

Aggregate Optimization Chart

Production Gradation Report

PLANT #: p11

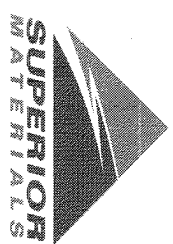
Sample Date: 4/8/24

Dates Test Represents: 4/9/2024 through 4/15/2024

Concrete Grade: S2M, 3500HP

Contractor: _____

MDOT No.: _____



Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

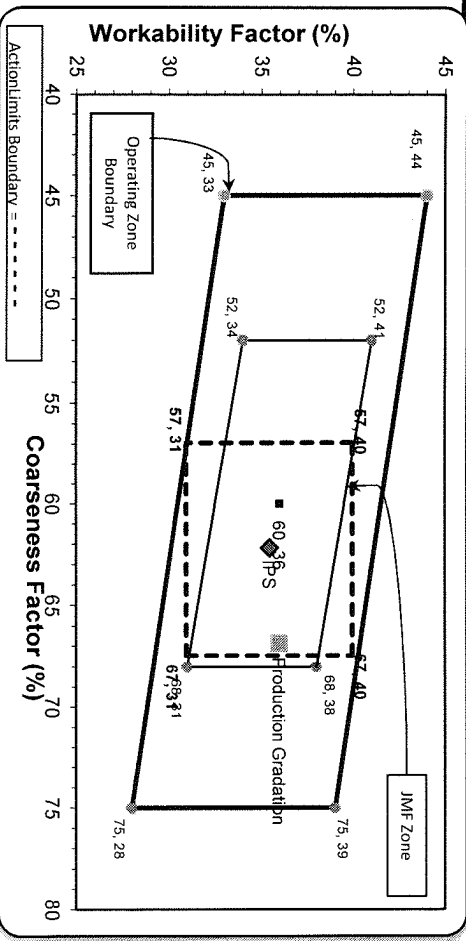
| Agg. Class | Pit # | Source | Weight (ssd) | ft ³ | Specific Gravity | Contribution % |
|------------|--------|--------------|--------------|-----------------|------------------|----------------|
| 6AA | 71-47 | Presque Isle | 1600 | 9.79 | 2.62 | 52.5 |
| 26A | 71-47 | Presque Isle | 220 | 1.35 | 2.62 | 7.2 |
| 2NS | 95-013 | Smelter Bay | 1230 | 7.44 | 2.65 | 40.3 |
| Total Wt | | | 3050 | 18.57 | | 100.0 |

| Sieve | % Retained | Cumulative % Retained |
|-------|------------|-----------------------|
| 2" | 0.0 | 0.0 |
| 1.5" | 0.0 | 0.0 |
| 1" | 0.9 | 0.9 |
| 3/4" | 9.7 | 10.6 |
| 1/2" | 23.4 | 34.0 |
| 3/8" | 8.7 | 42.8 |
| #4 | 15.0 | 57.8 |
| #8 | 6.2 | 64.0 |
| #16 | 6.4 | 70.4 |
| #30 | 8.2 | 78.6 |
| #50 | 10.7 | 89.3 |
| #100 | 6.8 | 96.1 |
| LBW | 2.6 | 98.7 |

*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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 67 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 S11-Onsite Jefferson

Product 1051-6AA LS

Period: 04/07/2024 - 04/13/2024

Name/Title Doug Storey / QC Technician

Report Date 04/13/2024

| Procedure | Sieve/Test | Result | Unit | 6AA LS |
|-----------|-----------------------|--------|------|---------|
| | 2" (50mm) | 100.0 | % | |
| | 1 1/2" (37.5mm) | 100.0 | % | 100-100 |
| | 1" (25mm) | 98.3 | % | 95-100 |
| | 3/4" (19mm) | 79.8 | % | |
| | 1/2" (12.5mm) | 35.8 | % | 30-60 |
| | 3/8" (9.5mm) | 20.5 | % | |
| | #4 (4.75mm) | 3.0 | % | 0-8 |
| | #8 (2.36mm) | 2.1 | % | |
| | #16 (1.18mm) | 1.7 | % | |
| | #30 (.6mm) | 1.6 | % | |
| | #50 (.3mm) | 1.5 | % | |
| | #100 (.15mm) | 1.5 | % | |
| | #200 (75µm) | 1.38 | % | |
| | Wash Loss (#200/75um) | 1.2 | % | 0-2 |
| | Total Moisture | 3.05 | % | |



