

# Aggregate Optimization Chart

**PLANT #:** P-102

Sample Date: 10/21/24

Concrete Grade: S2M, 3500HP

Dates Test Represents: 10/22/2024 through 10/28/2024

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

| Agg. Class      | Pit #  | Source   | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|----------|--------------|-----------------|------------------|----------------|
| 6AA             | 58-003 | Stoneco  | 1600         | 9.53            | 2.69             | 51.6           |
| 26A             | 58-003 | Stoneco  | 300          | 1.79            | 2.69             | 9.7            |
| 2NS             | 63-114 | Highland | 1200         | 7.26            | 2.65             | 38.7           |
| <b>Total Wt</b> |        |          | <b>3100</b>  | <b>18.58</b>    |                  | <b>100.0</b>   |

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



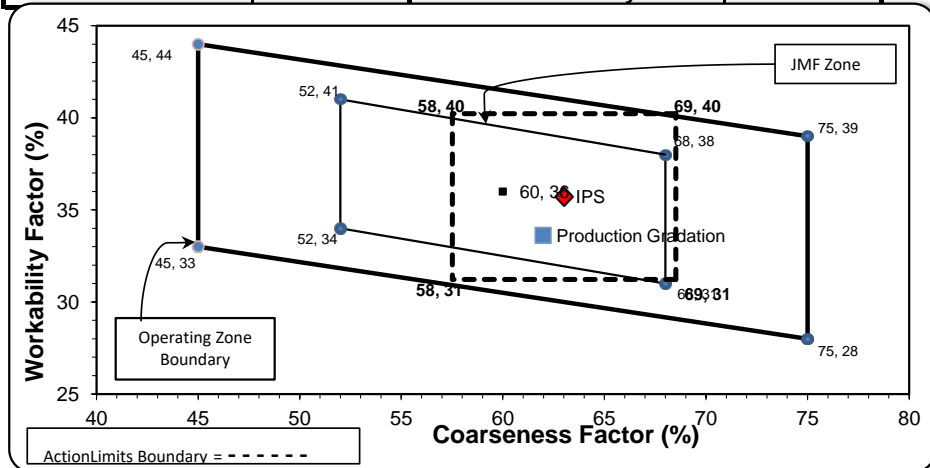
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

| 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"    | 99.9  | 100.0 | 100.0 | 99.9                 | 0.1        | 0.1                   |
| 3/4"  | 84.8  | 100.0 | 100.0 | 92.2                 | 7.8        | 7.8                   |
| 1/2"  | 46.1  | 99.5  | 100.0 | 72.1                 | 20.0       | 27.9                  |
| 3/8"  | 22.7  | 87.1  | 100.0 | 58.9                 | 13.3       | 41.1                  |
| #4    | 4.3   | 6.8   | 99.1  | 41.2                 | 17.6       | 58.8                  |
| #8    | 2.1   | 1.8   | 83.6  | 33.6                 | 7.6        | 66.4                  |
| #16   | 1.6   | 1.4   | 64.3  | 25.9                 | 7.8        | 74.1                  |
| #30   | 1.4   | 1.3   | 42.4  | 17.3                 | 8.6        | 82.7                  |
| #50   | 1.4   | 1.3   | 18.5  | 8.0                  | 9.3        | 92.0                  |
| #100  | 1.2   | 1.2   | 4.0   | 2.3                  | 5.7        | 97.7                  |
| LBW   | 1.0   | 1.1   | 0.8   | 0.9                  | 1.4        | 99.1                  |

\*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:** 62      **Workability Factor:** 34



Initial Production Sample (IPS)

**Coarseness Factor:** 63  
**Workability Factor:** 36

| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2"    | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 100.0                | 0.0        | 0.0                   |
| 1"    | 99.2                 | 0.8        | 0.8                   |
| 3/4"  | 90.9                 | 8.3        | 9.1                   |
| 1/2"  | 71.3                 | 19.6       | 28.7                  |
| 3/8"  | 59.5                 | 11.8       | 40.5                  |
| #4    | 43.8                 | 15.7       | 56.2                  |
| #8    | 35.7                 | 8.1        | 64.3                  |
| #16   | 27.0                 | 8.7        | 73.0                  |
| #30   | 18.6                 | 8.4        | 81.4                  |
| #50   | 6.8                  | 11.8       | 93.2                  |
| #100  | 1.4                  | 5.4        | 98.6                  |
| LBW   | 0.6                  | 0.8        | 99.4                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

