



### Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S4 (PG 64-22 OK) Mat'l. Code: asco012  
 (Material Full Name and Material Code)  
 Glover & Associates Inc. P/S # m00745  
 (Producer/Supplier Name and Producer/Supplier Code)  
 Glover & Assoc. Asphalt Co.- (Hulbert, OK) PLANT ID # m00745-02  
 (Plant Name and Plant ID)

Binder ID: B1  
 (Design Type and Design Type ID)  
 S4c00931401401  
 (Mix ID)

| Aggregate  | Producer/Supplier  | % USED |
|------------|--|--------|
| #67 Rock   | APAC-Central #017 Okay, OK P/S # m001337302                | 12     |
| 3/8" Chips | Kemp Stone (Hulbert, OK) P/S # m007101106                  | 23     |
| Bckshot.   | Kemp Stone (Hulbert, OK) P/S # m007101106                  | 42     |
| Scrns.     | Kemp Stone (Hulbert, OK) P/S # m007101106                  | 13     |
| Sand       | Muskogee Sand - West Plant (Muskogee, OK) P/S # m007067309 | 10     |

Asphalt Cement: Asphaltic Cement Type PG 64-22 OK, acem003, Lion Oil Co. (Muskogee, OK), m00511  
 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)

| Sieve Size       | Producer/Supplier: |            |          |        |      | Comb. Agg. | %   |      |      |     | Tol. (±) |
|------------------|--------------------|------------|----------|--------|------|------------|-----|------|------|-----|----------|
|                  | #67 Rock           | 3/8" Chips | Bckshot. | Scrns. | Sand |            | JMF | Min. | Max. |     |          |
| 3/4 in (19 mm)   | 100                | 100        | 100      | 100    | 100  | 100        | 100 | 100  | 100  | 0   |          |
| 1/2 in (12.5 mm) | 73                 | 100        | 100      | 100    | 100  | 97         | 97  | 90   | 100  | 7   |          |
| 3/8 in (9.5 mm)  | 29                 | 95         | 100      | 100    | 100  | 90         | 90  | 83   | 97   | 7   |          |
| #4 (4.75 mm)     | 4                  | 11         | 90       | 99     | 99   | 64         | 76  | 69   | 83   | 7   |          |
| #8 (2.36 mm)     | 3                  | 3          | 59       | 76     | 97   | 45         | 57  | 52   | 62   | 5   |          |
| #16 (1.18 mm)    | 3                  | 3          | 36       | 53     | 85   | 32         | 42  | 38   | 46   | 4   |          |
| #30 (.600 mm)    | 3                  | 2          | 20       | 37     | 67   | 21         | 30  | 26   | 34   | 4   |          |
| #50 (.300 mm)    | 3                  | 2          | 11       | 26     | 35   | 12         | 20  | 16   | 24   | 4   |          |
| #100 (.150 mm)   | 3                  | 2          | 7        | 18     | 4    | 7          | 11  | 8    | 14   | 3   |          |
| #200 (.075 mm)   | 2.1                | 1.6        | 5.7      | 13.0   | 0.6  | 4.8        | 7.0 | 5.0  | 9.0  | 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-

Mix temperature @ discharge from mixer: 305 (152) ± 20 °F (± 10 °C) **Required**  
 Optimum roadway compaction temperature: 290 (143)  
 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 Aggregates | Required | Units                           |
|---------------------|----------|---------------------------------|
| Durability Index    | 60       | 40 min. %                       |
| F.A.A. %U           | N/A      | %                               |
| Flat and Elongated  | 0        | 10 max. %                       |
| Fractured Faces     | 100/100  | 85/80 min. %                    |
| Insoluble Residue   | 18.1     | N/A %                           |
| LA Abrasion         | 27       | 40 max. %                       |
| Micro-Deval         | 23.6     | N/A %                           |
| Permeability        | 0.3      | 12.5 max. 10 <sup>-5</sup> cm/s |
| Sand Equivalent     | 77       | 40 min. %                       |
| IOC                 | 0.55     | %                               |
| Gse                 | 2.675    |                                 |
| Gsb                 | 2.618    |                                 |
| Specimen Weight     | 4810     | g                               |

| Tests on Compressed Mixtures (@ Design AC) |        |                  |                    |
|--|--------|------------------|--------------------|
|  | # Gyr. | % Density of Gmm | % Density Required |
| Nini                                       | 6      | 87.2             | 85.5 - 91.5        |
| Ndes                                       | 50     |                  | 96.0               |

| %AC | Tests on Compressed Mixtures |       |                    |                    |                |             |                |
|-----|------------------------------|-------|--------------------|--------------------|----------------|-------------|----------------|
|     | % Density                    |       |                    | % VMA              | % VMA Required | % VFA       | % VFA Required |
|     | Gmb                          | Gmm   | % Density Required |                    |                |             |                |
| 4.8 | 2.344                        | 2.479 | 94.6               | 14.8               | 14.8           | 63.5        |                |
| 5.3 | 2.366                        | 2.460 | 96.2               | 96.0 / 94.5 - 97.4 | 14.4           | 14.5 / 14.0 | 73.6           |
| 5.8 | 2.381                        | 2.442 | 97.5               | 14.3               |                | 82.5        | 72 - 77        |

|            |     |                              |   |                                   |
|------------|-----|------------------------------|---|-----------------------------------|
| Dust Prop. | 1.2 | Dust Prop. Req.<br>0.6 - 1.6 | ITS (PSI) 132.6                         | N/A min.                          |
|            | 1.1 |                              | TSR 0.85                                | 0.80 / 0.75 min. (Design / Field) |
|            | 1.0 |                              | Compacted Wt. (lbs/sy/1" thick) = 108.4 | @ 5.2 % Asphalt Cement            |

x 1st JMF Revision Hamburg Rut Test Depth (mm) 1.96 12.50 max. @ 10,000 cycles

Comments: MEETS SPECIFICATION REQUIREMENTS PER SPECIAL PROVISION 708-26(a-f) 09  
 REVISED (GRAD.) Effective 9/14/16 per contractor's request.

Last Modified By: Schratwieser, Edward P. eschratt Date: 9/15/2016  
 (User Name and User ID) (mm/dd/yyyy)