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deficient area will be evaluated within the subplot by coring at maximum intervals of 100 feet from the deficient sample. The asphalt content of the original deficient sample will be averaged with the asphalt binder content of the cores taken for re-evaluation to determine compliance with the acceptance requirements. If the resulting average of the asphalt binder content deviates by more than ±

0.40% from the mix design target value, then Table 321-4 shall apply to the subplot. Additional cores may be required to define the limits of the deficient area, and shall not be used for re-evaluating acceptance.

TABLE 321-4 ASPHALT BINDER CONTENT ACCEPTANCE AND PENALTIES		
	When the contracting agency is the owner: Payment Reduction (\$ per ton of asphalt concrete)	When the contracting agency is not the <u>initial</u> owner (i.e. permits): Corrective Action
Deviation from that permitted		
Over 0.0 to 0.1% points <u>above that permitted</u>	\$2.00	<u>LC & MC: Slurry Seal</u> <u>EA (see 321.10.6)</u>
Over 0.1 to 0.2% points <u>above that permitted</u>	\$6.00	<u>LC: Slurry Seal</u> <u>EA (see 321.10.6)</u> <u>MC: Mill Removal and Replacement</u> <u>or EA per 321.10.6</u>
Over 0.2% points <u>above that permitted</u>	<u>Mill Removal and Replacement</u> * <u>or</u> <u>EA per 321.10.6</u>	<u>LC & MC: Mill Removal and Replacement</u> * <u>or</u> <u>EA per 321.10.6</u>
<u>Within Permitted Range</u>	<u>Full Payment</u>	<u>No corrective action</u>
<u>Over 0.0 to 0.1% points below that permitted</u>	\$2.00	<u>LC & MC: Slurry Seal</u>
<u>Over 0.1 to 0.2% points below that permitted</u>	\$6.00	<u>LC: Slurry Seal</u> <u>MC: Mill Removal and Replacement</u> <u>or EA per 321.10.6</u>
<u>Over 0.2% points below that permitted</u>	<u>Mill Removal and Replacement</u>	<u>LC & MC: Mill Removal and Replacement</u>

- NOTES: LC = Local, Collector or Industrial Streets
MC = Arterial or Major Collector Streets
Slurry Seal = Per Agency Requirements
Overlay = 1.25-inch per Agency Requirements
For Mill Removal and Replacement, Milling requirement may be eliminated if the lift is placed on subgrade or ABC

If the laboratory air voids fall within a range of 2.8% to 6.2%, the asphalt concrete will be paid for at the contract unit price. If the laboratory air voids are outside of this range, the deficient area will be evaluated within the subplot by coring at maximum

intervals of 100 feet from the deficient sample. The laboratory air voids of the original deficient sample will be averaged with the laboratory air voids obtained from each of the cores taken for re-evaluation to determine compliance with the acceptance requirements. If the resulting average of the laboratory air voids is outside the indicated range, then Table 321-5 shall apply to the subplot. Additional cores may be required to define the limits of the deficient area, and shall not be used for re-evaluating acceptance.

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TABLE 321-5		
LABORATORY VOIDS ACCEPTANCE AND PENALTIES		
Laboratory Air Voids (Measured at N_{des} or 75 blows as applicable)	When the contracting agency is the owner: Payment Reduction (\$ per ton of asphalt concrete)	When the contracting agency is not the <u>initial</u> owner (i.e. permits): Corrective Action
Less than 1.5%	<u>Mill Removal and Replacement</u> * or EA per 321.10.6	<u>Mill Removal and Replacement</u> * or EA per 321.10.6
1.5-2.0%	\$2.50 \$10.00 or <u>Mill Removal and Replacement</u>	<u>LC: Mill Removal and Replacement or Overlay</u> EA (see 321.10.6) <u>MC: Mill Removal and Replacement</u>
2.1-2.7%	\$1.00 \$5.00	<u>LC: Slurry Seal or</u> EA (see 321.10.6) <u>MC: Slurry Seal or EA</u> (see 321.10.6)
2.8-6.2%	Full Payment	No corrective action
6.3-6.9%	\$1.00 \$5.00	<u>LC: Slurry Seal or</u> EA (see 321.10.6) <u>MC: Slurry Seal or EA</u> (see 321.10.6)
7.0-8.0%	\$2.50 \$10.00 or <u>Mill Removal and Replacement</u>	<u>LC: Mill Removal and Replacement or Overlay</u> EA (see 321.10.6) <u>MC: Mill Removal and Replacement</u>
Greater than 8.0%	<u>Mill Removal and Replacement</u> * or EA per 321.10.6	<u>Mill Removal and Replacement</u> Removal* or EA per 321.10.6