**PLANT #:** **P-103**

Sample Date: 10/21/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/22/2024 through 10/28/2024

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

| Agg. Class      | Pit #  | Source   | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|----------|--------------|-----------------|------------------|----------------|
| 6AA             | 58-003 | Stoneco  | 1600         | 9.53            | 2.69             | 51.6           |
| 26A             | 58-003 | Stoneco  | 300          | 1.79            | 2.69             | 9.7            |
| 2NS             | 63-114 | Highland | 1200         | 7.26            | 2.65             | 38.7           |
| <b>Total Wt</b> |        |          | <b>3100</b>  | <b>18.58</b>    |                  | <b>100.0</b>   |

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



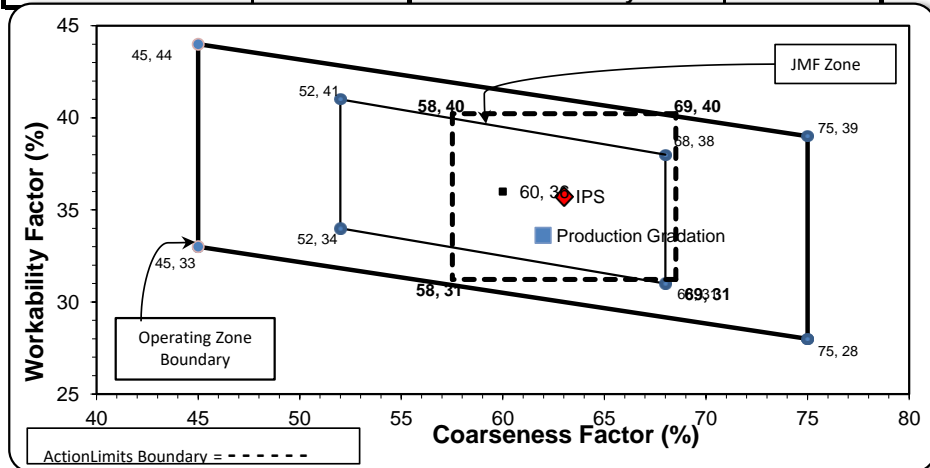
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

| 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"    | 99.9  | 100.0 | 100.0 | 99.9                 | 0.1        | 0.1                   |
| 3/4"  | 84.8  | 100.0 | 100.0 | 92.2                 | 7.8        | 7.8                   |
| 1/2"  | 46.1  | 99.5  | 100.0 | 72.1                 | 20.0       | 27.9                  |
| 3/8"  | 22.7  | 87.1  | 100.0 | 58.9                 | 13.3       | 41.1                  |
| #4    | 4.3   | 6.8   | 99.1  | 41.2                 | 17.6       | 58.8                  |
| #8    | 2.1   | 1.8   | 83.6  | 33.6                 | 7.6        | 66.4                  |
| #16   | 1.6   | 1.4   | 64.3  | 25.9                 | 7.8        | 74.1                  |
| #30   | 1.4   | 1.3   | 42.4  | 17.3                 | 8.6        | 82.7                  |
| #50   | 1.4   | 1.3   | 18.5  | 8.0                  | 9.3        | 92.0                  |
| #100  | 1.2   | 1.2   | 4.0   | 2.3                  | 5.7        | 97.7                  |
| LBW   | 1.0   | 1.1   | 0.8   | 0.9                  | 1.4        | 99.1                  |

\*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:** 62      **Workability Factor:** 34



Initial Production Sample (IPS)

**Coarseness Factor:** 63  
**Workability Factor:** 36

| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2"    | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 100.0                | 0.0        | 0.0                   |
| 1"    | 99.2                 | 0.8        | 0.8                   |
| 3/4"  | 90.9                 | 8.3        | 9.1                   |
| 1/2"  | 71.3                 | 19.6       | 28.7                  |
| 3/8"  | 59.5                 | 11.8       | 40.5                  |
| #4    | 43.8                 | 15.7       | 56.2                  |
| #8    | 35.7                 | 8.1        | 64.3                  |
| #16   | 27.0                 | 8.7        | 73.0                  |
| #30   | 18.6                 | 8.4        | 81.4                  |
| #50   | 6.8                  | 11.8       | 93.2                  |
| #100  | 1.4                  | 5.4        | 98.6                  |
| LBW   | 0.6                  | 0.8        | 99.4                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved BY:

