

# Aggregate Optimization Chart

## Production Gradation Report

**PLANT #:** **P-102**

Sample Date: 11/10/25

Concrete Grade: **DM, 4500HP**

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

Dates Test Represents: 11/11/2025 through 11/17/2025

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

| Agg. Class      | Pit #  | Source   | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|----------|--------------|-----------------|------------------|----------------|
| 6AA             | 58-003 | Stoneco  | 1600         | 9.53            | 2.69             | 54.2           |
| 26A             | 58-003 | Stoneco  | 200          | 1.19            | 2.69             | 6.8            |
| 2NS             | 63-114 | Highland | 1150         | 6.95            | 2.65             | 39.0           |
| <b>Total Wt</b> |        |          | <b>2950</b>  | <b>17.68</b>    |                  | <b>100.0</b>   |

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

| 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"    | 99.7  | 100.0 | 100.0 | 99.8                 | 0.2        | 0.2                   |
| 3/4"  | 84.7  | 100.0 | 100.0 | 91.7                 | 8.1        | 8.3                   |
| 1/2"  | 41.4  | 99.7  | 100.0 | 68.2                 | 23.5       | 31.8                  |
| 3/8"  | 24.4  | 80.6  | 100.0 | 57.7                 | 10.5       | 42.3                  |
| #4    | 4.2   | 5.8   | 99.0  | 41.3                 | 16.4       | 58.7                  |
| #8    | 1.9   | 2.0   | 84.2  | 34.0                 | 7.3        | 66.0                  |
| #16   | 1.7   | 1.6   | 65.0  | 26.4                 | 7.6        | 73.6                  |
| #30   | 1.6   | 1.4   | 43.3  | 17.8                 | 8.5        | 82.2                  |
| #50   | 1.4   | 1.2   | 19.7  | 8.5                  | 9.3        | 91.5                  |
| #100  | 1.3   | 1.0   | 3.6   | 2.2                  | 6.3        | 97.8                  |
| LBW   | 1.1   | 0.8   | 0.6   | 0.9                  | 1.3        | 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.



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Farmington Hills, MI 48336

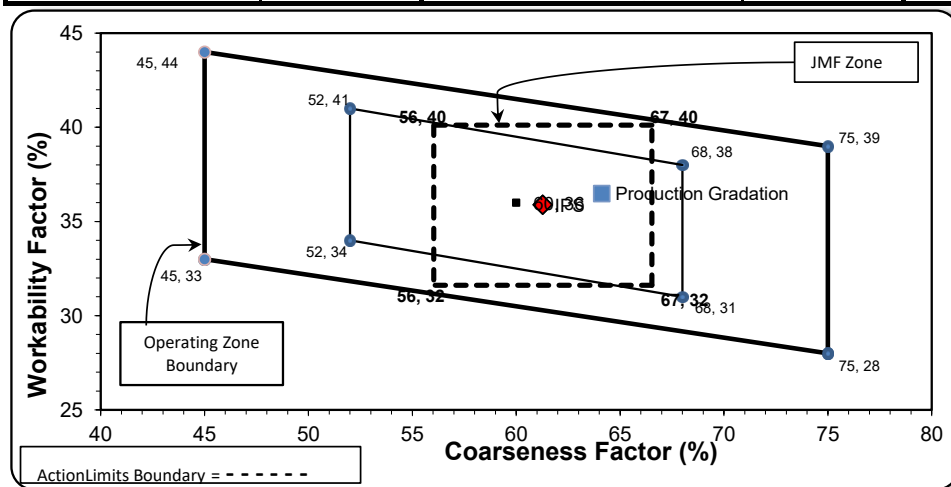
Production Gradation ☐ Batch Plant Gradations ☒ Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

|                           |           |                            |           |             |
|---------------------------|-----------|----------------------------|-----------|-------------|
| <b>Coarseness Factor:</b> | <b>64</b> | <b>Workability Factor:</b> | <b>34</b> | <b>36.5</b> |
|---------------------------|-----------|----------------------------|-----------|-------------|

|                           |           |
|---------------------------|-----------|
| <b>Coarseness Factor:</b> | <b>61</b> |
|---------------------------|-----------|

|                            |           |
|----------------------------|-----------|
| <b>Workability Factor:</b> | <b>36</b> |
|----------------------------|-----------|



| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2"    | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 100.0                | 0.0        | 0.0                   |
| 1"    | 99.3                 | 0.7        | 0.7                   |
| 3/4"  | 89.2                 | 10.1       | 10.8                  |
| 1/2"  | 70.7                 | 18.5       | 29.3                  |
| 3/8"  | 60.7                 | 10.0       | 39.3                  |
| #4    | 44.4                 | 16.3       | 55.6                  |
| #8    | 35.9                 | 8.5        | 64.1                  |
| #16   | 27.3                 | 8.6        | 72.7                  |
| #30   | 19.1                 | 8.2        | 80.9                  |
| #50   | 7.4                  | 11.7       | 92.6                  |
| #100  | 1.9                  | 5.6        | 98.1                  |
| LBW   | 0.7                  | 1.2        | 99.3                  |

PREPARED BY:  
SM, LLC Technical Service

Approved By:

*[Signature]*

# Aggregate Optimization Chart

## Production Gradation Report

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

Sample Date: 11/10/25

Concrete Grade: **DM, 4500HP**

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

Dates Test Represents: 11/11/2025 through 11/17/2025

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

| Agg. Class      | Pit #  | Source   | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|----------|--------------|-----------------|------------------|----------------|
| 6AA             | 58-003 | Stoneco  | 1600         | 9.53            | 2.69             | 54.2           |
| 26A             | 58-003 | Stoneco  | 200          | 1.19            | 2.69             | 6.8            |
| 2NS             | 63-114 | Highland | 1150         | 6.95            | 2.65             | 39.0           |
| <b>Total Wt</b> |        |          | <b>2950</b>  | <b>17.68</b>    |                  | <b>100.0</b>   |

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

| 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"    | 99.7  | 100.0 | 100.0 | 99.8                 | 0.2        | 0.2                   |
| 3/4"  | 84.7  | 100.0 | 100.0 | 91.7                 | 8.1        | 8.3                   |
| 1/2"  | 41.4  | 99.7  | 100.0 | 68.2                 | 23.5       | 31.8                  |
| 3/8"  | 24.4  | 80.6  | 100.0 | 57.7                 | 10.5       | 42.3                  |
| #4    | 4.2   | 5.8   | 99.0  | 41.3                 | 16.4       | 58.7                  |
| #8    | 1.9   | 2.0   | 84.2  | 34.0                 | 7.3        | 66.0                  |
| #16   | 1.7   | 1.6   | 65.0  | 26.4                 | 7.6        | 73.6                  |
| #30   | 1.6   | 1.4   | 43.3  | 17.8                 | 8.5        | 82.2                  |
| #50   | 1.4   | 1.2   | 19.7  | 8.5                  | 9.3        | 91.5                  |
| #100  | 1.3   | 1.0   | 3.6   | 2.2                  | 6.3        | 97.8                  |
| LBW   | 1.1   | 0.8   | 0.6   | 0.9                  | 1.3        | 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.



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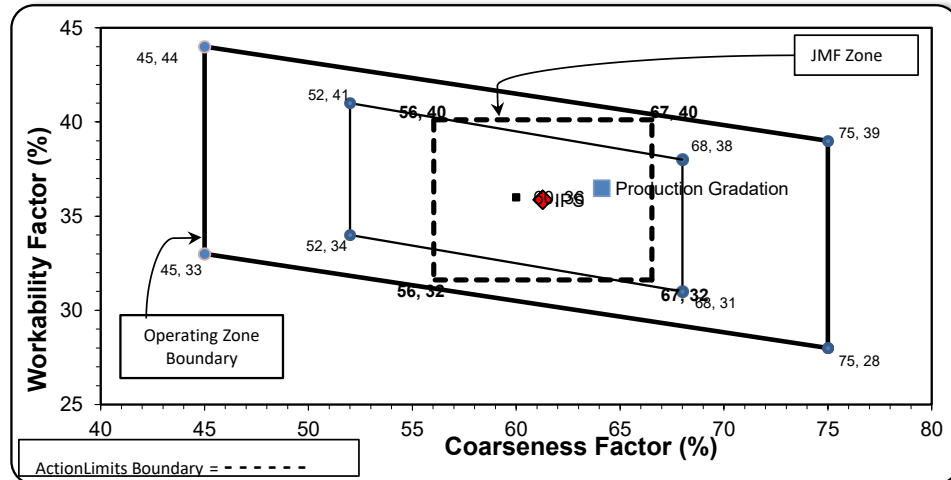
Production Gradation ☐ Batch Plant Gradations ☒ Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