NOTES: LC = Local, Collector or Industrial Streets

MC = Arterial or Major Collector Streets

Slurry Seal = Per Agency Requirements

Overlay = 1.25-inch per Agency Requirements

For Mill Removal and Replacement, Milling requirement may be eliminated if the lift is placed on subgrade or ABC

If an agency or Engineer is purchasing asphalt concrete directly from a commercial material supplier, the agency or Engineer will use Section [321.10](#), and specifically Tables [321-3A](#) or [321-3B](#) as applicable, [321-4](#) and [321-5](#) from Section [321.10](#), when determining the acceptance of the asphalt concrete with the material supplier.

321.10.3 Surface Testing: If directed by the Engineer surface drainage test shall be performed. The completed surfacing shall be thoroughly compacted, smooth and true to grade and cross-section and free from ruts, humps, depressions or irregularities. An acceptable surface shall not vary more than 1/4 inch from the lower edge of a 12-foot straightedge when the straightedge is placed parallel to the centerline of the roadway. The straightedge shall be furnished by the contractor and shall be acceptable to the Engineer.

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All streets shall be water tested for drainage in the presence of the Engineer or designated representative before final acceptance. Any areas not draining properly shall be corrected to the Engineer's satisfaction at the Contractor's expense. Water for this testing shall be provided and paid for by the Contractor.

When deviations in excess of the above tolerance are found, humps or depressions shall be corrected to meet the specified tolerance, or shall be cut out along neat straight lines and replaced with fresh hot mixture and thoroughly compacted to conform with and bond to the surrounding area. Materials and work necessary to correct such deviations shall be at no additional cost to the Contracting Agency.

321.10.4 Asphalt Pavement Thickness: Asphalt Pavement thickness will be determined from cores secured from each subplot for this purpose. Such cores will be taken and measured by the Asphalt Concrete Coring Method. This method can be found at in Section [321.14](#). Each core location will be patched by the party responsible for the testing.

If the pavement thickness is deficient from the target thickness by 0.25 inches or less, it will be paid for at the contract unit price. If the pavement thickness deficiency is greater than 0.25 inches and the contracting agency is not the owner (i.e. permits) the following steps will apply:

- (1) If the thickness deficiency of the pavement exceeds 0.25 inch, the limits of the deficient area will be evaluated by coring at maximum intervals of 100 feet from the deficient core. The thicknesses of the original deficient core will be averaged with the thicknesses of the cores taken from 100 feet on each side of it to determine compliance with the acceptance requirements. If the resulting average thickness deficiency is greater than 0.25 inch, additional cores may be required to define the limits of the deficient area, and shall not be used for re-evaluating acceptance.
- (2) If the pavement thickness from step one above deviates from the target thickness by more than 0.25 inch but not more than 0.50 inch, corrective action will be required. This corrective action will consist of application of a Type II slurry seal coat in accordance to Section [715](#). The Contractor may present an engineering analysis outlining other proposed remedial measures for the consideration of the Engineer. The Engineer will review the engineering analysis and decide within 30 working days whether to accept the proposed remedial measures.
- (3) If the pavement thickness from step one above deviates from the target thickness by more than 0.50 inch, corrective action will be required. The deficient area will be overlaid with no less than 1 inch thick lift, for the full width of the pavement to meet or exceed the designed thickness, with the appropriate end and edge milling, with a mixture approved by the Engineer. The Contractor may present an engineering analysis outlining other proposed remedial measures for the Engineer's consideration. The Engineer will review the engineering analysis and decide within 10 working days whether to accept the proposed remedial measures. If the Engineer chooses to reject the engineering analysis, the indicated overlay will be constructed by the Contractor at no additional cost to the Owner.