# Aggregate Optimization Chart

**PLANT #:** 12

Sample Date: 10/21/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/22/2024 through 10/28/2024

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

| Agg. Class      | Pit #  | Source       | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|
| 6AA             | 71-47  | Presque Isle | 1470         | 8.99            | 2.62             | 48.2           |
| 26A             | 71-47  | Presque Isle | 350          | 2.14            | 2.62             | 11.5           |
| 2NS             | 63-115 | Ray Rd       | 1230         | 7.44            | 2.65             | 40.3           |
| <b>Total Wt</b> |        |              | <b>3050</b>  | <b>18.57</b>    |                  | <b>100.0</b>   |

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



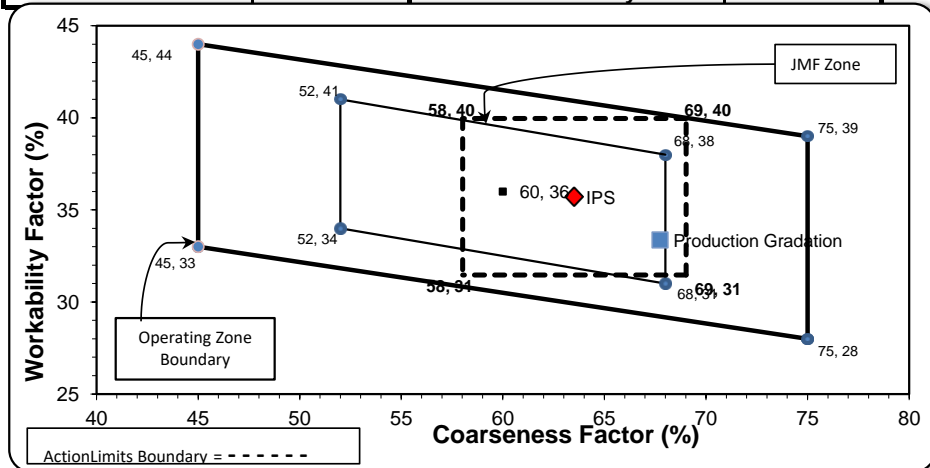
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

| 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"    | 97.8  | 100.0 | 100.0 | 98.9                 | 1.1        | 1.1                   |
| 3/4"  | 76.9  | 100.0 | 100.0 | 88.9                 | 10.1       | 11.1                  |
| 1/2"  | 31.1  | 94.9  | 100.0 | 66.2                 | 22.7       | 33.8                  |
| 3/8"  | 10.4  | 83.0  | 100.0 | 54.9                 | 11.3       | 45.1                  |
| #4    | 1.3   | 15.8  | 96.2  | 41.2                 | 13.6       | 58.8                  |
| #8    | 1.2   | 3.9   | 80.2  | 33.4                 | 7.9        | 66.6                  |
| #16   | 1.1   | 2.5   | 64.1  | 26.7                 | 6.7        | 73.3                  |
| #30   | 1.1   | 2.1   | 49.4  | 20.7                 | 6.0        | 79.3                  |
| #50   | 1.0   | 1.9   | 26.9  | 11.5                 | 9.1        | 88.5                  |
| #100  | 1.0   | 1.7   | 6.7   | 3.4                  | 8.2        | 96.6                  |
| LBW   | 0.7   | 1.5   | 0.9   | 0.9                  | 2.5        | 99.1                  |

\*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:** 68      **Workability Factor:** 33



Intial Production Sample (IPS)