|                           |           |                            |           |             |
|---------------------------|-----------|----------------------------|-----------|-------------|
| <b>Coarseness Factor:</b> | <b>64</b> | <b>Workability Factor:</b> | <b>34</b> | <b>36.5</b> |
|---------------------------|-----------|----------------------------|-----------|-------------|

|                           |           |
|---------------------------|-----------|
| <b>Coarseness Factor:</b> | <b>61</b> |
|---------------------------|-----------|

|                            |           |
|----------------------------|-----------|
| <b>Workability Factor:</b> | <b>36</b> |
|----------------------------|-----------|



| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2"    | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 100.0                | 0.0        | 0.0                   |
| 1"    | 99.3                 | 0.7        | 0.7                   |
| 3/4"  | 89.2                 | 10.1       | 10.8                  |
| 1/2"  | 70.7                 | 18.5       | 29.3                  |
| 3/8"  | 60.7                 | 10.0       | 39.3                  |
| #4    | 44.4                 | 16.3       | 55.6                  |
| #8    | 35.9                 | 8.5        | 64.1                  |
| #16   | 27.3                 | 8.6        | 72.7                  |
| #30   | 19.1                 | 8.2        | 80.9                  |
| #50   | 7.4                  | 11.7       | 92.6                  |
| #100  | 1.9                  | 5.6        | 98.1                  |
| LBW   | 0.7                  | 1.2        | 99.3                  |

PREPARED BY:  
SM, LLC Technical Service

Approved BY:

*[Signature]*

# Aggregate Optimization Chart

## Production Gradation Report

**PLANT #:** 12

Sample Date: 11/10/25

Dates Test Represents: 11/11/2025 through 11/17/2025

Concrete Grade: **DM, 4500HP**

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

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

| Agg. Class      | Pit #  | Source       | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|
| 6AA             | 71-47  | Presque Isle | 1455         | 8.90            | 2.62             | 50.1           |
| 26A             | 71-47  | Presque Isle | 300          | 1.83            | 2.62             | 10.3           |
| 2NS             | 63-115 | Ray Rd       | 1150         | 6.95            | 2.65             | 39.6           |
| <b>Total Wt</b> |        |              | <b>2905</b>  | <b>17.69</b>    |                  | <b>100.0</b>   |

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

| 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"    | 97.4  | 100.0 | 100.0 | 98.7                 | 1.3        | 1.3                   |
| 3/4"  | 79.0  | 100.0 | 100.0 | 89.5                 | 9.2        | 10.5                  |
| 1/2"  | 37.9  | 98.8  | 100.0 | 68.8                 | 20.7       | 31.2                  |
| 3/8"  | 20.3  | 86.8  | 100.0 | 58.7                 | 10.1       | 41.3                  |
| #4    | 3.4   | 17.7  | 97.5  | 42.1                 | 16.6       | 57.9                  |
| #8    | 2.0   | 4.7   | 83.1  | 34.4                 | 7.7        | 65.6                  |
| #16   | 1.8   | 2.5   | 62.7  | 26.0                 | 8.4        | 74.0                  |
| #30   | 1.6   | 2.1   | 43.6  | 18.3                 | 7.7        | 81.7                  |
| #50   | 1.6   | 2.0   | 20.0  | 8.9                  | 9.4        | 91.1                  |
| #100  | 1.5   | 1.9   | 4.2   | 2.6                  | 6.3        | 97.4                  |
| LBW   | 1.2   | 1.8   | 0.9   | 1.1                  | 1.5        | 98.9                  |

\*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.