Plant S11-Onsite Jefferson

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 04/07/2024 - 04/13/2024

Report Date 04/13/2024

| 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) | 94.9 | % | 95-100 |
| | 3/8" (9.5mm) | 84.9 | % | 60-95 |
| | #4 (4.75mm) | 24.0 | % | 5-30 |
| | #8 (2.36mm) | 7.3 | % | 0-12 |
| | #16 (1.18mm) | 4.8 | % | |
| | #30 (.6mm) | 4.1 | % | |
| | #50 (.3mm) | 3.4 | % | |
| | #100 (.15mm) | 3.0 | % | |
| | #200 (75µm) | 2.8 | % | |
| | Wash Loss (#200/75um) | 2.7 | % | 0-3 |
| | Total Moisture | 5.06 | % | |



Plant S11-Onsite Jefferson

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 04/07/2024 - 04/13/2024

Report Date 04/13/2024

| Procedure | Sieve/Test | Result | Unit | 2NS GR Spec |
|-----------|-----------------------|--------|------|-------------|
| | 3/8" (9.5mm) | 100.0 | % | 100-100 |
| | #4 (4.75mm) | 96.5 | % | 95-100 |
| | #8 (2.36mm) | 85.2 | % | 65-95 |
| | #16 (1.18mm) | 70.3 | % | 35-75 |
| | #30 (.6mm) | 50.2 | % | 20-55 |
| | #50 (.3mm) | 24.0 | % | 10-30 |
| | #100 (.15mm) | 7.3 | % | 0-10 |
| | #200 (75µm) | 1.8 | % | |
| | FM | 2.66 | | 2.6-3 |
| | Wash Loss (#200/75um) | 1.3 | % | 0-3 |
| | Total Moisture | 7.13 | % | |

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

Sample Date: **4/8/24**

Dates Test Represents: **4/9/2024** through **4/15/2024**

Concrete Grade: **S2M, 3500HP**

Contractor: _____

MDOT No.: _____



Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

| Agg. Class | Pit # | Source | Weight (SSD) | ft ³ | Specific Gravity | Contribution % |
|------------|--------|----------|-----------------|-----------------|------------------|----------------|
| GAA | 58-003 | Stonoco | 1500 | 8.94 | 2.69 | 48.4 |
| 26A | 58-003 | Stonoco | 400 | 2.38 | 2.69 | 12.9 |
| 2NS | 63-114 | Highland | 1200 | 7.26 | 2.65 | 38.7 |
| | | | Total Wt | 3100 | 18.58 | 100.0 |

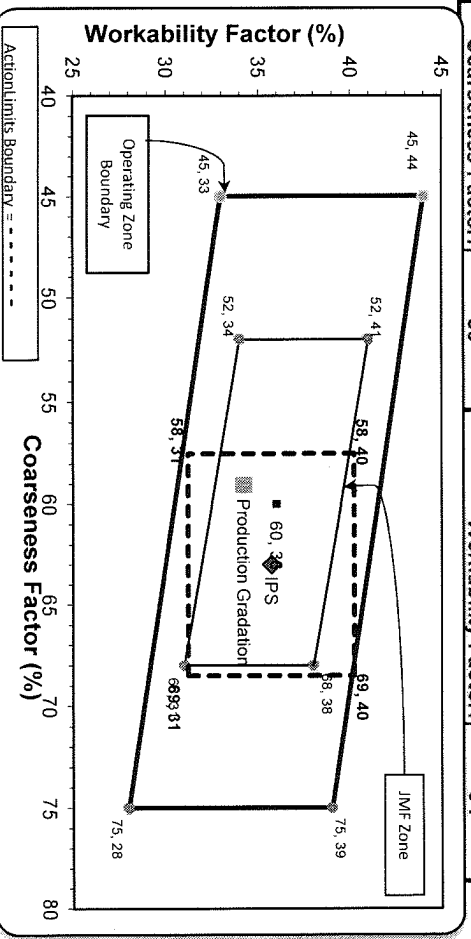
| Sieve | 6AA | 26A | 2NS | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|-------|-------|-------|----------------------|------------|-----------------------|
| 2" | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 |
| 1.5" | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 |
| 1" | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 |
| 3/4" | 89.0 | 100.0 | 100.0 | 94.7 | 5.3 | 5.3 |
| 1/2" | 50.5 | 99.4 | 100.0 | 76.0 | 18.7 | 24.0 |
| 3/8" | 22.2 | 90.7 | 100.0 | 61.2 | 14.8 | 38.8 |
| #4 | 3.1 | 14.4 | 99.0 | 41.7 | 19.5 | 58.3 |
| #8 | 1.3 | 5.7 | 84.9 | 34.2 | 7.5 | 65.8 |
| #16 | 1.1 | 3.5 | 67.0 | 26.9 | 7.3 | 73.1 |
| #30 | 1.0 | 2.8 | 47.5 | 19.2 | 7.7 | 80.8 |
| #50 | 1.0 | 2.5 | 19.8 | 8.5 | 10.8 | 91.5 |
| #100 | 0.9 | 2.4 | 4.1 | 2.3 | 6.1 | 97.7 |
| LBW | 0.8 | 2.2 | 0.8 | 1.0 | 1.4 | 99.0 |