If the pavement thickness deficiency is greater than 0.25 inches and the contracting agency is the owner, Table [321-6](#) will apply.

Specified Pavement Thickness	Reduction in Payment or Corrective Action
Less than 1.5 inches	50%
1.50 inches to 1.99 inches	33%
2.00 inches to 2.49 inches	25%
2.50 inches to 2.99 inches	20%
3.00 inches and over	17%

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321.10.5 Density:

321.10.5.1 Pavement 1-1/2 Inches or Less in Nominal Thickness:

Compaction shall consist of a "Rolling Method Procedure" using an established sequence of coverage with specified types of compactors. A pass shall be defined as one movement of a compactor in either direction. Coverage shall be the number of passes as are necessary to cover the entire width being paved.

The rolling sequence, the type of compactor to be used, and the number of coverages required shall be as shown in Table [321-7](#).

Rolling Sequence	Type of Compactor		No. of Coverages	
	Option No. 1	Option No. 2	Option No.1	Option No. 2
Initial	Static Steel	Vibrating Steel	1	1
Intermediate	Pneumatic Tired	Vibrating Steel	4	2- 4*
Finish	Static Steel	Static Steel	1-3	1-3

* Based on the roller pattern which exhibits the best performance.

The Contractor shall select the option for compaction and, when pneumatic-tired compactors are used will designate the tire pressure. Steel wheel compactors shall not be used in the vibratory mode for courses of one inch or less in thickness nor when the temperature of the asphaltic concrete falls below 180 degrees F. Initial and intermediate compaction shall be accomplished before the temperature of the asphaltic concrete falls below 200 degrees F.

Compaction will be deemed to be acceptable on the condition that the asphaltic concrete is compacted using the type of compactors specified, ballasted and operated as specified, and with the number of coverages of the compactors as specified.

321.10.5.2 Pavement Greater than 1-1/2 Inches in Nominal Thickness:

Achieving the required compaction is the responsibility of the contractor. The number and types of rollers is the contractor's responsibility and shall be sufficient to meet these requirements.

In-place air voids shall be determined in accordance with AASHTO T-269 utilizing cores taken from the finished pavement. The maximum theoretical density used in the determination of in-place air voids will be the average value from the acceptance samples determined for the Lot as outlined in [321.10.1](#).

The Engineer will designate one random test location for each subplot and the acceptance laboratory will obtain one core from that location. Regardless of subplot quantities or boundaries, a minimum of one core will be obtained per residential street and a minimum of one core per travel lane for collector and arterial streets. The outside one foot of each pass of the pavement course or any unconfined edge will be excluded from testing. The Engineer may exclude areas from the compaction lot that are not accessible by normal compaction equipment.

The Contractor will provide the traffic control to facilitate any coring operations necessary for compaction acceptance.

Cores will be taken per the Asphalt Concrete Coring Method. This method can be found in Section [321.14](#). Acceptance testing results will be furnished to the contractor within five working days of receipt of samples by the acceptance laboratory.

If the pavement density has in-place voids of 8.0% or less, the asphalt concrete will be paid for at the contract unit price. If the pavement density has in-place voids greater than 8.0%, the deficient area will be evaluated within the subplot by coring at maximum intervals of 100 feet from the deficient core(s). If both cores in a subplot are deficient, 3 to 4 additional cores may be necessary to re-evaluate acceptance. The in-place voids of all the original core(s), whether deficient or acceptable, will be averaged with the in-place voids of the cores taken for re-evaluation to determine compliance with the acceptance requirements. If the average of the in-place voids is greater than 8.0% then Table [321-8](#) shall apply to the subplot. Additional cores may be required to define the limits of the deficient area, and shall not be used for re-evaluating acceptance.

