

**Quadrant:** N  
**Section:** 8  
**Sublot:** 1

**Laboratory Diary**

General Description of Mix and Materials

Design Method: SMA  
 Compactive Effort: 50 gyrations  
 Binder Performance Grade: 76-28  
 Modifier Type: SBS  
 Aggregate Type: Granite  
 Design Gradation Type: SMA

Avg. Lab Properties of Plant Produced Mix

Sieve Size	Design	QC
25 mm (1"):	100	100
19 mm (3/4"):	100	100
12.5 mm (1/2"):	97	86
9.5 mm (3/8"):	78	70
4.75 mm (#4):	29	38
2.36 mm (#8):	23	22
1.18 mm (#16):	19	17
0.60 mm (#30):	16	13
0.30 mm (#50):	15	11
0.15 mm (#100):	14	10
0.075 mm (#200):	12.3	8.9
Binder Content (Pb):	6.8	5.9
Eff. Binder Content (Pbe):	6.1	5.2
Dust-to-Binder Ratio:	2.0	1.7
Rice Gravity (Gmm):	2.414	2.456
Avg. Bulk Gravity (Gmb):	2.319	2.340
Avg Air Voids (Va):	3.9	4.7
Agg. Bulk Gravity (Gsb):	2.633	2.641
Avg VMA:	17.9	16.7
Avg. VFA:	82	72

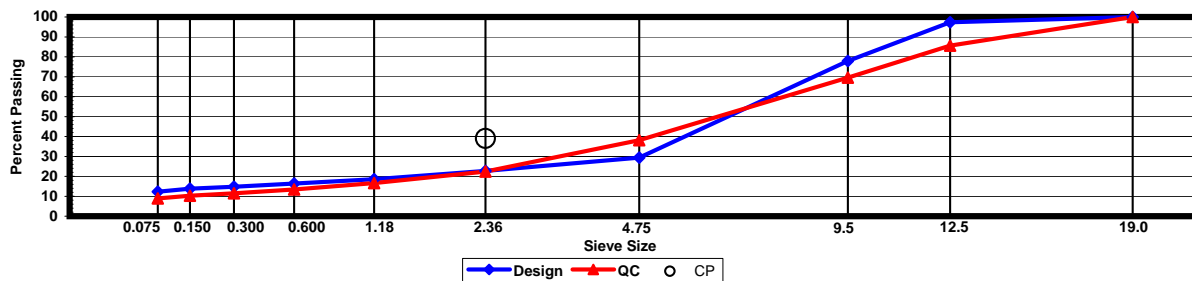
**Construction Diary**

Relevant Conditions for Construction

Completion Date: July 28, 2009  
 24 Hour High Temperature (F): 86  
 24 Hour Low Temperature (F): 72  
 24 Hour Rainfall (in): 0.22  
 Planned Sublot Lift Thickness (in): 2.0  
 Paving Machine: Roadtec

Plant Configuration and Placement Details

Component	% Setting
Asphalt Content (Plant Setting)	5.8
Hanson 5/8 Chips	71.3
Hanson Screenings	13.3
Dolese (Davis) Screenings	10.5
Flyash	5.0
Cellulose	0.3
As-Built Sublot Lift Thickness (in):	2.6
Total Thickness of All 2009 Sublots (in):	4.9
Approx. Underlying HMA Thickness (in):	5.0
Type of Tack Coat Utilized:	PG67-22
Target Tack Application Rate (gal/sy):	0.03
Approx. Avg. Temperature at Plant (F):	345
Avg. Measured Mat Compaction:	94.1%



**General Notes:**

- Mixes are referenced by quadrant (E=East, N=North, W=West, and S=South), section # (sequential) and subplot (top=1);
- The total HMA thickness of all structural study sections (N1-N11 and S8-S12) ranges from 5-3/4 to 14 inches by design;
- All non-structural sections are supported by a uniform perpetual foundation in order to study surface mix performance;
- SMA and OGFC refer to stone matrix asphalt and open-graded friction course, respectively; and
- All liquid asphalt purchased for use in Track reconstruction contained LOF 6500 antistrip additive at a rate of 0.5 percent

**Quadrant:** N  
**Section:** 8  
**Sublot:** 2

**Laboratory Diary**

General Description of Mix and Materials

Design Method: Super  
 Compactive Effort: 100 gyrations  
 Binder Performance Grade: 76-28  
 Modifier Type: SBS  
 Aggregate Type: Granite  
 Design Gradation Type: Fine

