### Aggregate Optimization Chart

### **Production Gradation Report**

PLANT #: P-101 Contractor:

Sample Date: 12/20/21 DM Concrete Grade: Dates Test Represents: 12/21/2021 12/27/2021 through

| Agg. Class | Pit#   | Source       | Weight (SSD) | ft <sup>3</sup> | Specific<br>Gravity | %<br>Contribution |
|------------|--------|--------------|--------------|-----------------|---------------------|-------------------|
| 6AA        | 71-47  | Presque Isle | 1560         | 9.54            | 2.62                | 53.6              |
| 26A        | 71-47  | Presque Isle | 200          | 1.22            | 2.62                | 6.9               |
| 2NS        | 75-051 | Mid-Michigan | 1150         | 6.93            | 2.66                | 39.5              |
|            |        | Total Wt     | 2910         | 17.69           |                     | 100.0             |

MDOT No.:

---- Verify this number is 100%

| SUPERIOR<br>MATERIALS |
|-----------------------|

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

| Sieve | 6AA   | 26A   | 2NS   | Cumulative<br>% Passing | % Retained | Cumulative<br>% 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"    | 98.7  | 100.0 | 100.0 | 99.3                    | 0.7        | 0.7                      |
| 3/4"  | 84.7  | 100.0 | 100.0 | 91.8                    | 7.5        | 8.2                      |
| 1/2"  | 44.8  | 97.6  | 100.0 | 70.2                    | 21.6       | 29.8                     |
| 3/8"  | 24.4  | 84.4  | 100.0 | 58.4                    | 11.8       | 41.6                     |
| #4    | 3.1   | 14.0  | 98.5  | 41.6                    | 16.8       | 58.4                     |
| #8    | 1.9   | 3.5   | 83.3  | 34.2                    | 7.4        | 65.8                     |
| #16   | 1.7   | 1.6   | 68.3  | 28.0                    | 6.2        | 72.0                     |
| #30   | 1.5   | 1.4   | 53.3  | 22.0                    | 6.0        | 78.0                     |
| #50   | 1.5   | 1.2   | 29.2  | 12.4                    | 9.5        | 87.6                     |
| #100  | 1.4   | 1.2   | 7.3   | 3.7                     | 8.7        | 96.3                     |
| LBW   | 1.3   | 1.0   | 0.6   | 1.0                     | 2.7        | 99.0                     |

\*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. Max. 1.5") aggregate is used.

|   | seness Factor:<br>kability Factor: |
|---|------------------------------------|
| 49  | kability Factor:                   |
|   |                                    |
| 3 SIEVE                                     | Cumulative                         |
|   | % Passing                          |
| 52, 4                                       | 100.0                              |
| 57, 39 57, 39 1.5"<br>68, 38 75, 39         | 100.0                              |
|   | 100.0                              |
| ■ 60, 3 Production Gradation 3/4"           | 95.0                               |
| 960, 3βS Production Gradation 3/4" 1/2"     | 70.5                               |
| 52, 34                                      | 60.0                               |
| #4 #8 #16 #16 #30 #50 #50                   | 44.4                               |
| 57, 31 67 <sub>6</sub> 8,1 <sub>31</sub> #8 | 35.5                               |
| Operating Zone #16                          | 28.5                               |
| 5 Boundary 75, 28 #30                       | 21.5                               |
| <b>&gt;</b> 25 <b>+50</b>                   | 10.2                               |
| 1 - 4100                                    | 3.1                                |
| 40 45 50 55 60 65 70 75 80 LBW              | 1.3                                |

| Work  | ability Factor: | 35       |            |
|-------|-----------------|----------|------------|
| Sieve | Cumulative      | %        | Cumulative |
| Sieve | % Passing       | Retained | % 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"  | 70.5            | 24.5     | 29.5       |
| 3/8"  | 60.0            | 10.5     | 40.0       |
| #4    | 44.4            | 15.6     | 55.6       |
| #8    | 35.5            | 9.0      | 64.5       |
| #16   | 28.5            | 7.0      | 71.5       |
| #30   | 21.5            | 7.0      | 78.5       |
| #50   | 10.2            | 11.3     | 89.8       |
| #100  | 3.1             | 7.1      | 96.9       |
| LBW   | 1.3             | 1.8      | 98.7       |