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TABLE 321-8		
PAVEMENT DENSITY PENALTIES		
Limits of In-place Air Voids for lift thicknesses greater than 1.5 inches <u>and greater</u>	When the contracting agency is the owner: Payment Reduction (\$ per ton of asphalt concrete)	When the contracting agency is not the <u>initial</u> owner (i.e. permits): Corrective Action
8.1% to 9.0%	\$4.00 <u>\$5.00</u>	<u>LC: Slurry Seal or EA (see 321.10.6)</u> <u>MC: Slurry Seal or EA (see 321.10.6)</u> <u>EA</u>
9.1% to 10.0%	\$6.00 <u>\$10.00 or Mill Removal and Replacement</u>	<u>LC: Mill Removal and Replacement or Overlay or EA per 321.10.6</u> <u>MC: Mill Removal and Replacement or EA per 321.10.6 and Type II Slurry Seal</u>
10.1% to 11.0%	<u>Removal* or EA per 321.10.6</u>	<u>Removal* or EA per 321.10.6</u>
Greater than 11.0%	<u>Mill Removal and Replacement</u>	<u>Mill Removal and Replacement</u>

*Notes: The Contractor shall remove and replace the entire subplot that is deficient. Removal for In-place Air Voids greater than ~~10.1~~10.0% is not eligible for Section 321.10.6.

LC = Local, Collector or Industrial Streets

MC = Arterial or Major Collector Streets

Slurry Seal = Per Agency Requirements

Overlay = 1.25-inch per Agency Requirements

For Mill Removal and Replacement, Milling requirement may be eliminated if the lift is placed on subgrade or ABC

321.10.6 Engineering Analysis (EA): Within 10 working days after receiving notice that a lot or subplot of asphalt concrete is deficient and is found to fall within the “Removal or EA” band per Table(s) 321-4, 321-5, and/or 321-8 the contractor may submit a written proposal (Engineering Analysis) to accept the material in place at the applicable penalties along with possible remediation(s) listed in the “Removal or EA” category. Engineering Analysis can also be proposed for non-removal categories of “Corrective actions” when the contracting agency is not the owner (i.e. permits).

The Engineering Analysis shall contain an analysis of the anticipated performance of the asphalt concrete if left in place. The Engineering Analysis shall also detail the effect of any proposed corrective action to the material(s) in place as it relates to the in-place material’s performance. The Engineering Analysis shall be performed by a professional engineer experienced in asphalt concrete testing and mix designs. If the lot or subplot is submitted for referee testing by the contractor, the ten working days allowed to prepare an engineering will begin upon notification of referee test results.

~~When an Engineering Analysis recommends that a specific lot or subplot should not be removed, the Engineering Analysis will recommend that the following penalties (Table 321-9) be paid when the contracting agency is the owner, for the specific criteria being reviewed by the EA.~~

TABLE 321-9

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ENGINEERING ANALYSIS PENALTIES for REMOVAL* LOTS/SUBLOTS LEFT IN PLACE		
Acceptance Criteria	Acceptance Limits	Penalty When Contracting Agency is the Owner (\$/Ton)
Asphalt Binder Content	Over 0.2% points from that Permitted	\$9.00
Laboratory Air Voids (Measured at N_{des} or 75 blows as applicable)	Less than 1.5% or Greater Than 8.0%	\$3.75
Limits of In place Air Voids	10.1% to 11.0%	\$9.00

Within 15 working days, the Engineer will determine whether or not to accept the contractor's proposed Engineering Analysis.



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deficient area will be evaluated within the subplot by coring at maximum intervals of 100 feet from the deficient sample. The asphalt content of the original deficient sample will be averaged with the asphalt binder content of the cores taken for re-evaluation to determine compliance with the acceptance requirements. If the resulting average of the asphalt binder content deviates by more than ±

0.40% from the mix design target value, then Table 321-4 shall apply to the subplot. Additional cores may be required to define the limits of the deficient area, and shall not be used for re-evaluating acceptance.