Avg. Lab Properties of Plant Produced Mix

Sieve Size	Design	QC
25 mm (1"):	100	100
19 mm (3/4"):	95	97
12.5 mm (1/2"):	81	85
9.5 mm (3/8"):	72	78
4.75 mm (#4):	64	63
2.36 mm (#8):	44	41
1.18 mm (#16):	30	30
0.60 mm (#30):	22	23
0.30 mm (#50):	15	16
0.15 mm (#100):	8	10
0.075 mm (#200):	5.4	7.1
Binder Content (Pb):	4.3	4.1
Eff. Binder Content (Pbe):	4.0	3.8
Dust-to-Binder Ratio:	1.4	1.9
Rice Gravity (Gmm):	2.498	2.534
Avg. Bulk Gravity (Gmb):	2.415	2.449
Avg Air Voids (Va):	3.3	3.4
Agg. Bulk Gravity (Gsb):	2.663	2.679
Avg VMA:	13.5	12.3
Avg. VFA:	75	73

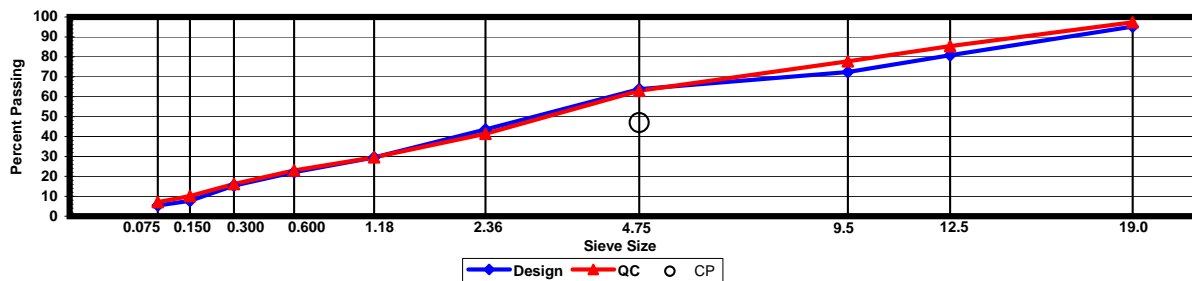
**Construction Diary**

Relevant Conditions for Construction

Completion Date: July 27, 2009  
 24 Hour High Temperature (F): 92  
 24 Hour Low Temperature (F): 70  
 24 Hour Rainfall (in): 0.00  
 Planned Sublot Lift Thickness (in): 3.0  
 Paving Machine: Roadtec

Plant Configuration and Placement Details

Component	% Setting
Asphalt Content (Plant Setting)	4.0
Hanson 1 Chips	30.0
Hanson Screenings	25.0
Dolese (Davis) Screenings	8.0
Martin Marietta (Davis) Stone Sand	27.0
GMI Sand	10.0
As-Built Sublot Lift Thickness (in):	2.4
Total Thickness of All 2009 Sublots (in):	4.9
Approx. Underlying HMA Thickness (in):	5.0
Type of Tack Coat Utilized:	PG67-22
Target Tack Application Rate (gal/sy):	0.07
Approx. Avg. Temperature at Plant (F):	340
Avg. Measured Mat Compaction:	91.7%



**General Notes:**

- 1) Mixes are referenced by quadrant (E=East, N=North, W=West, and S=South), section # (sequential) and subplot (top=1);
- 2) The total HMA thickness of all structural study sections (N1-N11 and S8-S12) ranges from 5-3/4 to 14 inches by design;
- 3) All non-structural sections are supported by a uniform perpetual foundation in order to study surface mix performance;
- 4) SMA and OGFC refer to stone matrix asphalt and open-graded friction course, respectively; and
- 5) All liquid asphalt purchased for use in Track reconstruction contained LOF 6500 antistripping additive at a rate of 0.5 percent

**Quadrant:** N  
**Section:** 8  
**Sublot:** 3

**Laboratory Diary**General Description of Mix and Materials

Design Method: S3  
 Compactive Effort: 100 gyrations  
 Binder Performance Grade: 64-22  
 Modifier Type: NA  
 Aggregate Type: Granite  
 Design Gradation Type: Dense

