5/23/2016

**Quadrant:** U
**Section:** 43
**Sublot:** 1

## Laboratory Diary

### General Desccription of Mix and Materials

| | |
|---|---|
| Design Method: | Super |
| Compactive Effort: | 75 gyrations |
| Binder Performance Grade: | 67-22 |
| Modifier Type: | Neat |
| Aggregate Type: | Lms/Sand/F-RAP/RAS |
| Design Gradation Type: | DGA |

### Avg. Lab Properties of Plant Produced Mix

| Sieve Size | Target | QC |
|---|---|---|
| 25 mm (1"): | 100 | 100 |
| 19 mm (3/4"): | 100 | 100 |
| 12.5 mm (1/2"): | 100 | 100 |
| 9.5 mm (3/8"): | 100 | 100 |
| 4.75 mm (#4): | 99 | 96 |
| 2.36 mm (#8): | 76 | 78 |
| 1.18 mm (#16): | 53 | 59 |
| 0.60 mm (#30): | 36 | 39 |
| 0.30 mm (#50): | 23 | 23 |
| 0.15 mm (#100): | 15 | 13 |
| 0.075 mm (#200): | 11.5 | 9.5 |
| Binder Content (Pb): | 6.1 | 6.3 |
| Eff. Binder Content (Pbe): | 5.6 | 5.8 |
| Dust-to-Eff. Binder Ratio: | 2.0 | 1.6 |
| RAP Binder Replacement (%): | 11.4 | 11.0 |
| RAS Binder Replacement (%): | 8.6 | 8.3 |
| Total Binder Replacement (%): | 20.0 | 19.3 |
| Rice Gravity (Gmm): | 2.441 | 2.450 |
| Bulk Gravity (Gmb): | 2.343 | 2.336 |
| Air Voids (Va): | 4.0 | 4.6 |
| Agg. Bulk Gravity (Gsb): | 2.647 | 2.67 |
| VMA: | 16.9 | 18 |
| VFA: | 76 | 74 |

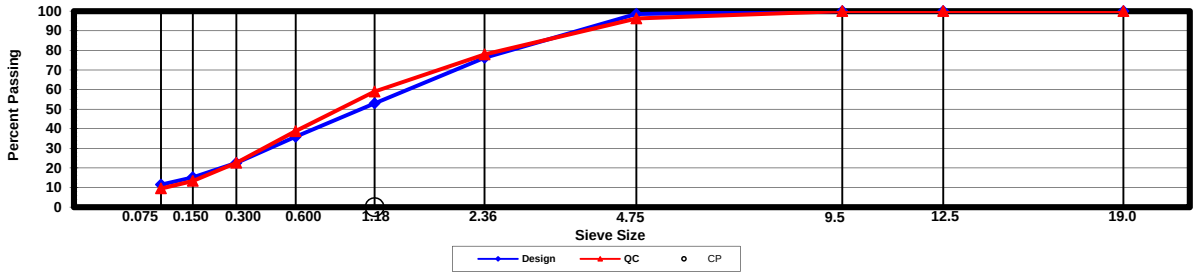
## Construction Diary

### Relevant Conditions for Construction

| | |
|---|---|
| Completion Date: | September 14, 2015 |
| 24 Hour High Temperature (F): | 82 |
| 24 Hour Low Temperature (F): | 53 |
| 24 Hour Rainfall (in): | 0.00 |
| Planned Subot Lift Thickness (in): | 1.0 |
| Paving Machine: | Roadtec |

### Plant Configuration and Placement Details

| Component | % Setting |
|---|---|
| Binder Content (Plant Setting) | 6.2 |
| Calera Limestone Screenings | 43.0 |
| Coarse Sand | 43.0 |
| EAP Fine RAP | 11.0 |
| EAP Post Consumer RAS | 3.0 |
| Evotherm P15 | 0.5 |
| Hydrated Lime | 1.0 |
| As-Built Sublot Lift Thickness (in): | 1.0 |
| Total Thickness of All New Sublots (in): | 5.0 |
| Approx. Underlying HMA Thickness (in): | Pending |
| Type of Tack Coat Utilized: | NTSS-1HM |
| Undilluted Target Tack Rate (gal/sy): | 0.05 |
| Approx. Avg. Temperature at Plant (F): | 340 |
| Avg. Measured Mat Compaction: | 90.7% |




**General Notes:**
- References are by quadrant (E=East, N=North, W=West, S=South, L=Lee Rd 159, U=US-280), section #, and sublot (top=1).
- DGA, SMA, & OGFC refer to dense graded asphalt, stone matrix asphalt, & open-graded friction course, respectively.
- Production Gsb estimated using the actual production Gse and the difference between Gse and Gsb in the mix design.