TABLE 321-4		
ASPHALT BINDER CONTENT ACCEPTANCE AND PENALTIES		
Deviation from that permitted	When the contracting agency is the owner: Payment Reduction (\$ per ton of asphalt concrete)	When the contracting agency is not the initial owner (i.e. permits): Corrective Action
Over 0.0 to 0.1% points above that permitted	\$2.00	LC & MC: Slurry Seal
Over 0.1 to 0.2% points above that permitted	\$6.00	LC: Slurry Seal MC: Mill Removal and Replacement or EA per 321.10.6
Over 0.2% points above that permitted	Mill Removal and Replacement	LC & MC: Mill Removal and Replacement
Within Permitted Range	Full Payment	No corrective action
Over 0.0 to 0.1% points below that permitted	\$2.00	LC & MC: Slurry Seal
Over 0.1 to 0.2% points below that permitted	\$6.00	LC: Slurry Seal MC: Mill Removal and Replacement or EA per 321.10.6
Over 0.2% points below that permitted	Mill Removal and Replacement	LC & MC: Mill Removal and Replacement

NOTES: LC = Local, Collector or Industrial Streets
 MC = Arterial or Major Collector Streets
 Slurry Seal = Per Agency Requirements
 Overlay = 1.25-inch per Agency Requirements
 For Mill Removal and Replacement, Milling requirement may be eliminated if the lift is placed on subgrade or ABC

If the laboratory air voids fall within a range of 2.8% to 6.2%, the asphalt concrete will be paid for at the contract unit price. If the laboratory air voids are outside of this range, the deficient area will be evaluated within the subplot by coring at maximum intervals of 100 feet from the deficient sample. The laboratory air voids of the original deficient sample will be averaged with the laboratory air voids obtained from each of the cores taken for re-evaluation to determine compliance with the acceptance requirements. If the resulting average of the laboratory air voids is outside the indicated range, then Table 321-5 shall apply to the subplot. Additional cores may be required to define the limits of the deficient area, and shall not be used for re-evaluating acceptance.

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TABLE 321-5

LABORATORY VOIDS ACCEPTANCE AND PENALTIES		
Laboratory Air Voids (Measured at N _{des} or 75 blows as applicable)	When the contracting agency is the owner: Payment Reduction (\$ per ton of asphalt concrete)	When the contracting agency is not the initial owner (i.e. permits): Corrective Action
Less than 1.5%	Mill Removal and Replacement	Mill Removal and Replacement
1.5-2.0%	\$10.00 or Mill Removal and Replacement	LC: Mill Removal and Replacement or Overlay MC: Mill Removal and Replacement
2.1-2.7%	\$5.00	LC: Slurry Seal or EA (see 321.10.6) MC: Slurry Seal or EA (see 321.10.6)
2.8-6.2%	Full Payment	No corrective action
6.3-6.9%	\$5.00	LC: Slurry Seal or EA (see 321.10.6) MC: Slurry Seal or EA (see 321.10.6)
7.0-8.0%	\$10.00 or Mill Removal and Replacement	LC: Mill Removal and Replacement or Overlay MC: Mill Removal and Replacement
Greater than 8.0%	Mill Removal and Replacement	Mill Removal and Replacement

NOTES: LC = Local, Collector or Industrial Streets

MC = Arterial or Major Collector Streets

Slurry Seal = Per Agency Requirements

Overlay = 1.25-inch per Agency Requirements

For Mill Removal and Replacement, Milling requirement may be eliminated if the lift is placed on subgrade or ABC

If an agency or Engineer is purchasing asphalt concrete directly from a commercial material supplier, the agency or Engineer will use Section [321.10](#), and specifically Tables [321-3A](#) or [321-3B](#) as applicable, [321-4](#) and [321-5](#) from Section [321.10](#), when determining the acceptance of the asphalt concrete with the material supplier.

321.10.3 Surface Testing: If directed by the Engineer surface drainage test shall be performed. The completed surfacing shall be thoroughly compacted, smooth and true to grade and cross-section and free from ruts, humps, depressions or irregularities. An acceptable surface shall not vary more than 1/4 inch from the lower edge of a 12-foot straightedge when the straightedge is placed parallel to the centerline of the roadway. The straightedge shall be furnished by the contractor and shall be acceptable to the Engineer.

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All streets shall be water tested for drainage in the presence of the Engineer or designated representative before final acceptance. Any areas not draining properly shall be corrected to the Engineer's satisfaction at the Contractor's expense. Water for this testing shall be provided and paid for by the Contractor.

When deviations in excess of the above tolerance are found, humps or depressions shall be corrected to meet the specified tolerance, or shall be cut out along neat straight lines and replaced with fresh hot mixture and thoroughly compacted to conform with and bond to the surrounding area. Materials and work necessary to correct such deviations shall be at no additional cost to the Contracting Agency.