Avg. Lab Properties of Plant Produced Mix

<u>Sieve Size</u>	<u>Design</u>	<u>QC</u>
1":	100	100
3/4":	95	95
1/2":	81	85
3/8":	72	80
No. 4:	64	64
No. 8:	44	43
No. 16:	30	31
No. 30:	22	24
No. 50:	15	17
No. 100:	8	10
No. 200:	5.4	7.0
Asphalt Content:	4.3	4.9
Pill Bulk Gravity:	2.415	2.393
TMD (Rice):	2.498	2.503
Avg Air Voids:	3.3	4.4
Avg VMA:	13.5	11.3

**Construction Diary**Relevant Conditions for Construction

Completion Date: October 16, 2006  
 24 Hour High Temperature (F): 64  
 24 Hour Low Temperature (F): 55  
 24 Hour Rainfall (in): 0.01  
 Planned Mill / Lift Thickness (in): 3.00  
 Paving Machine: Roadtec

Plant Configuration and Placement Details

<u>Component</u>	<u>% Setting</u>
Asphalt Content (Plant Setting)	4.3
Hanson 1 Chips	30.0
Hanson Screenings	25.0
Dolese Screenings	10.0
Martin Marietta Stone Sand	25.0
GMI Sand	10.0
Approximate Length (ft):	200
Survey Mill / Lift Thickness (in):	2.9
Type of Tack Coat Utilized:	67-22
Target Tack Application Rate (gal/sy):	0.05
Avg Temperature at Plant (F):	345
Avg Section Compaction:	92.9%

**General Notes:**

- 1) Mixes are referenced by quadrant (E=East, N=North, W=West, and S=South), section number (sequential) and subplot (top=1);
- 2) The total research thickness of all mix performance sections ranges from 3/4 to 4 inches by design;
- 3) The total HMA thickness of all structural study sections (N1 through N10) ranges from 7 to 14 inches by design;
- 4) ARZ, TRZ and BRZ refer to gradations intended to pass above, through and below the restricted zone, respectively;
- 5) SMA and OGFC refer to stone matrix asphalt and open-graded friction course, respectively; and
- 6) VMA values computed from QC volumetrics are based on design values of Gsb (stockpile gravity testing is ongoing).

**Quadrant:** N  
**Section:** 8  
**Sublot:** 4

**Laboratory Diary**

General Description of Mix and Materials

Design Method:	RBL
Compactive Effort:	50 gyrations
Binder Performance Grade:	64-22
Modifier Type:	NA
Aggregate Type:	Granite
Design Gradation Type:	Dense

Avg. Lab Properties of Plant Produced Mix

<u>Sieve Size</u>	<u>Design</u>	<u>QC</u>
1":	100	100
3/4":	100	100
1/2":	99	97
3/8":	88	87
No. 4:	58	61
No. 8:	39	39
No. 16:	25	26
No. 30:	18	19
No. 50:	13	15
No. 100:	10	12
No. 200:	8.1	10.5
Asphalt Content:	6.0	7.1
Pill Bulk Gravity:	2.400	2.374
TMD (Rice):	2.452	2.424
Avg Air Voids:	2.0	2.1
Avg VMA:	14.6	12.6

**Construction Diary**

Relevant Conditions for Construction

Completion Date:	October 13, 2006
24 Hour High Temperature (F):	66
24 Hour Low Temperature (F):	48
24 Hour Rainfall (in):	0.00
Planned Mill / Lift Thickness (in):	2.00
Paving Machine:	Roadtec

Plant Configuration and Placement Details

<u>Component</u>	<u>% Setting</u>
Asphalt Content (Plant Setting)	6.2
Hanson 5/8 Chips	35.0
Hanson Screenings	20.0
Dolese Screenings	45.0
Approximate Length (ft):	200
Survey Mill / Lift Thickness (in):	1.9
Type of Tack Coat Utilized:	67-22
Target Tack Application Rate (gal/sy):	0.05
Avg Temperature at Plant (F):	345
Avg Section Compaction:	97.2%

**General Notes:**

- 1) Mixes are referenced by quadrant (E=East, N=North, W=West, and S=South), section number (sequential) and subplot (top=1);
- 2) The total research thickness of all mix performance sections ranges from 3/4 to 4 inches by design;
- 3) The total HMA thickness of all structural study sections (N1 through N10) ranges from 7 to 14 inches by design;
- 4) ARZ, TRZ and BRZ refer to gradations intended to pass above, through and below the restricted zone, respectively;
- 5) SMA and OGFC refer to stone matrix asphalt and open-graded friction course, respectively; and
- 6) VMA values computed from QC volumetrics are based on design values of Gsb (stockpile gravity testing is ongoing).