**Section and/or Sublot Specific Notes:**
NA

1/7/2016 Draft

| | | | CCPR | | CIR | |
|---|---|---|---|---|---|---|
| | | "U" Section: | 40 | 41 | 44 | 43 |
| **Stage** | **Parameter** | **Binder:** | **Foam** | **Emulsion** | **Foam** | **Emulsion** |
| **Source RAP** | **Moisture Content (%)** | | 3.4 | | 0.5 | |
| | **Residual Binder (%)** | | 4.6 | | 5.6 | |
| | **Coated Gradation (% Passing):** | **1"** | 100 | | 98 | |
| | | **3/4"** | 98 | | 89 | |
| | | **1/2"** | 88 | | 63 | |
| | | **3/8"** | 76 | | 47 | |
| | | **#4** | 49 | | 22 | |
| | | **#8** | 27 | | 11 | |
| | | **#16** | 14 | | 5 | |
| | | **#30** | 6 | | 3 | |
| | | **#50** | 2 | | 2 | |
| | | **#100** | 0 | | 1 | |
| | | **#200** | 0.1 | | 0.3 | |
| | **Burned Gradation (% Passing):** | **1"** | 100 | | 100 | |
| | | **3/4"** | 99 | | 100 | |
| | | **1/2"** | 94 | | 98 | |
| | | **3/8"** | 87 | | 93 | |
| | | **#4** | 64 | | 77 | |
| | | **#8** | 47 | | 59 | |
| | | **#16** | 36 | | 47 | |
| | | **#30** | 29 | | 35 | |
| | | **#50** | 22 | | 23 | |
| | | **#100** | 16 | | 16 | |
| | | **#200** | 10.8 | | 10.2 | |
| **Loose Mix** | **Total Moisture Content (%)** | | 7.2 | 7.0 | 2.9 | 4.4 |
| | **Water Added for Mixing/Compacting (%)** | | 3.8 | 3.6 | 2.4 | 3.9 |
| | **Total Binder Content (%)** | | 7.1 | 6.6 | 7.4 | 7.0 |
| | **Added Residual Virgin Binder (%)** | | 2.5 | 2.0 | 1.8 | 1.4 |
| | **Burned Gradation (% Passing):** | **1"** | 100 | 100 | 100 | 100 |
| | | **3/4"** | 100 | 99 | 100 | 100 |
| | | **1/2"** | 96 | 96 | 97 | 97 |
| | | **3/8"** | 91 | 90 | 93 | 93 |
| | | **#4** | 71 | 68 | 75 | 76 |
| | | **#8** | 52 | 49 | 60 | 60 |
| | | **#16** | 40 | 39 | 49 | 49 |
| | | **#30** | 32 | 31 | 39 | 38 |
| | | **#50** | 24 | 23 | 28 | 27 |
| | | **#100** | 18 | 17 | 20 | 19 |
| | | **#200** | 12.4 | 12.2 | 13.7 | 12.9 |
| **Compacted Mix** | **Number of Gyrations for QC Pills** | | 35 | 30 | 35 | 30 |
| | **Compacted Pill Mass (g)** | | 4378.1 | 4417.2 | 4486.9 | 4445.1 |
| | **Average Pill Height (mm)** | | 110.6 | 110.4 | 113.0 | 111.8 |
| | **Estimated "Wet" Pill Density (pcf)** | | 139.3 | 140.8 | 139.8 | 139.9 |
| | **Water Pressed Out During Compaction (%)** | | 2.8 | 1.9 | 0.3 | 1.2 |
| | **Water Lost in Compaction + Curing (%)** | | 6.5 | 5.5 | 2.4 | 3.7 |
| | **Water Lost in Curing (%)** | | 3.7 | 3.6 | 2.1 | 2.5 |
| | **Water Content After Curing (%)** | | 0.7 | 1.5 | 0.5 | 0.7 |
| | **Measured Density of Cured Pills (pcf)** | | 135.3 | 137.1 | 137.3 | 138.0 |
| | **Cured Pill Density + Lost Curing Water (pcf)** | | 140.4 | 142.0 | 140.2 | 141.4 |
| **Compacted Mat** | **"Wet" Mat Density (pcf)** | | 132.0 | 133.7 | 128.6 | 129.9 |
| | **Average Compaction (%)** | | 94.0% | 94.1% | 91.8% | 91.9% |
| | **StDev Compaction (%)** | | 1.3% | 1.6% | 1.0% | 1.3% |
| | **Cured/Dried Mat Core Density (pcf)** | | 130.0 | 131.6 | 131.4 | 131.7 |
| | **Average Compaction (%)** | | 96.1% | 96.0% | 95.7% | 95.5% |