<----- Verify this number is 100%

*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 4% for the 3/4" sieve when
 a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **59** Workability Factor: **34**



Initial Production Sample (IPS)

| Sieve | Coarseness Factor: | Workability Factor: | % Retained | Cumulative % Retained |
|-------|--------------------|---------------------|------------|-----------------------|
| 2" | 63 | 36 | 0.0 | 0.0 |
| 1.5" | | | 0.0 | 0.0 |
| 1" | | | 0.8 | 0.8 |
| 3/4" | | | 8.3 | 9.1 |
| 1/2" | | | 19.6 | 28.7 |
| 3/8" | | | 11.8 | 40.5 |
| #4 | | | 15.7 | 56.2 |
| #8 | | | 8.1 | 64.3 |
| #16 | | | 8.7 | 73.0 |
| #30 | | | 8.4 | 81.4 |
| #50 | | | 11.8 | 93.2 |
| #100 | | | 5.4 | 98.6 |
| LBW | | | 0.8 | 99.4 |

PREPARED BY:
SM, LLC Technical Service

Approved BY: _____



Plant S103-Superior Brighton

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 04/07/2024 - 04/13/2024

Report Date 04/13/2024

| Procedure | Sieve/Test | Result | Unit | 6AA LS |
|-----------|-----------------------|--------|------|---------|
| | 2" (50mm) | 100.0 | % | |
| | 1 1/2" (37.5mm) | 100.0 | % | 100-100 |
| | 1" (25mm) | 100.0 | % | 95-100 |
| | 3/4" (19mm) | 89.0 | % | |
| | 1/2" (12.5mm) | 50.5 | % | 30-60 |
| | 3/8" (9.5mm) | 22.2 | % | |
| | #4 (4.75mm) | 3.1 | % | 0-8 |
| | #8 (2.36mm) | 1.3 | % | |
| | #16 (1.18mm) | 1.1 | % | |
| | #30 (.6mm) | 1.0 | % | |
| | #50 (.3mm) | 1.0 | % | |
| | #100 (.15mm) | 0.9 | % | |
| | #200 (75µm) | 0.87 | % | |
| | Wash Loss (#200/75um) | 0.8 | % | 0-2 |
| | Total Moisture | 2.64 | % | |



Plant S103-Superior Brighton

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 04/07/2024 - 04/13/2024

Report Date 04/13/2024

| 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) | 99.4 | % | 95-100 |
| | 3/8" (9.5mm) | 90.7 | % | 60-95 |
| | #4 (4.75mm) | 14.4 | % | 5-30 |
| | #8 (2.36mm) | 5.7 | % | 0-12 |
| | #16 (1.18mm) | 3.5 | % | |
| | #30 (.6mm) | 2.8 | % | |
| | #50 (.3mm) | 2.5 | % | |
| | #100 (.15mm) | 2.4 | % | |
| | #200 (75µm) | 2.3 | % | |
| | Wash Loss (#200/75um) | 2.2 | % | 0-3 |
| | Total Moisture | 2.79 | % | |



Plant S103-Superior Brighton

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 04/07/2024 - 04/13/2024

Report Date 04/13/2024

| Procedure | Sieve/Test | Result | Unit | 2NS GR Spec |
|-----------|-----------------------|--------|------|-------------|
| | 3/8" (9.5mm) | 100.0 | % | 100-100 |
| | #4 (4.75mm) | 99.0 | % | 95-100 |
| | #8 (2.36mm) | 84.9 | % | 65-95 |
| | #16 (1.18mm) | 67.0 | % | 35-75 |
| | #30 (.6mm) | 47.5 | % | 20-55 |
| | #50 (.3mm) | 19.8 | % | 10-30 |
| | #100 (.15mm) | 4.1 | % | 0-10 |
| | #200 (75µm) | 1.0 | % | |
| | FM | 2.78 | | 2.6-3 |
| | Wash Loss (#200/75um) | 0.8 | % | 0-3 |
| | Total Moisture | 2.37 | % | |