**Coarseness Factor:** 64  
**Workability Factor:** 36

| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2"    | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 100.0                | 0.0        | 0.0                   |
| 1"    | 99.2                 | 0.8        | 0.8                   |
| 3/4"  | 90.9                 | 8.3        | 9.1                   |
| 1/2"  | 71.3                 | 19.6       | 28.7                  |
| 3/8"  | 59.2                 | 12.1       | 40.8                  |
| #4    | 41.5                 | 17.7       | 58.5                  |
| #8    | 35.7                 | 5.8        | 64.3                  |
| #16   | 27.9                 | 7.9        | 72.1                  |
| #30   | 18.3                 | 9.5        | 81.7                  |
| #50   | 7.3                  | 11.0       | 92.7                  |
| #100  | 2.0                  | 5.3        | 98.0                  |
| LBW   | 0.9                  | 1.1        | 99.1                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

**PLANT #:** 20

Sample Date: 10/21/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/22/2024 through 10/28/2024

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

| Agg. Class      | Pit # | Source       | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|-------|--------------|--------------|-----------------|------------------|----------------|
| 6AA             | 71-47 | Presque Isle | 1400         | 8.56            | 2.62             | 45.9           |
| 26A             | 71-47 | Presque Isle | 400          | 2.45            | 2.62             | 13.1           |
| 2NS             | 63-92 | Grange Hall  | 1250         | 7.56            | 2.65             | 41.0           |
| <b>Total Wt</b> |       |              | <b>3050</b>  | <b>18.57</b>    |                  | <b>100.0</b>   |

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



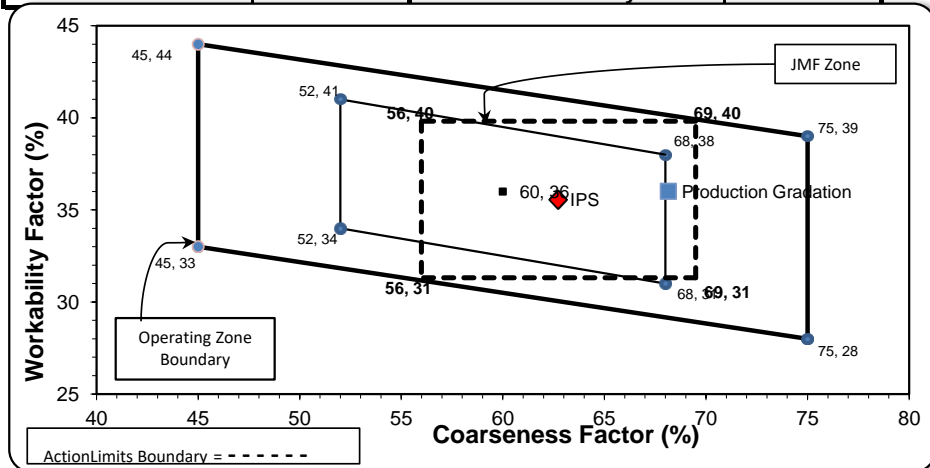
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

| 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"    | 97.6  | 100.0 | 100.0 | 98.9                 | 1.1        | 1.1                   |
| 3/4"  | 78.4  | 99.2  | 100.0 | 90.0                 | 8.9        | 10.0                  |
| 1/2"  | 32.6  | 77.9  | 100.0 | 66.2                 | 23.8       | 33.8                  |
| 3/8"  | 17.6  | 55.9  | 100.0 | 56.4                 | 9.8        | 43.6                  |
| #4    | 4.0   | 14.7  | 97.8  | 43.8                 | 12.5       | 56.2                  |
| #8    | 2.4   | 5.9   | 83.3  | 36.0                 | 7.8        | 64.0                  |
| #16   | 2.1   | 4.1   | 67.1  | 29.0                 | 7.0        | 71.0                  |
| #30   | 2.0   | 3.5   | 47.5  | 20.8                 | 8.2        | 79.2                  |
| #50   | 2.0   | 3.3   | 19.4  | 9.3                  | 11.5       | 90.7                  |
| #100  | 1.9   | 3.0   | 2.5   | 2.3                  | 7.0        | 97.7                  |
| LBW   | 1.5   | 2.5   | 0.4   | 1.2                  | 1.1        | 98.8                  |

\*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:** 68      **Workability Factor:** 36



Initial Production Sample (IPS)