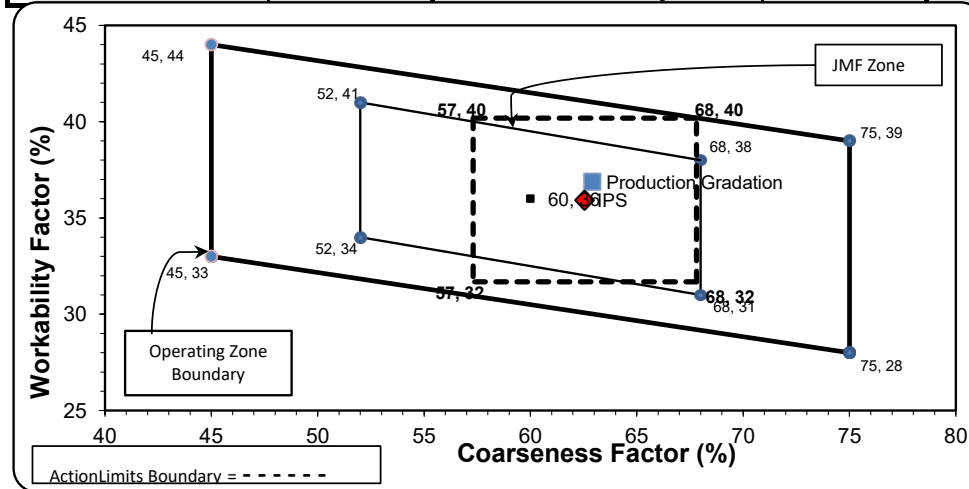


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Adjusted WF Initial Production Sample (IPS)

|                           |           |                            |           |                    |             |
|---------------------------|-----------|----------------------------|-----------|--------------------|-------------|
| <b>Coarseness Factor:</b> | <b>63</b> | <b>Workability Factor:</b> | <b>34</b> | <b>Adjusted WF</b> | <b>36.9</b> |
|---------------------------|-----------|----------------------------|-----------|--------------------|-------------|



|                     |                         |               |                          |
|---------------------|-------------------------|---------------|--------------------------|
| Coarseness Factor:  |                         | 63            |                          |
| Workability Factor: |                         | 36            |                          |
| Sieve               | Cumulative<br>% Passing | %<br>Retained | Cumulative<br>% Retained |
| 2"                  | 100.0                   | 0.0           | 0.0                      |
| 1.5"                | 100.0                   | 0.0           | 0.0                      |
| 1"                  | 99.3                    | 0.7           | 0.7                      |
| 3/4"                | 89.0                    | 10.3          | 11.0                     |
| 1/2"                | 70.3                    | 18.7          | 29.7                     |
| 3/8"                | 59.9                    | 10.4          | 40.1                     |
| #4                  | 41.9                    | 18.0          | 58.1                     |
| #8                  | 35.9                    | 6.0           | 64.1                     |
| #16                 | 27.8                    | 8.2           | 72.2                     |
| #30                 | 18.9                    | 8.8           | 81.1                     |
| #50                 | 6.3                     | 12.6          | 93.7                     |
| #100                | 1.7                     | 4.6           | 98.3                     |
| LBW                 | 1.0                     | 0.7           | 99.0                     |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

## Production Gradation Report

**PLANT #:** **p11**

Sample Date: 11/10/25

Concrete Grade: **DM, 4500HP**

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

Dates Test Represents: 11/11/2025 through 11/17/2025

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

| Agg. Class      | Pit #  | Source       | Weight (SSD) | ft³          | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|--------------|------------------|----------------|
| 6AA             | 71-47  | Presque Isle | 1455         | 8.90         | 2.62             | 50.1           |
| 26A             | 71-47  | Presque Isle | 300          | 1.83         | 2.62             | 10.3           |
| 2NS             | 63-115 | Ray Rd       | 1150         | 6.95         | 2.65             | 39.6           |
| <b>Total Wt</b> |        |              | <b>2905</b>  | <b>17.69</b> |                  | <b>100.0</b>   |

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

| 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"    | 97.4  | 100.0 | 100.0 | 98.7                 | 1.3        | 1.3                   |
| 3/4"  | 79.0  | 100.0 | 100.0 | 89.5                 | 9.2        | 10.5                  |
| 1/2"  | 37.9  | 98.8  | 100.0 | 68.8                 | 20.7       | 31.2                  |
| 3/8"  | 20.3  | 86.8  | 100.0 | 58.7                 | 10.1       | 41.3                  |
| #4    | 3.4   | 17.7  | 97.5  | 42.1                 | 16.6       | 57.9                  |
| #8    | 2.0   | 4.7   | 83.1  | 34.4                 | 7.7        | 65.6                  |
| #16   | 1.8   | 2.5   | 62.7  | 26.0                 | 8.4        | 74.0                  |
| #30   | 1.6   | 2.1   | 43.6  | 18.3                 | 7.7        | 81.7                  |
| #50   | 1.6   | 2.0   | 20.0  | 8.9                  | 9.4        | 91.1                  |
| #100  | 1.5   | 1.9   | 4.2   | 2.6                  | 6.3        | 97.4                  |
| LBW   | 1.2   | 1.8   | 0.9   | 1.1                  | 1.5        | 98.9                  |

\*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.