321.10.4 Asphalt Pavement Thickness: Asphalt Pavement thickness will be determined from cores secured from each subplot for this purpose. Such cores will be taken and measured by the Asphalt Concrete Coring Method. This method can be found at in Section [321.14](#). Each core location will be patched by the party responsible for the testing.

If the pavement thickness is deficient from the target thickness by 0.25 inches or less, it will be paid for at the contract unit price. If the pavement thickness deficiency is greater than 0.25 inches and the contracting agency is not the owner (i.e. permits) the following steps will apply:

- (1) If the thickness deficiency of the pavement exceeds 0.25 inch, the limits of the deficient area will be evaluated by coring at maximum intervals of 100 feet from the deficient core. The thicknesses of the original deficient core will be averaged with the thicknesses of the cores taken from 100 feet on each side of it to determine compliance with the acceptance requirements. If the resulting average thickness deficiency is greater than 0.25 inch, additional cores may be required to define the limits of the deficient area, and shall not be used for re-evaluating acceptance.
- (2) If the pavement thickness from step one above deviates from the target thickness by more than 0.25 inch but not more than 0.50 inch, corrective action will be required. This corrective action will consist of application of a Type II slurry seal coat in accordance to Section [715](#). The Contractor may present an engineering analysis outlining other proposed remedial measures for the consideration of the Engineer. The Engineer will review the engineering analysis and decide within 30 working days whether to accept the proposed remedial measures.
- (3) If the pavement thickness from step one above deviates from the target thickness by more than 0.50 inch, corrective action will be required. The deficient area will be overlaid with no less than 1 inch thick lift, for the full width of the pavement to meet or exceed the designed thickness, with the appropriate end and edge milling, with a mixture approved by the Engineer. The Contractor may present an engineering analysis outlining other proposed remedial measures for the Engineer's consideration. The Engineer will review the engineering analysis and decide within 10 working days whether to accept the proposed remedial measures. If the Engineer chooses to reject the engineering analysis, the indicated overlay will be constructed by the Contractor at no additional cost to the Owner.

If the pavement thickness deficiency is greater than 0.25 inches and the contracting agency is the owner, Table [321-6](#) will apply.

Specified Pavement Thickness	Reduction in Payment or Corrective Action
Less than 1.5 inches	50%
1.50 inches to 1.99 inches	33%
2.00 inches to 2.49 inches	25%
2.50 inches to 2.99 inches	20%
3.00 inches and over	17%

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321.10.5 Density:

321.10.5.1 Pavement 1-1/2 Inches or Less in Nominal Thickness:

Compaction shall consist of a “Rolling Method Procedure” using an established sequence of coverage with specified types of compactors. A pass shall be defined as one movement of a compactor in either direction. Coverage shall be the number of passes as are necessary to cover the entire width being paved.

The rolling sequence, the type of compactor to be used, and the number of coverages required shall be as shown in Table [321-7](#).

TABLE 321-7				
ROLLING SEQUENCE FOR LIFT THICKNESS 1½” OR LESS				
Rolling Sequence	Type of Compactor		No. of Coverages	
	Option No. 1	Option No. 2	Option No.1	Option No. 2
Initial	Static Steel	Vibrating Steel	1	1
Intermediate	Pneumatic Tired	Vibrating Steel	4	2- 4*
Finish	Static Steel	Static Steel	1-3	1-3
* Based on the roller pattern which exhibits the best performance.				

The Contractor shall select the option for compaction and, when pneumatic-tired compactors are used will designate the tire pressure. Steel wheel compactors shall not be used in the vibratory mode for courses of one inch or less in thickness nor when the temperature of the asphaltic concrete falls below 180 degrees F. Initial and intermediate compaction shall be accomplished before the temperature of the asphaltic concrete falls below 200 degrees F.

Compaction will be deemed to be acceptable on the condition that the asphaltic concrete is compacted using the type of compactors specified, ballasted and operated as specified, and with the number of coverages of the compactors as specified.