**Coarseness Factor:** 63  
**Workability Factor:** 36

| 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"  | 93.3                 | 6.7        | 6.7                   |
| 1/2"  | 70.6                 | 22.6       | 29.4                  |
| 3/8"  | 59.6                 | 11.0       | 40.4                  |
| #4    | 43.9                 | 15.7       | 56.1                  |
| #8    | 35.6                 | 8.4        | 64.4                  |
| #16   | 28.4                 | 7.2        | 71.6                  |
| #30   | 19.4                 | 9.0        | 80.6                  |
| #50   | 7.5                  | 11.9       | 92.5                  |
| #100  | 0.9                  | 6.6        | 99.1                  |
| LBW   | 0.9                  | 0.1        | 99.1                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

**PLANT #:** p11

Sample Date: 10/21/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/22/2024 through 10/28/2024

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

| Agg. Class      | Pit #  | Source       | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|
| 6AA             | 71-47  | Presque Isle | 1420         | 8.69            | 2.62             | 46.6           |
| 26A             | 71-47  | Presque Isle | 400          | 2.45            | 2.62             | 13.1           |
| 2NS             | 63-115 | Ray Rd       | 1230         | 7.44            | 2.65             | 40.3           |
| <b>Total Wt</b> |        |              | <b>3050</b>  | <b>18.57</b>    |                  | <b>100.0</b>   |

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



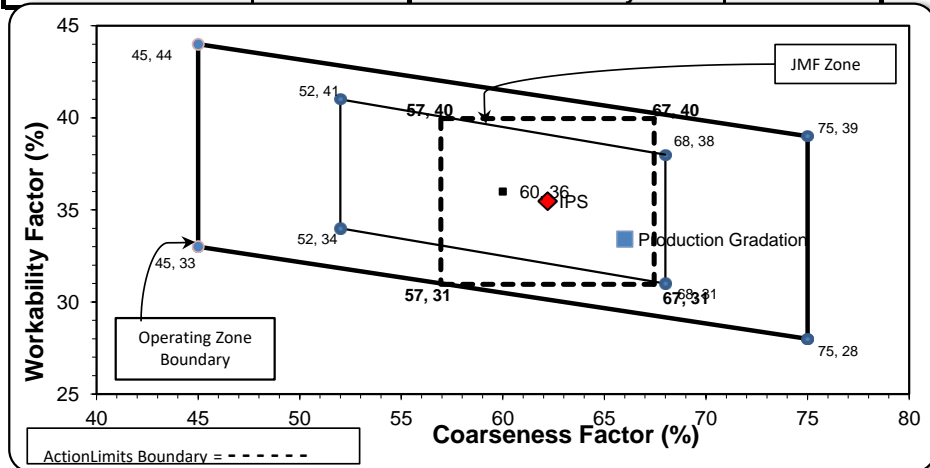
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

| 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"    | 97.8  | 100.0 | 100.0 | 99.0                 | 1.0        | 1.0                   |
| 3/4"  | 76.9  | 100.0 | 100.0 | 89.2                 | 9.7        | 10.8                  |
| 1/2"  | 31.1  | 94.9  | 100.0 | 67.3                 | 22.0       | 32.7                  |
| 3/8"  | 10.4  | 83.0  | 100.0 | 56.1                 | 11.2       | 43.9                  |
| #4    | 1.3   | 15.8  | 96.2  | 41.5                 | 14.6       | 58.5                  |
| #8    | 1.2   | 3.9   | 80.2  | 33.4                 | 8.1        | 66.6                  |
| #16   | 1.1   | 2.5   | 64.1  | 26.7                 | 6.7        | 73.3                  |
| #30   | 1.1   | 2.1   | 49.4  | 20.7                 | 6.0        | 79.3                  |
| #50   | 1.0   | 1.9   | 26.9  | 11.6                 | 9.1        | 88.4                  |
| #100  | 1.0   | 1.7   | 6.7   | 3.4                  | 8.2        | 96.6                  |
| LBW   | 0.7   | 1.5   | 0.9   | 0.9                  | 2.5        | 99.1                  |

\*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:** 66      **Workability Factor:** 33



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:

# Aggregate Optimization Chart

**PLANT #:** **P-38**

Sample Date: 10/21/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/22/2024 through 10/28/2024