PLANT #: P-102

Sample Date:

Dates Test Represents:

**Production Gradation** 

12/20/21 DM Concrete Grade: 12/21/2021 12/27/2021

MDOT No.:

| Agg. Class | Pit #  | Source   | Weight (SSD) | ft <sup>3</sup> | Specific<br>Gravity | %<br>Contribution |
|------------|--------|----------|--------------|-----------------|---------------------|-------------------|
| 6AA        | 58-003 | Stoneco  | 1500         | 8.94            | 2.69                | 50.8              |
| 26A        | 58-003 | Stoneco  | 305          | 1.82            | 2.69                | 10.3              |
| 2NS        | 63-114 | Highland | 1150         | 6.95            | 2.65                | 38.9              |
|            |        | Total Wt | 2955         | 17.71           |                     | 100.0             |

through

Adjusted WF Intial Production Sample (IPS)

**Coarseness Factor:** 

37.8

Contractor:

| SUPE | RIOR |
|------|------|

**Superior Materials, LLC** 30701 W. 10 Mile Rd. Suite 500

Farmington Hills, MI 48336

|       | i otai wt | 2955 17.71 |       | 100.0                | < Verify this n | umber is 100%            |
|-------|-----------|------------|-------|----------------------|-----------------|--------------------------|
| Sieve | 6AA       | 26A        | 2NS   | Cumulative % Passing | % Retained      | Cumulative<br>% 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"  | 84.0      | 100.0      | 100.0 | 91.9                 | 8.1             | 8.1                      |
| 1/2"  | 40.3      | 98.4       | 100.0 | 69.5                 | 22.3            | 30.5                     |
| 3/8"  | 20.6      | 81.9       | 100.0 | 57.8                 | 11.7            | 42.2                     |
| #4    | 4.1       | 5.6        | 99.5  | 41.4                 | 16.4            | 58.6                     |
| #8    | 1.9       | 3.7        | 87.3  | 35.3                 | 6.1             | 64.7                     |
| #16   | 2.1       | 3.4        | 70.9  | 29.0                 | 6.3             | 71.0                     |
| #30   | 1.9       | 3.3        | 50.3  | 20.9                 | 8.1             | 79.1                     |
| #50   | 1.7       | 3.1        | 19.4  | 8.7                  | 12.1            | 91.3                     |
| #100  | 1.7       | 3.0        | 2.5   | 2.1                  | 6.6             | 97.9                     |
| LBW   | 1.2       | 2.6        | 0.5   | 1.1                  | 1.1             | 98.9                     |
|       |           |            |       |                      |                 |                          |

Aggregate Supplier Gradations

\*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. Max. 1.5") aggregate is used.

| Coarseness Factor:                              | 65     | Workability Factor:     | 35              |    |
|---|--------|-------------------------|-----------------|----|
| 45 45, 44 45, 44 45, 33 Operating Zone Boundary | 52, 34 | 68, 38<br>Production Gi | JMF Zone 75, 39 |    |
| Boundary  25  40  45  ActionLimits Boundary =   | 50 58  | Coarseness Factor (%)   | 75, 28          | 80 |

Batch Plant Gradations

| Work  | Workability Factor:  |               |                       |
|-------|----------------------|---------------|-----------------------|
| Sieve | Cumulative % Passing | %<br>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                  |

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# **Aggregate Optimization Chart**

PLANT #: P-32

Sample Date:

**Production Gradation** 

Contractor:

Adjusted WF Intial Production Sample (IPS)

