



Certificate # 3512.05

**Construction Materials Testing Laboratory  
Jubail Branch**P.O. Box 2165 – Tel.: (013) 341 2700  
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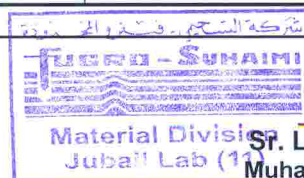
السحيمي - فيغرو

**SUMMARY OF TEST REPORT**

|                 |                                       |                      |              |
|-----------------|---------------------------------------|----------------------|--------------|
| <b>Client</b>   | A.H. Al Marhoon & Bros. Co.           | <b>Job No.</b>       | SA08-3012    |
| <b>Project</b>  | Concrete Batch Plant, Rahima          | <b>Lab No.</b>       | 10858        |
| <b>Material</b> | 3/4" (20 mm) Coarse Aggregate         | <b>Date Sampled</b>  | 01 June 2015 |
| <b>Source</b>   | Al Osais, Abuhadriya (Sampled by FSL) | <b>Date Reported</b> | 14 June 2015 |

**Properties:**

| Properties Tested                             | Test Method     | Results      | SCECO Specs. |
|---|-----------------|--------------|--------------|
| Sieve analysis                                | ASTM C-136      | See Attached | --           |
| Material finer than No. 200 sieve %           | ASTM C-117      | 0.14         | 5.0 Max.     |
| Clay lumps & friable particles %              | ASTM C-142      | 0.34         | 1.0 Max.     |
| Los Angeles Abrasion                          | ASTM C-131      |              |              |
| Loss at 100 revolutions %                     |                 | 7.8          | --           |
| Loss at 500 revolutions %                     |                 | 32.5         | 35 Max.      |
| Ratio 100/500 rev.                            |                 | 0.24         | 0.25 max     |
| Magnesium sulfate soundness loss (5 cycles) % | ASTM C-88       | 12.2         | 18 Max.      |
| Specific gravity and absorption               | ASTM C-127      |              |              |
| Apparent                                      |                 | 2.638        | --           |
| SSD basis                                     |                 | 2.591        | --           |
| Dry basis                                     |                 | 2.563        | --           |
| Absorption                                    |                 | 1.1          | 2.5 max      |
| Acid soluble chloride, (Cl), %                | ASTM C 114      |              |              |
| (NaCl), %                                     |                 | 0.016        | 0.03 max     |
| Acid soluble sulphate (SO <sub>3</sub> ), %   | BS-812 Part 118 |              |              |
| (SO <sub>4</sub> ), %                         |                 | 0.026        |              |
| Flakiness index                               | BS-812          | 11.4         | 30 Max.      |
| Elongation index                              | BS-812          | 13.0         | 45 Max.      |
| Coal & lignite                                | ASTM C-123      | NIL          | 0.5 Max.     |

**Remarks:**Tested By: Thomas  
CTTA # : 0194Reviewed By: Imran Ahmed  
CTTA # : 0556Sr. Laboratory Supervisor  
Muhammad Nawaz CTTA # 0037

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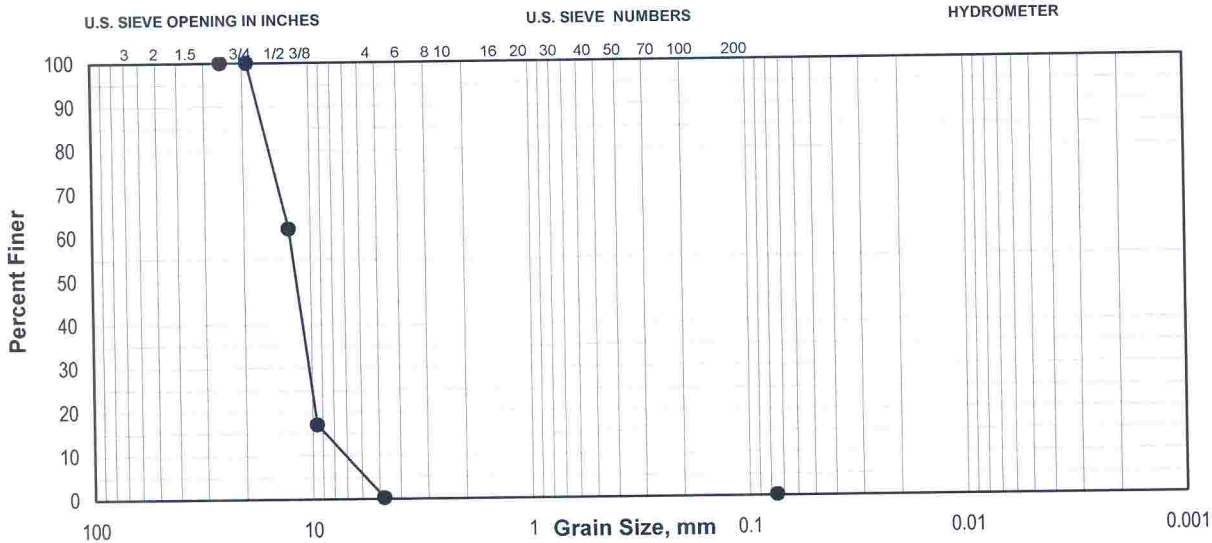
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## PARTICLE SIZE ANALYSIS TEST REPORT السحيمي - فيغرو

