

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-32**

Sample Date: **3/14/22**

Dates Test Represents: **3/15/2022**

through **3/21/2022**

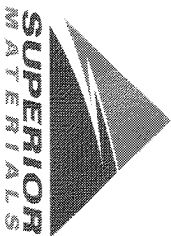
Concrete Grade: **S2M, 3500HP**

Contractor: _____

MDOT No.: _____

| Agg. Class | Pit # | Source | Weight (ssd) | ft ³ | Specific Gravity | % Contribution |
|------------|--------|-----------------|--------------|-----------------|------------------|----------------|
| 6AA | 71-47 | Presque Isle | 1570 | 9.60 | 2.62 | 51.5 |
| 26A | 71-47 | Presque Isle | 250 | 1.53 | 2.62 | 8.2 |
| 2NS | 95-013 | Smelter Bay | 1230 | 7.44 | 2.65 | 40.3 |
| | | Total Wt | 3050 | | | 100.0 |

| Sieve | 6AA | 26A | 2NS | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|-------|-------|-------|----------------------|------------|-----------------------|
| 2" | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 |
| 1.5" | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 |
| 1" | 98.2 | 100.0 | 100.0 | 99.1 | 0.9 | 0.9 |
| 3/4" | 75.0 | 100.0 | 100.0 | 87.1 | 11.9 | 12.9 |
| 1/2" | 34.9 | 97.4 | 100.0 | 66.3 | 20.9 | 33.7 |
| 3/8" | 19.6 | 86.4 | 100.0 | 57.5 | 8.8 | 42.5 |
| #4 | 4.2 | 26.1 | 96.1 | 43.1 | 14.4 | 56.9 |
| #8 | 2.8 | 9.1 | 83.4 | 35.8 | 7.2 | 64.2 |
| #16 | 2.4 | 4.2 | 68.2 | 29.1 | 6.7 | 70.9 |
| #30 | 2.3 | 2.9 | 48.9 | 21.1 | 7.9 | 78.9 |
| #50 | 2.2 | 2.5 | 24.7 | 11.3 | 9.8 | 88.7 |
| #100 | 2.1 | 2.3 | 7.8 | 4.4 | 6.9 | 95.6 |
| LBW | 1.8 | 1.9 | 1.9 | 1.8 | 2.6 | 98.2 |

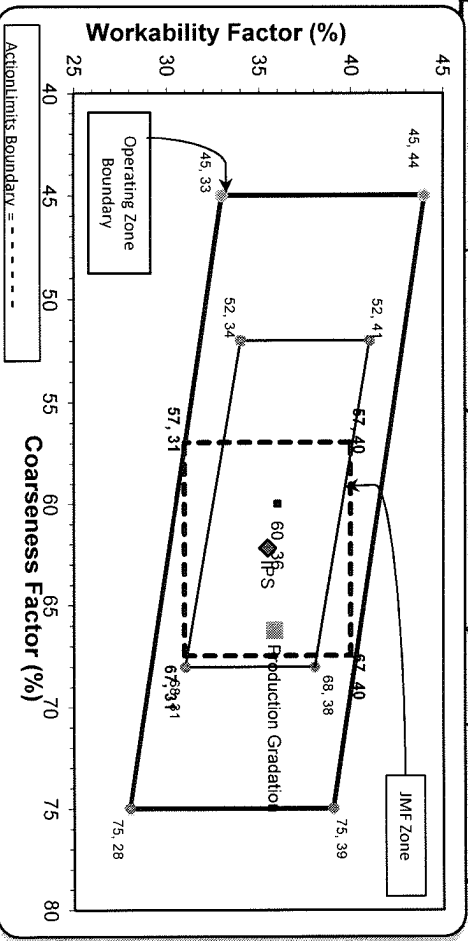


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*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max.
nom. max. #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max.
nom. max. #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when
a 2" max. size (nom. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **66** Workability Factor: **36**



Initial Production Sample (IPS)