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

| Agg. Class      | Pit #  | Source        | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|---------------|--------------|-----------------|------------------|----------------|
| 6AA             | 58-003 | Stoneco       | 1600         | 9.53            | 2.69             | 51.6           |
| 26A             | 58-003 | Stoneco       | 300          | 1.79            | 2.69             | 9.7            |
| 2NS             | 81-019 | Pleasant Lake | 1200         | 7.26            | 2.65             | 38.7           |
| <b>Total Wt</b> |        |               | <b>3100</b>  | <b>18.58</b>    |                  | <b>100.0</b>   |

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



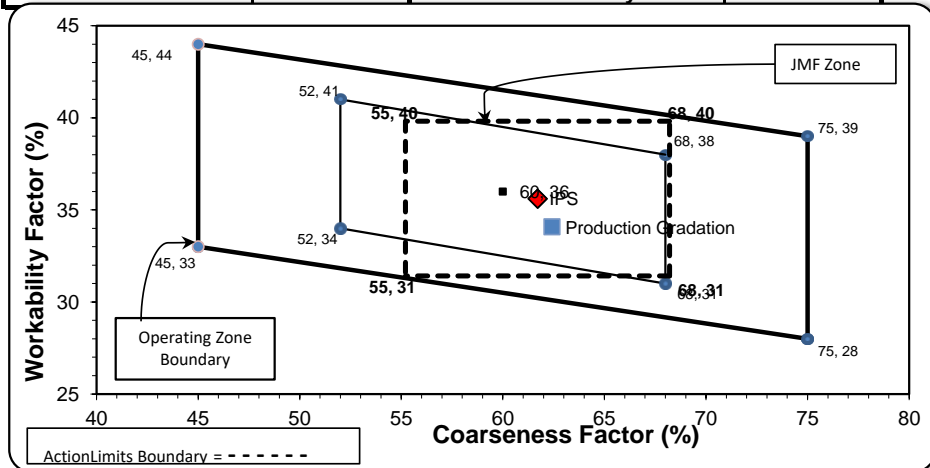
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

| 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"    | 99.9  | 100.0 | 100.0 | 99.9                 | 0.1        | 0.1                   |
| 3/4"  | 84.8  | 100.0 | 100.0 | 92.2                 | 7.8        | 7.8                   |
| 1/2"  | 46.1  | 99.5  | 100.0 | 72.1                 | 20.0       | 27.9                  |
| 3/8"  | 22.7  | 87.1  | 100.0 | 58.9                 | 13.3       | 41.1                  |
| #4    | 4.3   | 6.8   | 97.7  | 40.7                 | 18.2       | 59.3                  |
| #8    | 2.1   | 1.8   | 84.8  | 34.1                 | 6.6        | 65.9                  |
| #16   | 1.6   | 1.4   | 66.4  | 26.7                 | 7.4        | 73.3                  |
| #30   | 1.4   | 1.3   | 45.8  | 18.6                 | 8.1        | 81.4                  |
| #50   | 1.4   | 1.3   | 22.7  | 9.6                  | 8.9        | 90.4                  |
| #100  | 1.2   | 1.2   | 5.1   | 2.7                  | 6.9        | 97.3                  |
| LBW   | 1.0   | 1.1   | 0.7   | 0.9                  | 1.8        | 99.1                  |

\*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:** 62      **Workability Factor:** 34



Initial Production Sample (IPS)

**Coarseness Factor:** 62  
**Workability Factor:** 36

| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2"    | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 100.0                | 0.0        | 0.0                   |
| 1"    | 99.2                 | 0.8        | 0.8                   |
| 3/4"  | 91.1                 | 8.1        | 8.9                   |
| 1/2"  | 72.0                 | 19.1       | 28.0                  |
| 3/8"  | 60.3                 | 11.7       | 39.7                  |
| #4    | 43.4                 | 16.9       | 56.6                  |
| #8    | 35.6                 | 7.8        | 64.4                  |
| #16   | 28.4                 | 7.2        | 71.6                  |
| #30   | 21.8                 | 6.7        | 78.2                  |
| #50   | 9.1                  | 12.6       | 90.9                  |
| #100  | 1.7                  | 7.4        | 98.3                  |
| LBW   | 1.1                  | 0.6        | 98.9                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