|                 |                               |                     |              |
|-----------------|-------------------------------|---------------------|--------------|
| <b>Client</b>   | A.H. Al Marhoon & Bros. Co.   | <b>Job No.</b>      | SA08-3012    |
| <b>Project</b>  | Concrete Batch Plant, Rahima  | <b>Lab No.</b>      | 10858        |
| <b>Material</b> | 3/4" (20 mm) Coarse Aggregate | <b>Date Sampled</b> | 01 June 2015 |
| <b>Source</b>   | Al Marhoon RMC Plant          | <b>Date Tested</b>  | 03-04 June   |



|               |                |                      |                     |
|---------------|----------------|----------------------|---------------------|
| <b>Method</b> | ASTM C-136/117 | <b>Date Reported</b> | 13 June 2015        |
| <b>Gravel</b> |                | <b>Sand</b>          |                     |
| Coarse        | fine           | Coarse               | medium<br>fine      |
|               |                |                      | <b>Silt or Clay</b> |

### Description of Sand / Gravel Particles:

|              |                 |                         |
|--------------|-----------------|-------------------------|
| <b>Shape</b> | <b>Hardness</b> | <b>Specific Gravity</b> |
|              |                 |                         |

| Sieve Size<br>Inch(mm) | Passing<br>g % | Specification | Properties Tested |             |        |
|------------------------|----------------|---------------|-------------------|-------------|--------|
|                        |                |               | Item              | Description | Result |
| 1 (25.0 mm)            | 100            |               |                   |             |        |
| 3/4 (19 mm)            | 100            |               |                   |             |        |
| 1/2 (12.5 mm)          | 62             |               |                   |             |        |
| 3/8 (9.5 mm)           | 17             |               |                   |             |        |
| #4 (4.75 mm)           | 0.2            |               |                   |             |        |
| #8 (2.36 mm)           | -              |               |                   |             |        |
| #16 (1.18 mm)          | -              |               |                   |             |        |
| #30(600)               | -              |               |                   |             |        |
| #50(300)               | -              |               |                   |             |        |
| #100 (0.15 mm)         | -              |               |                   |             |        |
| #200 (75 mm)           | 0.14           |               |                   |             |        |

**Remarks** السحيمي - فيغرو

**Tested By:** Thomas      **Reviewed By:** Imran Ahmed  
CTTA # : 0194      CTTA # : 0556

**Material Division**  
**Jubail**  
**Sr. Laboratory Supervisor**  
**Muhammad Nawaz CTTA # 0037**

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السحيمي - فيغرو

### SUMMARY OF TEST REPORT

|                 |                                       |                      |              |
|-----------------|---------------------------------------|----------------------|--------------|
| <b>Client</b>   | A.H. Al Marhoon & Bros. Co.           | <b>Job No.</b>       | SA08-3012    |
| <b>Project</b>  | Concrete Batch Plant, Rahima          | <b>Lab No.</b>       | 10859        |
| <b>Material</b> | 3/8" (10- mm) Coarse Aggregate        | <b>Date Sampled</b>  | 01 June 2015 |
| <b>Source</b>   | Al Osais, Abuhadriya (Sampled by FSL) | <b>Date Reported</b> | 14 June 2015 |

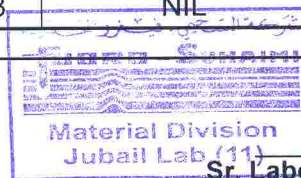
#### Properties:

| Properties Tested                             | Test Method     | Results      | SCECO Specs. |
|---|-----------------|--------------|--------------|
| Sieve analysis                                | ASTM C-136      | See Attached | --           |
| Material finer than No. 200 sieve %           | ASTM C-117      | 0.32         | 5.0 Max.     |
| Clay lumps & friable particles %              | ASTM C-142      | 0.51         | 1.0 Max.     |
| Los Angeles Abrasion                          | ASTM C-131      |              |              |
| Loss at 100 revolutions %                     |                 | 8.2          | --           |
| Loss at 500 revolutions %                     |                 | 34.2         | 35 Max.      |
| Ratio 100/500 rev.                            |                 | 0.24         | 0.25 max     |
| Magnesium sulfate soundness loss (5 cycles) % | ASTM C-88       | 15.0         | 18 Max.      |
| Specific gravity and absorption               | ASTM C-127      |              |              |
| Apparent                                      |                 | 2.630        | --           |
| SSD basis                                     |                 | 2.568        | --           |
| Dry basis                                     |                 | 2.530        | --           |
| Absorption                                    |                 | 1.5          | 2.5 max      |
| Acid soluble chloride, (Cl), %                | ASTM C 114      | 0.012        | 0.03 max     |
| (NaCl), %                                     |                 | 0.020        |              |
| Acid soluble sulphate (SO <sub>3</sub> ), %   | BS-812 Part 118 | 0.279        |              |
| (SO <sub>4</sub> ), %                         |                 |              | 0.5 max      |
| Flakiness index                               | BS-812          | 11.6         | 30 Max.      |
| Elongation index                              | BS-812          | 10.6         | 45 Max.      |
| Coal & lignite                                | ASTM C-123      | NIL          | 0.5 Max.     |

#### Remarks:

Tested By: Jose Daniel  
CTTA # : 0195

Reviewed By: Imran Ahmed  
CTTA # : 0556



Sr. Laboratory Supervisor  
Muhammad Nawaz CTTA # 0037

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