321.10.5.2 Pavement Greater than 1-1/2 Inches in Nominal Thickness:

Achieving the required compaction is the responsibility of the contractor. The number and types of rollers is the contractor’s responsibility and shall be sufficient to meet these requirements.

In-place air voids shall be determined in accordance with AASHTO T-269 utilizing cores taken from the finished pavement. The maximum theoretical density used in the determination of in-place air voids will be the average value from the acceptance samples determined for the Lot as outlined in [321.10.1](#).

The Engineer will designate one random test location for each subplot and the acceptance laboratory will obtain one core from that location. Regardless of subplot quantities or boundaries, a minimum of one core will be obtained per residential street and a minimum of one core per travel lane for collector and arterial streets. The outside one foot of each pass of the pavement course or any unconfined edge will be excluded from testing. The Engineer may exclude areas from the compaction lot that are not accessible by normal compaction equipment.

The Contractor will provide the traffic control to facilitate any coring operations necessary for compaction acceptance.

Cores will be taken per the Asphalt Concrete Coring Method. This method can be found in Section [321.14](#). Acceptance testing results will be furnished to the contractor within five working days of receipt of samples by the acceptance laboratory.

If the pavement density has in-place voids of 8.0% or less, the asphalt concrete will be paid for at the contract unit price. If the pavement density has in-place voids greater than 8.0%, the deficient area will be evaluated within the subplot by coring at maximum intervals of 100 feet from the deficient core(s). If both cores in a subplot are deficient, 3 to 4 additional cores may be necessary to re-evaluate acceptance. The in-place voids of all the original core(s), whether deficient or acceptable, will be averaged with the in-place voids of the cores taken for re-evaluation to determine compliance with the acceptance requirements. If the average of the in-place voids is greater than 8.0% then Table [321-8](#) shall apply to the subplot. Additional cores may be required to define the limits of the deficient area, and shall not be used for re-evaluating acceptance.

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TABLE 321-8		
PAVEMENT DENSITY PENALTIES		
Limits of In-place Air Voids for lift thicknesses 1.5 inches and greater	When the contracting agency is the owner: Payment Reduction (\$ per ton of asphalt concrete)	When the contracting agency is not the initial owner (i.e. permits): Corrective Action
8.1% to 9.0%	\$5.00	LC: Slurry Seal or EA (see 321.10.6) MC: Slurry Seal or EA (see 321.10.6)
9.1% to 10.0%	\$10.00 or Mill Removal and Replacement	LC: Mill Removal and Replacement or Overlay or EA per 321.10.6 MC: Mill Removal and Replacement or EA per 321.10.6
Greater than 11.0%	Mill Removal and Replacement	Mill Removal and Replacement

*Notes: The Contractor shall remove and replace the entire subplot that is deficient. Removal for In-place Air Voids greater than 10.0% is not eligible for Section [321.10.6](#).

LC = Local, Collector or Industrial Streets

MC = Arterial or Major Collector Streets

Slurry Seal = Per Agency Requirements

Overlay = 1.25-inch per Agency Requirements

For Mill Removal and Replacement, Milling requirement may be eliminated if the lift is placed on subgrade or ABC

321.10.6 Engineering Analysis (EA): Within 10 working days after receiving notice that a lot or subplot of asphalt concrete is deficient and is found to fall within the “Removal or EA” band per Table(s) [321-4](#), [321-5](#), and/or [321-8](#) the contractor may submit a written proposal (Engineering Analysis) to accept the material in place at the applicable penalties along with possible remediation(s) listed in the “Removal or EA” category. Engineering Analysis can also be proposed for non-removal categories of “Corrective actions” when the contracting agency is not the owner (i.e. permits).

The Engineering Analysis shall contain an analysis of the anticipated performance of the asphalt concrete if left in place. The Engineering Analysis shall also detail the effect of any proposed corrective action to the material(s) in place as it relates to the in-place material’s performance. The Engineering Analysis shall be performed by a professional engineer experienced in asphalt concrete testing and mix designs. If the lot or subplot is submitted for referee testing by the contractor, the ten working days allowed to prepare an engineering will begin upon notification of referee test results.

Within 15 working days, the Engineer will determine whether or not to accept the contractor’s proposed Engineering Analysis.