor	1 Sublot Test Deviation	2 Sublot Test Average Deviation
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1.00	0.24-0.45	0.17-0.32
0.90	0.46-0.55	0.33-0.39
0.80	>0.55	>0.39
No. 8 Sieve		
1.05	0.00-2.25	0.00-1.59
1.00	2.26-4.50	1.60-3.18
0.90	4.51-5.50	3.19-3.89
0.80	>5.50	>3.89
No. 200 Sieve		
1.05	0.00-0.55	0.00-0.39
1.00	0.56-1.10	0.40-0.78
0.90	1.11-1.50	0.79-1.06
0.80	>1.50	>1.06
Air Voids		
1.05	0.00-0.50	0.00-0.35
1.00	0.51-1.00	0.36-0.71
0.90	1.01-1.70	0.72-1.20
0.80	1.71-2.00	1.21-1.41
0.70	2.01-2.50	1.42-1.77
0.55	>2.50	>1.77
Density [(1)] Target = 94.00 percent of G_{mm}		
1.05	+ (0.00-6.00), - (0.00-1.50)	+ (0.00-6.00), - (0.00-1.35)
1.00	- (1.51-2.00)	- (1.36-1.71)
0.95	- (2.01-3.00)	- (1.72-2.41)
0.90	- (3.01-4.00)	- (2.42-3.12)
0.80	- (>4.00)	- (>3.12)
Density [(1)] Target = 93.00 percent of G_{mm}		
1.05	+ (0.00-7.00), - (0.00-1.50)	+ (0.00-7.00), - (0.00-1.35)
1.00	- (1.51-2.00)	- (1.36-1.71)
0.95	- (2.01-2.50)	- (1.72-2.41)
0.90	- (2.51-3.00)	- (2.42-3.12)
0.80	- (>3.00)	- (>3.12)

(1). Each density test result is the average of three to five randomly located cores. The target density is 94.00 percent of G_{mm} (93.00 percent when compaction is limited to the static mode or for layers specified to be one inch thick). When compaction is limited to the static mode, no vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer. In this case, the target density is 93.00 percent of G_{mm}.

SUBARTICLE 334-8.2.3 is deleted and the following substituted:

334-8.2.3 Three or More Sublot Test Results: When three or more sublot test results are available for a LOT, the variability-unknown, standard deviation method will be used to determine the estimated percentage of the LOT that is within the specification limits. The number of significant figures used in the calculations will be in accordance with requirements of AASHTO R 11/ASTM E29, Absolute Method.

334-8.2.3.1 Percent Within Limits: The percent within limits (PWL) and Pay Factors for the LOT will be calculated as described below. Variables used in the calculations are as follows:

x = individual test value (sublot)
n = number of tests (sublots)
s = sample standard deviation
$\Sigma(x^2)$ = summation of squares of individual test values
$(\Sigma x)^2$ = summation of individual test values squared
Q_U = upper quality index
USL = upper specification limit (target value plus upper specification limit from Table 334-9)
Q_L = lower quality index
LSL = lower specification limit (target value minus lower specification limit from Table 334-9)
P_U = estimated percentage below the USL
P_L = estimated percentage above the LSL

1. Calculate the arithmetic mean $(\overline{X})$ of the test values:

$$\overline{X} = \frac{\sum x}{n}$$

2. Calculate the sample standard deviation (s):

$$s = \sqrt{\frac{n\sum\left(x^2\right) - \left(\sum x\right)^2}{n(n-1)}}$$

3. Calculate the upper quality index (Q_U):

$$Q_U = \frac{\text{USL} - \overline{\text{X}}}{\text{s}}$$

4. Calculate the lower quality index (Q_L):

$$Q_L = \frac{\overline{X} - LSL}{s}$$

5. From Table 334-10, determine the percentage of work below the USL (P_U).

6. From Table 334-10, determine percentage of work above the LSL (P_L) Note: If USL or LSL is not specified; percentages within (USL or LSL) will be 100.

7. If Q_U or Q_L is a negative number, then calculate the percent within limits for Q_U or Q_L as follows: enter Table 334-10 with the positive value of Q_U or Q_L and obtain the corresponding percent within limits for the proper sample size. Subtract this number from 100.00. The resulting number is the value to be used in the next step (Step 8) for the calculation of quality level.

8. Calculate the percent within limits (PWL) = (P_U + P_L) – 100

9. Calculate the Pay Factor (PF) for each quality characteristic using the equation given in 334-8.2.3.2.

Table 334-9 Specification Limits	
Quality Characteristic	Specification Limits
Passing No. 8 sieve (percent)	Target ± 3.1
Passing No. 200 sieve (percent)	Target ± 1.0
Asphalt Content (percent)	Target ± 0.40
Air Voids (percent)	4.00 ± 1.20
Density, vibratory mode (percent of G_{mm}):	94.00 + 6.00, - 2.20
Density, static mode (percent of G_{mm}):	93.00 + 7.00, - 2.50 (1)
(1): No vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer.	

Table 334-10 Percent Within Limits		
Quality Index	Percent within Limits for Selected Sample Size	
	n = 3	n = 4
0.00	50.00	50.00
0.05	51.38	51.67
0.10	52.76	53.33
0.15	54.15	55.00
0.20	55.54	56.67
0.25	56.95	58.33
0.30	58.37	60.00
0.35	59.80	61.67
0.40	61.26	63.33
0.45	62.74	65.00
0.50	64.25	66.67
0.55	65.80	68.33

Table 334-10 Percent Within Limits		
Quality Index	Percent within Limits for Selected Sample Size	
	n = 3	n = 4
0.60	67.39	70.00
0.65	69.03	71.67
0.70	70.73	73.33
0.75	72.50	75.00
0.80	74.36	76.67
0.85	76.33	78.33
0.90	78.45	80.00
0.95	80.75	81.67
1.00	83.33	83.33
1.05	86.34	85.00
1.10	90.16	86.67
1.15	97.13	88.33
1.20	100.00	90.00
1.25	100.00	91.67
1.30	100.00	93.33
1.35	100.00	95.00
1.40	100.00	96.67
1.45	100.00	98.33
1.50	100.00	100.00
1.55	100.00	100.00
1.60	100.00	100.00
1.65	100.00	100.00
1.70	100.00	100.00
1.75	100.00	100.00
1.80	100.00	100.00
1.85	100.00	100.00
1.90	100.00	100.00
1.95	100.00	100.00
2.00	100.00	100.00
2.05	100.00	100.00
2.10	100.00	100.00
2.15	100.00	100.00
2.20	100.00	100.00
2.25	100.00	100.00
2.30	100.00	100.00
2.35	100.00	100.00
2.40	100.00	100.00
2.45	100.00	100.00
2.50	100.00	100.00
2.55	100.00	100.00
2.60	100.00	100.00

Table 334-10 Percent Within Limits		
Quality Index	Percent within Limits for Selected Sample Size	
	n = 3	n = 4
2.65	100.00	100.00