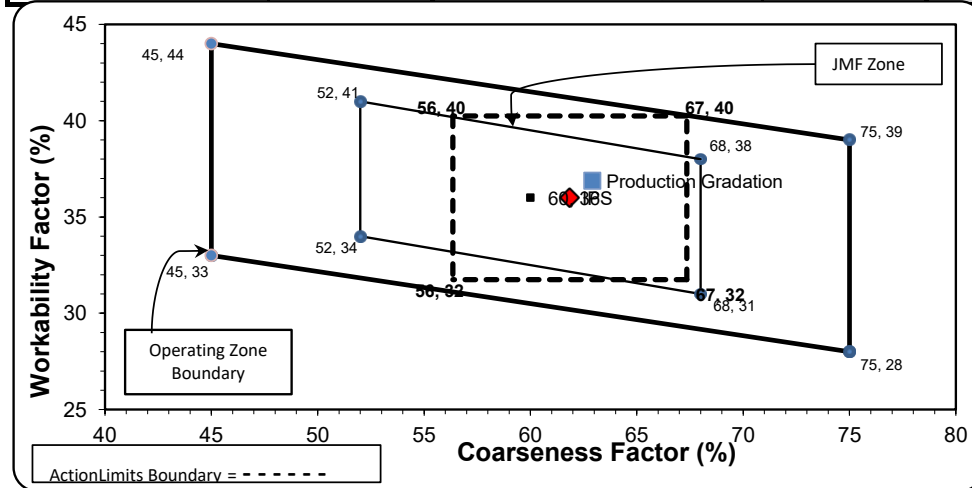


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Adjusted WF Initial Production Sample (IPS)

|                           |           |                            |           |                    |             |
|---------------------------|-----------|----------------------------|-----------|--------------------|-------------|
| <b>Coarseness Factor:</b> | <b>63</b> | <b>Workability Factor:</b> | <b>34</b> | <b>Adjusted WF</b> | <b>36.9</b> |
|---------------------------|-----------|----------------------------|-----------|--------------------|-------------|



|                     |                      |            |                       |
|---------------------|----------------------|------------|-----------------------|
| 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"                  | 100.0                | 0.0        | 0.0                   |
| 3/4"                | 95.0                 | 5.0        | 5.0                   |
| 1/2"                | 72.3                 | 22.8       | 27.7                  |
| 3/8"                | 60.4                 | 11.8       | 39.6                  |
| #4                  | 42.6                 | 17.8       | 57.4                  |
| #8                  | 36.0                 | 6.6        | 64.0                  |
| #16                 | 29.5                 | 6.5        | 70.5                  |
| #30                 | 20.3                 | 9.2        | 79.7                  |
| #50                 | 9.5                  | 10.8       | 90.5                  |
| #100                | 3.4                  | 6.1        | 96.6                  |
| LBW                 | 1.3                  | 2.1        | 98.7                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

*[Signature]*

# Aggregate Optimization Chart

## Production Gradation Report

**PLANT #:** **P-02**

Sample Date: 11/10/25

Concrete Grade: **DM, 4500HP**

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

Dates Test Represents: 11/11/2025 through 11/17/2025

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

| Agg. Class      | Pit #  | Source       | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|
| 6AA             | 71-47  | Presque Isle | 1455         | 8.90            | 2.62             | 50.1           |
| 26A             | 71-47  | Presque Isle | 300          | 1.83            | 2.62             | 10.3           |
| 2NS             | 63-115 | Ray Rd       | 1150         | 6.95            | 2.65             | 39.6           |
| <b>Total Wt</b> |        |              | <b>2905</b>  | <b>17.69</b>    |                  | <b>100.0</b>   |