Coarseness Factor: **62** Workability Factor: **35**

| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2" | 100.0 | 0.0 | 0.0 |
| 1.5" | 100.0 | 0.0 | 0.0 |
| 1" | 100.0 | 0.0 | 0.0 |
| 3/4" | 94.0 | 6.0 | 6.0 |
| 1/2" | 70.2 | 23.7 | 29.8 |
| 3/8" | 59.9 | 10.4 | 40.1 |
| #4 | 42.7 | 17.2 | 57.3 |
| #8 | 35.5 | 7.2 | 64.5 |
| #16 | 28.4 | 7.0 | 71.6 |
| #30 | 19.2 | 9.2 | 80.8 |
| #50 | 8.9 | 10.3 | 91.1 |
| #100 | 3.1 | 5.9 | 96.9 |
| LBW | 1.4 | 1.7 | 98.6 |

PREPARED BY:
SM, LLC Technical Service

Approved By: _____

Plant 958-JMT

Product 1022-2NS GR - Smelter Bay

Name/Title Casey Smith / QC Manager

Period: 03/11/2022 - 03/18/2022

Report Date 03/18/2022

| Procedure | Sieve/Test | Result | Unit | 2NS GR Spec |
|-----------|-----------------------|--------|------|-------------|
| | 3/8" (9.5mm) | 100.0 | % | 100-100 |
| | #4 (4.75mm) | 96.1 | % | 95-100 |
| | #8 (2.36mm) | 83.4 | % | 65-95 |
| | #16 (1.18mm) | 68.2 | % | 35-75 |
| | #30 (.6mm) | 48.9 | % | 20-55 |
| | #50 (.3mm) | 24.7 | % | 10-30 |
| | #100 (.15mm) | 7.8 | % | 0-10 |
| | #200 (75µm) | 2.3 | % | |
| | FM | 2.71 | | 2.6-3 |
| | Wash Loss (#200/75um) | 1.9 | % | 0-3 |
| | Total Moisture | 4.0 | % | |

Plant 958-JMT

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 03/13/2022 - 03/19/2022

Report Date 03/18/2022

| Procedure | Sieve/Test | Result | Unit | 26A Mod LS Spec |
|-----------|-----------------------|--------|------|-----------------|
| | 2" (50mm) | 100.0 | % | |
| | 1 1/2" (37.5mm) | 100.0 | % | |
| | 1" (25mm) | 100.0 | % | |
| | 3/4" (19mm) | 100.0 | % | 100-100 |
| | 1/2" (12.5mm) | 97.4 | % | 95-100 |
| | 3/8" (9.5mm) | 86.4 | % | 60-95 |
| | #4 (4.75mm) | 26.1 | % | 5-30 |
| | #8 (2.36mm) | 9.1 | % | 0-12 |
| | #16 (1.18mm) | 4.2 | % | |
| | #30 (.6mm) | 2.9 | % | |
| | #50 (.3mm) | 2.5 | % | |
| | #100 (.15mm) | 2.3 | % | |
| | #200 (75µm) | 2.1 | % | |
| | Wash Loss (#200/75um) | 1.9 | % | 0-3 |
| | Total Moisture | 3.6 | % | |

Edw. C. Levy Co.

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 (313) 429-2429

Plant 958-JMT
Product 1054-6AA LS PI
Period: 03/11/2022 - 03/18/2022

Name/Title Casey Smith / QC Manager
Report Date 03/18/2022

| Procedure | Sieve/Test | Result | Unit | 6AA LS PI Spec |
|-----------|-----------------------|--------|------|----------------|
| | 2" (50mm) | 100.0 | % | |
| | 1 1/2" (37.5mm) | 100.0 | % | 100-100 |
| | 1" (25mm) | 98.2 | % | 95-100 |
| | 3/4" (19mm) | 75.0 | % | |
| | 1/2" (12.5mm) | 34.9 | % | 30-60 |
| | 3/8" (9.5mm) | 19.6 | % | |
| | #4 (4.75mm) | 4.2 | % | 0-8 |
| | #8 (2.36mm) | 2.8 | % | |
| | #16 (1.18mm) | 2.4 | % | |
| | #30 (.6mm) | 2.3 | % | |
| | #50 (.3mm) | 2.2 | % | |
| | #100 (.15mm) | 2.1 | % | |
| | #200 (75µm) | 2.0 | % | |
| | Wash Loss (#200/75um) | 1.8 | % | 0-2 |
| | Total Moisture | 2.4 | % | |