**Coarseness Factor:** 

38.0

| Dates Test F | Represents: | 12/21/2021   | through      | 12/27/2021      |                     |                   |
|--------------|-------------|--------------|--------------|-----------------|---------------------|-------------------|
| Agg. Class   | Pit #       | Source       | Weight (SSD) | ft <sup>3</sup> | Specific<br>Gravity | %<br>Contribution |
| 6AA          | 71-47       | Presque Isle | 1355         | 8.29            | 2.62                | 46.6              |
| 26A          | 71-47       | Presque Isle | 400          | 2.45            | 2.62                | 13.8              |
| 2NS          | 95-013      | Smelter Bay  | 1150         | 6.95            | 2.65                | 39.6              |
|              |             | Total Wt     | 2905         | 17.69           |                     | 100.0             |

MDOT No.:

<---- Verify this number is 100%

| M | UPE | RIA | JH<br>LS |
|---|-----|-----|----------|

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| Sieve | 6AA   | 26A   | 2NS   | Cumulative<br>% Passing | % Retained | Cumulative<br>% 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"    | 96.2  | 100.0 | 100.0 | 98.2                    | 1.8        | 1.8                      |
| 3/4"  | 73.0  | 100.0 | 100.0 | 87.4                    | 10.8       | 12.6                     |
| 1/2"  | 30.7  | 97.9  | 100.0 | 67.4                    | 20.0       | 32.6                     |
| 3/8"  | 14.5  | 88.4  | 100.0 | 58.5                    | 8.9        | 41.5                     |
| #4    | 4.6   | 21.2  | 96.4  | 43.2                    | 15.3       | 56.8                     |
| #8    | 3.1   | 4.8   | 84.4  | 35.5                    | 7.7        | 64.5                     |
| #16   | 2.7   | 2.2   | 69.2  | 29.0                    | 6.6        | 71.0                     |
| #30   | 2.6   | 1.7   | 49.0  | 20.8                    | 8.1        | 79.2                     |
| #50   | 2.4   | 1.6   | 23.6  | 10.7                    | 10.2       | 89.3                     |
| #100  | 2.2   | 1.5   | 6.2   | 3.7                     | 7.0        | 96.3                     |
| LBW   | 1.7   | 1.4   | 1.0   | 1.4                     | 2.3        | 98.6                     |

Aggregate Supplier Gradations

\*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. Max. 1.5") aggregate is used.

| Coars                  | seness Factor:             | 64     | Workability Factor:                 | 36               |                         |
|------------------------|----------------------------|--------|-------------------------------------|------------------|-------------------------|
| 45 -                   | 45, 44                     |        |                                     | JMF Zone         | $\overline{\mathbb{I}}$ |
| (%) Jo                 |                            | 52, 41 | 67, 40<br>68, 38<br>Produption Grad | 75, 39<br>dation |                         |
| Workability Factor (%) | 45, 33                     | 52, 34 | ■ 60, 3/8S                          |                  |                         |
|                        | Operating Zone<br>Boundary |        | <del>\$7,82</del>                   | 75, 28           |                         |
|                        | 0 45<br>mits Boundary =    | 50 55  | Coarseness Factor (%) <sup>70</sup> | 75               | 80                      |

Batch Plant Gradations

| Work  | ability Factor:      | 36            |                       |
|-------|----------------------|---------------|-----------------------|
| Sieve | Cumulative % Passing | %<br>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                  |

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PREPARED BY: SM, LLC Technical Service Approved By

# Aggregate Optimization Chart

PLANT #: P-35

Sample Date:

**Production Gradation** 

12/20/21 DM Concrete Grade: 12/21/2021 12/27/2021

Contractor:

Adjusted WF Intial Production Sample (IPS)

**Coarseness Factor:** 

36.2

| Dates Test F | Represents: | 12/21/2021 | through      | 12/27/2021      |                     |                   |
|--------------|-------------|------------|--------------|-----------------|---------------------|-------------------|
| Agg. Class   | Pit #       | Source     | Weight (SSD) | ft <sup>3</sup> | Specific<br>Gravity | %<br>Contribution |
| 6AA          | 58-003      | Stoneco    | 1550         | 9.23            | 2.69                | 52.5              |
| 26A          | 58-003      | Stoneco    | 300          | 1.79            | 2.69                | 10.2              |
| 2NS          | 81-093      | Burmeister | 1100         | 6.65            | 2.65                | 37.3              |
|              |             | Total Wt   | 2950         | 17.67           |                     | 100.0             |

MDOT No.:

---- Verify this number is 100%

| SUPER |  |
|-------|--|

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|                |                               | 2000 11101 |          |                         | Tomy time mamber to 10070 |                          |
|----------------|-------------------------------|------------|----------|-------------------------|---------------------------|--------------------------|
| Sieve          | 6AA                           | 26A        | 2NS      | Cumulative<br>% Passing | % Retained                | Cumulative<br>% 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"           | 84.0                          | 100.0      | 100.0    | 91.6                    | 8.4                       | 8.4                      |
| 1/2"           | 40.3                          | 98.4       | 100.0    | 68.5                    | 23.1                      | 31.5                     |
| 3/8"           | 20.6                          | 81.9       | 100.0    | 56.4                    | 12.0                      | 43.6                     |
| #4             | 4.1                           | 5.6        | 97.9     | 39.2                    | 17.2                      | 60.8                     |
| #8             | 1.9                           | 3.7        | 86.6     | 33.7                    | 5.6                       | 66.3                     |
| #16            | 2.1                           | 3.4        | 71.7     | 28.2                    | 5.5                       | 71.8                     |
| #30            | 1.9                           | 3.3        | 54.4     | 21.6                    | 6.6                       | 78.4                     |
| #50            | 1.7                           | 3.1        | 21.4     | 9.2                     | 12.4                      | 90.8                     |
| #100           | 1.7                           | 3.0        | 5.1      | 3.1                     | 6.1                       | 96.9                     |
| LBW            | 1.2                           | 2.6        | 1.7      | 1.5                     | 1.6                       | 98.5                     |
| Production Gra | adation O Batch Plant Gradati | ons        | adations | Adjusted WF             | Intial Production         | on Sample (IPS)          |

\*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. Max. 1.5") aggregate is used.

| Coarseness Factor:                       | 66     | Workability Factor:   | 34              |    |
|--|--------|-----------------------|-----------------|----|
| 45 45,44                                 | 52, 41 |                       | JMF Zone 75, 39 |    |
| Norway 35 45, 33 Operating Zone Boundary | 52, 34 | <b>31</b> 67, 88, 31  | 75, 28          |    |
| 25 40 45  ActionLimits Boundary =        | 50 55  | Coarseness Factor (%) | 75              | 80 |

| Work  | ability Factor:      | 36            |                       |
|-------|----------------------|---------------|-----------------------|
| Sieve | Cumulative % Passing | %<br>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"  | 89.1                 | 10.2          | 10.9                  |
| 1/2"  | 70.5                 | 18.6          | 29.5                  |
| 3/8"  | 60.5                 | 10.0          | 39.5                  |
| #4    | 44.1                 | 16.4          | 55.9                  |
| #8    | 35.6                 | 8.5           | 64.4                  |
| #16   | 27.7                 | 7.9           | 72.3                  |
| #30   | 20.6                 | 7.1           | 79.4                  |
| #50   | 8.7                  | 11.8          | 91.3                  |
| #100  | 1.6                  | 7.1           | 98.4                  |
| LBW   | 1.1                  | 0.6           | 98.9                  |

PLANT #: P-39 Contractor: Sample Date: 12/20/21 DM

Concrete Grade: Dates Test Represents: 12/21/2021 12/27/2021 through

Adjusted WF Intial Production Sample (IPS)

**Coarseness Factor:** 

35.7

| 24100 10011 | 100.000  |              | un o a g     | , , _ 0         |                     |                   |
|-------------|----------|--------------|--------------|-----------------|---------------------|-------------------|
| Agg. Class  | Pit#     | Source       | Weight (SSD) | ft <sup>3</sup> | Specific<br>Gravity | %<br>Contribution |
| 6AA         | 71-47    | Presque Isle | 1605         | 9.82            | 2.62                | 55.2              |
| 26A         | 71-47    | Presque Isle | 200          | 1.22            | 2.62                | 6.9               |
| 2NS         | 63-92    | Grange Hall  | 1100         | 6.65            | 2.65                | 37.9              |
|             | <u> </u> | Total Wt     | 2905         | 17.69           |                     | 100.0             |

- Verify this number is 100%

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

|                | TOTAL WI                   | 10tai Wt 2905 17.69 |                     | 100.0                | < Verify this number is 100% |                          |    |
|----------------|----------------------------|---------------------|---------------------|----------------------|------------------------------|--------------------------|----|
| Sieve          | 6AA                        | 26A                 | 2NS                 | Cumulative % Passing | % Retained                   | Cumulative<br>% Retained |    |
| 2"             | 100.0                      | 100.0               | 100.0               | 100.0                | 0.0                          | 0.0                      | l  |
| 1.5"           | 100.0                      | 100.0               | 100.0               | 100.0                | 0.0                          | 0.0                      | ı  |
| 1"             | 98.7                       | 100.0               | 100.0               | 99.3                 | 0.7                          | 0.7                      | ı  |
| 3/4"           | 84.7                       | 100.0               | 100.0               | 91.5                 | 7.7                          | 8.5                      | ı  |
| 1/2"           | 44.8                       | 97.6                | 100.0               | 69.3                 | 22.2                         | 30.7                     | ı  |
| 3/8"           | 24.4                       | 84.4                | 100.0               | 57.2                 | 12.2                         | 42.8                     | ı  |
| #4             | 3.1                        | 14.0                | 97.8                | 39.7                 | 17.4                         | 60.3                     | ı  |
| #8             | 1.9                        | 3.5                 | 84.2                | 33.2                 | 6.5                          | 66.8                     | n  |
| #16            | 1.7                        | 1.6                 | 69.1                | 27.2                 | 6.0                          | 72.8                     | 1  |
| #30            | 1.5                        | 1.4                 | 50.2                | 19.9                 | 7.3                          | 80.1                     | no |
| #50            | 1.5                        | 1.2                 | 23.4                | 9.8                  | 10.2                         | 90.2                     | ,  |
| #100           | 1.4                        | 1.2                 | 3.1                 | 2.0                  | 7.7                          | 98.0                     | а  |
| LBW            | 1.3                        | 1.0                 | 0.4                 | 0.9                  | 1.1                          | 99.1                     | ı  |
| Production Gra | dation O Batch Plant Grada | tions               | Supplier Gradations | Adjusted WF          | Intial Production            | on Sample (IPS           | 3) |

\*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.

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\*% Retained must be at least 8% for the 1" sieve when

a 2" max. size (nom. Max. 1.5") aggregate is used.

| Coarseness Fa          | actor: 64        | Workability Factor:               | 33              |            |
|------------------------|------------------|-----------------------------------|-----------------|------------|
| 45 45, 44              | 52, 41           | 58, 40                            | JMF Zone 75, 39 |            |
| Workability Factor (%) | 52, 34           | 68, 38 ■ 60, 36 ■P®roducton Grada |                 |            |
| Noperati               | ng Zone<br>ndary | 58, 22                            | 75, 28          |            |
| 25 +                   | 15 50 5          | 5 Coarseness Factor (%)           | 75              | <br>80<br> |

**Production Gradation** 

| Work  | ability Factor: | 36       |            |
|-------|-----------------|----------|------------|
| Sieve | Cumulative      | %        | Cumulative |
| Sieve | % Passing       | Retained | % 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"  | 89.7            | 10.3     | 10.3       |
| 1/2"  | 70.3            | 19.4     | 29.7       |
| 3/8"  | 59.1            | 11.2     | 40.9       |
| #4    | 42.8            | 16.3     | 57.2       |
| #8    | 35.5            | 7.3      | 64.5       |
| #16   | 29.0            | 6.5      | 71.0       |
| #30   | 21.2            | 7.7      | 78.8       |
| #50   | 9.8             | 11.5     | 90.2       |
| #100  | 3.7             | 6.1      | 96.3       |
| LBW   | 1.2             | 2.5      | 98.8       |

**PLANT #:** P-02 Contractor: 12/20/21 DM Sample Date: Concrete Grade:

| Dates Test F | Represents: | 12/21/2021   | through      | 12/27/2021      |                     |                   |
|--------------|-------------|--------------|--------------|-----------------|---------------------|-------------------|
| Agg. Class   | Pit #       | Source       | Weight (SSD) | ft <sup>3</sup> | Specific<br>Gravity | %<br>Contribution |
| 6AA          | 71-47       | Presque Isle | 1505         | 9.21            | 2.62                | 51.8              |
| 26A          | 71-47       | Presque Isle | 300          | 1.83            | 2.62                | 10.3              |
| 2NS          | 63-115      | Ray Rd       | 1100         | 6.65            | 2.65                | 37.9              |

MDOT No.:

| SUPERIOR<br>MATERIALS |
|-----------------------|

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

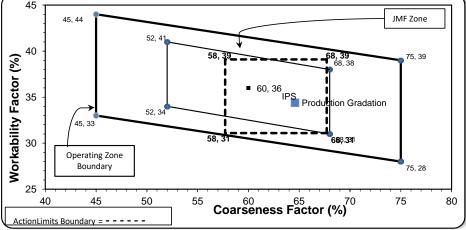
| *Maximum | % | Retained | must be | above | the 3/ | 8" sieve. |
|----------|---|----------|---------|-------|--------|-----------|

<sup>\*</sup>Any two adjacent sieves must equal 10% except max.,

a 2" max. size (nom. Max. 1.5") aggregate is used.

|       | Total Wt | 2905 | 17.69 |       | 100.0                   | < Verify this n | umber is 100%            |
|-------|----------|------|-------|-------|-------------------------|-----------------|--------------------------|
| Sieve | 6AA      | 26   | 6A    | 2NS   | Cumulative<br>% Passing | % Retained      | Cumulative<br>% Retained |
| 2"    | 100.0    | 10   | 0.0   | 100.0 | 100.0                   | 0.0             | 0.0                      |
| 1.5"  | 100.0    | 10   | 0.0   | 100.0 | 100.0                   | 0.0             | 0.0                      |
| 1"    | 95.6     | 10   | 0.0   | 100.0 | 97.7                    | 2.3             | 2.3                      |
| 3/4"  | 78.3     | 10   | 0.0   | 100.0 | 88.8                    | 9.0             | 11.2                     |
| 1/2"  | 36.4     | 97   | 7.9   | 100.0 | 66.8                    | 21.9            | 33.2                     |
| 3/8"  | 17.4     | 88   | 3.4   | 100.0 | 56.0                    | 10.8            | 44.0                     |
| #4    | 3.1      | 21   | .2    | 97.0  | 40.5                    | 15.5            | 59.5                     |
| #8    | 2.2      | 4    | .8    | 79.9  | 31.9                    | 8.6             | 68.1                     |
| #16   | 2.0      | 2    | .2    | 63.1  | 25.2                    | 6.7             | 74.8                     |
| #30   | 1.9      | 1    | .7    | 46.0  | 18.6                    | 6.6             | 81.4                     |
| #50   | 1.8      | 1    | .6    | 22.9  | 9.8                     | 8.8             | 90.2                     |
| #100  | 1.7      | 1    | .5    | 5.0   | 2.9                     | 6.8             | 97.1                     |
| LBW   | 1.4      | 1    | .4    | 1.2   | 1.3                     | 1.6             | 98.7                     |

 Batch Plant Gradations Aggregate SupplierGradations **Production Gradation** Adjusted WF Intial Production Sample (IPS) **Coarseness Factor:** 65 **Workability Factor:** 32 34.4 **Coarseness Factor:** Workability Factor: 45



| workability Factor: |            | 30       |            |
|---------------------|------------|----------|------------|
| Sieve               | Cumulative | %        | Cumulative |
| Sieve               | % Passing  | Retained | % 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       |

63

nom. max., #100 and #200 sieves.

<sup>\*%</sup> Retained must be at least 4% for each sieve except max.,

nom. max., #100 and #200 sieves.

<sup>\*%</sup> Retained must be at least 8% for the 1" sieve when