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

| 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"    | 97.4  | 100.0 | 100.0 | 98.7                 | 1.3        | 1.3                   |
| 3/4"  | 79.0  | 100.0 | 100.0 | 89.5                 | 9.2        | 10.5                  |
| 1/2"  | 37.9  | 98.8  | 100.0 | 68.8                 | 20.7       | 31.2                  |
| 3/8"  | 20.3  | 86.8  | 100.0 | 58.7                 | 10.1       | 41.3                  |
| #4    | 3.4   | 17.7  | 97.5  | 42.1                 | 16.6       | 57.9                  |
| #8    | 2.0   | 4.7   | 83.1  | 34.4                 | 7.7        | 65.6                  |
| #16   | 1.8   | 2.5   | 62.7  | 26.0                 | 8.4        | 74.0                  |
| #30   | 1.6   | 2.1   | 43.6  | 18.3                 | 7.7        | 81.7                  |
| #50   | 1.6   | 2.0   | 20.0  | 8.9                  | 9.4        | 91.1                  |
| #100  | 1.5   | 1.9   | 4.2   | 2.6                  | 6.3        | 97.4                  |
| LBW   | 1.2   | 1.8   | 0.9   | 1.1                  | 1.5        | 98.9                  |

\*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.



**Superior Materials, LLC**  
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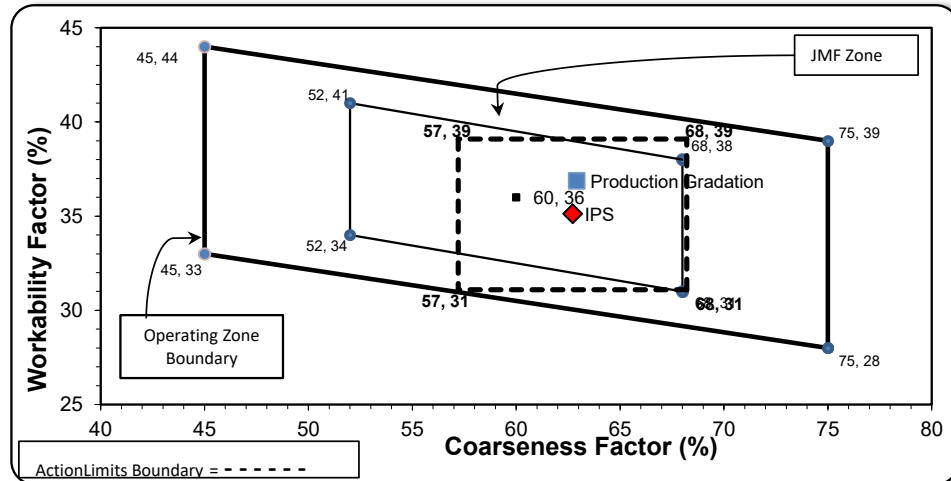
Production Gradation ☐ Batch Plant Gradations ☒ Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

|                           |           |                            |           |             |
|---------------------------|-----------|----------------------------|-----------|-------------|
| <b>Coarseness Factor:</b> | <b>63</b> | <b>Workability Factor:</b> | <b>34</b> | <b>36.9</b> |
|---------------------------|-----------|----------------------------|-----------|-------------|

|                           |           |
|---------------------------|-----------|
| <b>Coarseness Factor:</b> | <b>63</b> |
|---------------------------|-----------|

|                            |           |
|----------------------------|-----------|
| <b>Workability Factor:</b> | <b>35</b> |
|----------------------------|-----------|



| 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"  | 95.1                 | 4.9        | 4.9                   |
| 1/2"  | 74.6                 | 20.5       | 25.4                  |
| 3/8"  | 59.3                 | 15.3       | 40.7                  |
| #4    | 42.1                 | 17.2       | 57.9                  |
| #8    | 35.1                 | 7.1        | 64.9                  |
| #16   | 29.2                 | 5.9        | 70.8                  |
| #30   | 21.9                 | 7.3        | 78.1                  |
| #50   | 9.6                  | 12.4       | 90.4                  |
| #100  | 2.4                  | 7.2        | 97.6                  |
| LBW   | 0.9                  | 1.5        | 99.1                  |

PREPARED BY:  
SM, LLC Technical Service

Approved By:

*[Signature]*