**PLANT #:** **P-O2**

Sample Date: 10/21/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/22/2024 through 10/28/2024

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

| Agg. Class      | Pit #  | Source       | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|
| 6AA             | 71-47  | Presque Isle | 1470         | 8.99            | 2.62             | 48.2           |
| 26A             | 71-47  | Presque Isle | 350          | 2.14            | 2.62             | 11.5           |
| 2NS             | 63-115 | Ray Rd       | 1230         | 7.44            | 2.65             | 40.3           |
| <b>Total Wt</b> |        |              | <b>3050</b>  | <b>18.57</b>    |                  | <b>100.0</b>   |

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



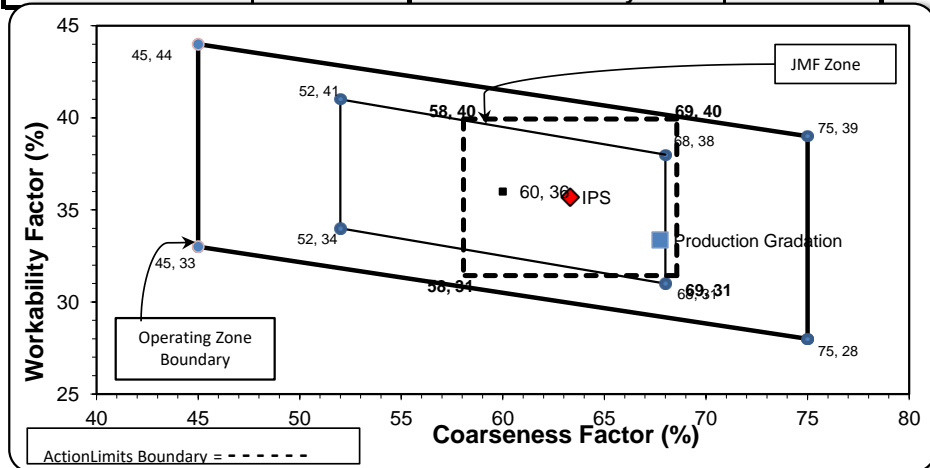
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

| 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"    | 97.8  | 100.0 | 100.0 | 98.9                 | 1.1        | 1.1                   |
| 3/4"  | 76.9  | 100.0 | 100.0 | 88.9                 | 10.1       | 11.1                  |
| 1/2"  | 31.1  | 94.9  | 100.0 | 66.2                 | 22.7       | 33.8                  |
| 3/8"  | 10.4  | 83.0  | 100.0 | 54.9                 | 11.3       | 45.1                  |
| #4    | 1.3   | 15.8  | 96.2  | 41.2                 | 13.6       | 58.8                  |
| #8    | 1.2   | 3.9   | 80.2  | 33.4                 | 7.9        | 66.6                  |
| #16   | 1.1   | 2.5   | 64.1  | 26.7                 | 6.7        | 73.3                  |
| #30   | 1.1   | 2.1   | 49.4  | 20.7                 | 6.0        | 79.3                  |
| #50   | 1.0   | 1.9   | 26.9  | 11.5                 | 9.1        | 88.5                  |
| #100  | 1.0   | 1.7   | 6.7   | 3.4                  | 8.2        | 96.6                  |
| LBW   | 0.7   | 1.5   | 0.9   | 0.9                  | 2.5        | 99.1                  |

\*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: 68**      **Workability Factor: 33**



Initial Production Sample (IPS)

**Coarseness Factor: 63**  
**Workability Factor: 36**

| 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"  | 95.6                 | 4.4        | 4.4                   |
| 1/2"  | 73.1                 | 22.6       | 26.9                  |
| 3/8"  | 59.3                 | 13.8       | 40.7                  |
| #4    | 42.8                 | 16.5       | 57.2                  |
| #8    | 35.7                 | 7.1        | 64.3                  |
| #16   | 28.9                 | 6.8        | 71.1                  |
| #30   | 20.7                 | 8.2        | 79.3                  |
| #50   | 9.9                  | 10.8       | 90.1                  |
| #100  | 2.1                  | 7.8        | 97.9                  |
| LBW   | 0.9                  | 1.2        | 99.1                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By: