



Required QC Tests

(Section 3.5.3 (table 2) / Document on Form 400.04)

Parameter	Minimum Frequency	Sampling Method	Test Method
Temperature Ambient air Truck Mat (behind paver screed)	Before paving starts, then 2 per LOT 4 per LOT 4 per LOT	—	SC-T-84
Calculated Lay Down Rate	1 per 200 tons	—	SC-T-85
Tack Rate, Type	1 per application	—	SC-T-86

Required Roadway QC

(Section 3.5.3 / Documented on SCDOT Form 400.04)

- Project Info, Mix, Plant, Road Info, etc.
- Equipment Documentation
- Roller Pattern
- Monitoring density during placement operations - Continuous
- Calculate lay down rate (running average after every 200 tons)
- Calculate and verify tack rate & type

Role of Roadway – SCDOT

Required Documentation: Electronic Form 400.04 Form – Found on the SCDOT Extranet

Acceptance Program

(Section 3.6.3.2)

Test Parameter	Minimum Frequency	Sampling Method	Test Method
In-Place Density (% of Max. Theoretical) <i>Note: Requirements apply to Intermediate A & B and Surface Courses A & B, SMA</i>	1 random 6" core taken every 1,500 foot paved	SC-T-101 SC-T-87	SC-T-87
In-Place Density (% of Target Nuclear Control Strip Density) <i>Note: Required on Intermediate C, Surface Course C & D and all Base Courses</i>	1 random gauge reading every 500 foot paved	SC-T-101	SC-T-65

Intermediate B Special > 300 #/SY – Gauge used for acceptance, ≤ 300 #/SY – Cores used for acceptance

Acceptance Program

(Required Documentation: Electronic Form 400.02 Form – Found on the SCDOT Extranet)

SCDOT South Carolina Department of Transportation
FIELD DETERMINATION OF TARGET DENSITY FOR ASPHALT
 Form 400.02 Rev. 06/2021

Date: _____ Contract #: _____ Project #: _____ Station: _____
 Road #: _____ Road Info: _____

Contractor: _____
 Inspector: _____
 Operator: _____
 Operator's Name: _____

Distance: _____ From Station #: _____ To Station #: _____
 Type Mix: _____ Thickness: _____
 Standard Cement: _____ Control Strip #: _____ SCDOT Gauge #: _____

Roller Stage		Roller Mode	Passes	Density	Temp	Density	Temp	Density	Temp	Average Density
Breakdown	Steel-wheel vibratory									
Intermediate	Pneumatic									
Finish	Steel-wheel static									

Positive Random Readings

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.

Established Target Density: _____ * Check highest & lowest reading *
 Roller Pattern: _____
 Additional Info: _____
 Contractor Signature: _____ Date: _____

Intermediate and Surface A and B and SMA (SC-T-87)

- SCDOT selects a random core location after all compaction / rolling is completed for each subplot (1500').
- SC-T-101 is used to determine the random numbers.
- Sample core in accordance to SC-T-87.
- Sample cores must be labeled by the SCDOT with project number, date, and core number.
- Cores must be secured by the SCDOT in a cooler or other contractor acceptable device. A numbered security tag is used by the SCDOT to secure the cooler prior to the Contractor transporting the cores back to the contractor's field laboratory.
- Density to be calculated as a percentage of the average daily maximum specific gravity.

Intermediate and Surface A and B and SMA (SC-T-87)

- SCDOT will observe trimming of cores and place core into locking cage for cores to be dried to constant weight.
- SCDOT (DAM) will weigh all roadway core specimens while the Contractor is present, and report data to the HMA Contractor for LPF.

Base Courses A-D & Surface Type C & D (Section 3.6.3.2)

- Nuclear gauge / Non Nuclear (Electronic) gauge will be used to determine in-place density
- SC-T-101 will be used to determine random locations
- In-place density will be based on a percentage of the target density

Verification

(Section 3.8.2.2)

- Department will obtain a verification samples at a frequency of 10%.

Roadway:

SCDOT must witness a minimum of 10% of the contractor's gauge readings used for acceptance and document the values on SCDOT Form 400.04.

Verification (Density)

(Section 3.5.3 / SC-T-87)

- Intermediate A&B and Surface A&B:

Department selects random core locations as per SC-T-101

All roadway cores weighed by the DAM

- Intermediate C, Surface Type C & D, and all Base Mixtures:

Department will monitor contractors use of the gauge and select random locations as per SC-T-101

Acceptance Procedure (QA)

(Section 4 / 5 – Acceptance of Asphalt Mixtures)

- The Department will utilize the results of the Contractor for the acceptability of the materials
- All test results should be available to the Department during the performance of the work.
- All paperwork needed for calculating pay factors should be forwarded to the DAM within 3 days

Short Roads – In Place Density

< 1500 feet of continuous length (Section 4.1.2)

- Use an established roller pattern that was previously used with same mix and placement rate on a similar road or refer to SC-T-65 (3-3-3)
- Inspector should document on SCDOT Form 400.02 that road was not long enough and show roller pattern utilized, and then place it in the project file
 - Note: The road is less than 1,500 feet in continuous length.
- Example 1: Paving intersecting road being tied into a mainline with a pull 300-500 feet in length (intersection tie-in pull is < 1,500 continuous feet) No cores/shots required
- Example 2: Paving 1,200 feet on each side of a 500-foot bridge on a replacement bridge job (total 2,400 feet, but each pull was only 1,200 feet, so < 1,500 continuous feet) No cores/shots required
- Example 3: Short residential roads: 1st pull 800 feet down and 2nd pull 800 feet back to complete road (total 1,600 feet, but 2 separate 800-foot pulls, so < 1,500 continuous feet) No cores/shots required

Specification Targets for In-Place Density Table No. 9 and 10

	Surface A and B, SMA & Intermediate A and B Mixes	Intermediate C, Surface C & D and All Base Mixes
	Target	Target
In-Place Mat Density % of Theoretical Maximum Density	Average of cores: 93.0 – 93.9% = 100% Pay Average of cores: 94.0 or more = 105 % Pay	
% of Control Strip Target Density		98 -102% of the Established Target Density from Roller Pattern = 100% Pay

Pay Factors – Mainline

(Section 4.2.1.2)

LPF = Lot Pay Factor
(Surface & Intermediate and Bases)

$$\frac{(PF_{\text{Asphalt binder}}) + (PF_{\text{Gradation}}) + (PF_{\text{Density}})}{3}$$

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If any acceptance LPF is below 1.00, then use the lowest LPF for the three acceptance criteria below.

Pay Factors

(Section 4.2.1.2)

LPF = Lot Pay Factor
(Shoulder Widening Mix, Surface Type E,
OGFC, PMTLSC and all FDP Mixtures)

$$\frac{(PF_{\text{Asphalt binder}}) + (PF_{\text{Gradation}})}{2}$$

If any acceptance LPF is below 1.00, then use the lowest LPF for the two acceptance criteria below.

Role of Roadway Inspection Team – SCDOT and Contractor

- Monitor all activities on roadway:
- Make sure traffic control is correct
- Verify tack rate and yield
- Monitor placement of material – Contract plans
- Verify slope
- Keep daily diaries of all activities, note any deficiencies found by contractor and DOT
- Ensure that Roadway Core Samples and Nuclear Gauge Readings (In-Place Density) are taken once SCDOT marks locations. Contractor must transport cores after SCDOT secures samples with security tags.

Role of Contractor and SCDOT



Communicate
And
Work
Together