



# Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S4 (PG 70-28 OK) Mat'l. Code: asco011  
 (Material Full Name and Material Code)  
 J.O.B. Const Co P/S # m00562  
 (Producer/Supplier Name and Producer/Supplier Code)  
 J.O.B Const Co (Hartshorne) - 350TPH PLANT ID # m00562-02  
 (Plant Name and Plant ID)

Insoluble ID: I1  
 (Design Type and Design Type ID)  
 WS4qc0101501600  
 (Mix ID)

| Aggregate  | Producer/Supplier                           | % USED |
|--|---|--------|
| 5/8" Chips   | Dolese Co (Hartshorne, OK) P/S # m002756101 | 25     |
| 3/8" Chips   | Dolese Co (Hartshorne, OK) P/S # m002756101 | 30     |
| Scrns.   | Dolese Co (Hartshorne, OK) P/S # m002756101 | 30     |
| Sand (Unlisted Source)   | Arkansas River Sand (Sallisaw, OK)          | 15     |
|  |   |        |
|  |   |        |
|  |   |        |
| Warm Mix Asphalt (WMA) Technology: TEREX (Foaming Process) qual028 Terex Roadbuilding m00801<br>(Product Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)          |   |        |
|  |   |        |
| Asphalt Cement: Asphaltic Cement Type PG 70-28 OK, acem002, HollyFrontier (Catoosa, OK), m01028<br>(Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code) |   |        |

| Sieve Size       | Producer/Supplier:                          |   |   |                                    | Sand (Unlisted Source) | Comb. Agg. | %   |      |      | Tol. (±) |
|------------------|---|---|---|------------------------------------|------------------------|------------|-----|------|------|----------|
|                  | Dolese Co (Hartshorne, OK) P/S # m002756101 | Dolese Co (Hartshorne, OK) P/S # m002756101 | Dolese Co (Hartshorne, OK) P/S # m002756101 | Arkansas River Sand (Sallisaw, OK) |                        |            | JMF | Min. | Max. |          |
| 3/4 in (19 mm)   | 100   | 100   | 100   | 100                                | 100                    | 100        | 100 | 100  | 0    |          |
| 1/2 in (12.5 mm) | 92  | 100   | 100   | 100                                | 98                     | 98         | 91  | 100  | 7    |          |
| 3/8 in (9.5 mm)  | 63  | 95  | 100   | 100                                | 89                     | 89         | 82  | 96   | 7    |          |
| #4 (4.75 mm)     | 10  | 25  | 94  | 96                                 | 53                     | 53         | 46  | 60   | 7    |          |
| #8 (2.36 mm)     | 5   | 6   | 64  | 94                                 | 36                     | 36         | 31  | 41   | 5    |          |
| #16 (1.18 mm)    | 4   | 3   | 41  | 91                                 | 28                     | 28         | 24  | 32   | 4    |          |
| #30 (.600 mm)    | 3   | 3   | 26  | 79                                 | 21                     | 21         | 17  | 25   | 4    |          |
| #50 (.300 mm)    | 2   | 2   | 19  | 31                                 | 11                     | 11         | 7   | 15   | 4    |          |
| #100 (.150 mm)   | 1   | 1   | 14  | 4                                  | 5                      | 5          | 2   | 8    | 3    |          |
| #200 (.075 mm)   | 0.7   | 1.2   | 12.5  | 0.6                                | 4.4                    | 4.4        | 2.4 | 6.4  | 2    |          |
| AC Content %     |   |   |   |                                    | 5.2                    | 5.2        | 4.8 | 5.6  | 0.4  |          |

Requires Form 93-E0 signed by the Department for production use. -Oklahoma D.O.T. Materials-

Warm Mix Asphalt (WMA) Additive % 2.0

°F (°C) **Required**  
 Mix temperature @ discharge from mixer: 275 (135) ± 20 °F (± 10 °C)  
 Optimum roadway compaction temperature: 260 (127)  
 Laboratory mixing temperature: 325 (163)  
 Laboratory compaction temperature: 300 (149)

| Tests on Asphalt Cement   | Found  |
|---------------------------|--------|
| Specific Gravity @ 77 ° F | 1.0100 |

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| Tests on Compressed Mixtures (@ Design AC) |        |                  |                    |
|--|--------|------------------|--------------------|
|  | # Gyr. | % Density of Gmm | % Density Required |
| Nini                                       | 7      | 88.1             | 85.5 - 90.5        |
| Ndes                                       | 65     |                  | 96.0               |

| Tests on Aggregates | Required | Units                           |
|---------------------|----------|---------------------------------|
| Durability Index    | 67       | 40 min. %                       |
| F.A.A. %U           |          | N/A %                           |
| Flat and Elongated  | 0        | 10 max. %                       |
| Fractured Faces     | 100/100  | 95/90 min. %                    |
| Insoluble Residue   | 43.6     | 40 min. %                       |
| LA Abrasion         | 20       | 40 max. %                       |
| Micro-Deval         | 10.7     | N/A %                           |
| Permeability        | 3.9      | 12.5 max. 10 <sup>-5</sup> cm/s |
| Sand Equivalent     | 63       | 45 min. %                       |
| Pba                 | 0.73     |                                 |
| IOC                 | 0.41     | %                               |
| Gse                 | 2.631    |                                 |
| Gsb                 | 2.582    |                                 |
| Specimen Weight     | 4700     | g                               |

| Tests on Compressed Mixtures |       |       |           |                    |       |                |                |                |
|------------------------------|-------|-------|-----------|--------------------|-------|----------------|----------------|----------------|
| %AC                          | Gmb   | Gmm   | % Density |                    | % VMA | % VMA Required |                | % VFA          |
|                              |       |       | of Gmm    | % Density Required |       | Design / Field | Design / Field |                |
| 4.7                          | 2.319 | 2.446 | 94.8      | Design / Field     | 14.4  | Design / Field | 63.9           | % VFA Required |
| 5.2                          | 2.330 | 2.428 | 96.0      | 96.0 / 94.5 - 97.4 | 14.5  | 14.5 / 14.0    | 72.4           | 72 - 77        |
| 5.7                          | 2.374 | 2.410 | 98.5      |                    | 13.3  |                | 88.7           |                |

**Dust Prop.**  
 1.1 **Dust Prop. Req.** 0.6 - 1.6  
 1.0  
 0.9

**ITS (PSI)** 103.2 N/A min.  
**TSR** 0.82 0.80 / 0.75 min. (Design / Field)  
 Compacted Wt. (lbs/sy/1" thick) = 106.8 @ 5.2 % Asphalt Cement

**Hamburg Rut Test Depth (mm)** 5.85 12.50 max. @ 15,000 cycles

**MEETS SPECIFICATION REQUIREMENTS PER SPECIAL PROVISION 708-26(a-f) 09**

Comments:

Last Modified By: Schratwieser, Edward P. eschratw  
 (User Name and User ID)

Date: 5/4/2015  
 (mm/dd/yyyy)