

# Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP154ER, DDP164E7 and DDP164E8

## Production Gradation Report

**PLANT #:** **P-101**

Sample Date: 8/20/18

Concrete Grade: **P1M**

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

Dates Test Represents: 8/21/2018 through 8/27/2018

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

| Agg. Class      | Pit #  | Source       | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|
| CA              | 71-47  | Presque Isle | 950          | 5.81            | 2.62             | 30.9           |
| IA              | 71-47  | Presque Isle | 875          | 5.35            | 2.62             | 28.5           |
| 2NS             | 75-051 | Mid-Michigan | 1250         | 7.53            | 2.66             | 40.7           |
| <b>Total Wt</b> |        |              | <b>3075</b>  | <b>18.69</b>    |                  | <b>100.0</b>   |

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

| Sieve | CA    | IA    | 2NS   | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|-------|-------|-------|----------------------|------------|-----------------------|
| 2"    | 100.0 | 100.0 | 100.0 | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 98.7  | 100.0 | 100.0 | 99.6                 | 0.4        | 0.4                   |
| 1"    | 46.8  | 100.0 | 100.0 | 83.6                 | 16.0       | 16.4                  |
| 3/4"  | 14.0  | 98.0  | 100.0 | 72.9                 | 10.7       | 27.1                  |
| 1/2"  | 2.9   | 81.1  | 100.0 | 64.6                 | 8.2        | 35.4                  |
| 3/8"  | 1.8   | 53.6  | 100.0 | 56.5                 | 8.2        | 43.5                  |
| #4    | 1.5   | 8.3   | 99.0  | 43.1                 | 13.4       | 56.9                  |
| #8    | 1.3   | 2.9   | 83.0  | 35.0                 | 8.1        | 65.0                  |
| #16   | 1.2   | 2.2   | 66.2  | 27.9                 | 7.1        | 72.1                  |
| #30   | 1.2   | 2.1   | 49.0  | 20.9                 | 7.0        | 79.1                  |
| #50   | 1.2   | 2.0   | 24.0  | 10.7                 | 10.2       | 89.3                  |
| #100  | 1.2   | 1.8   | 6.4   | 3.5                  | 7.2        | 96.5                  |
| LBW   | 1.1   | 1.7   | 0.8   | 1.1                  | 2.3        | 98.9                  |

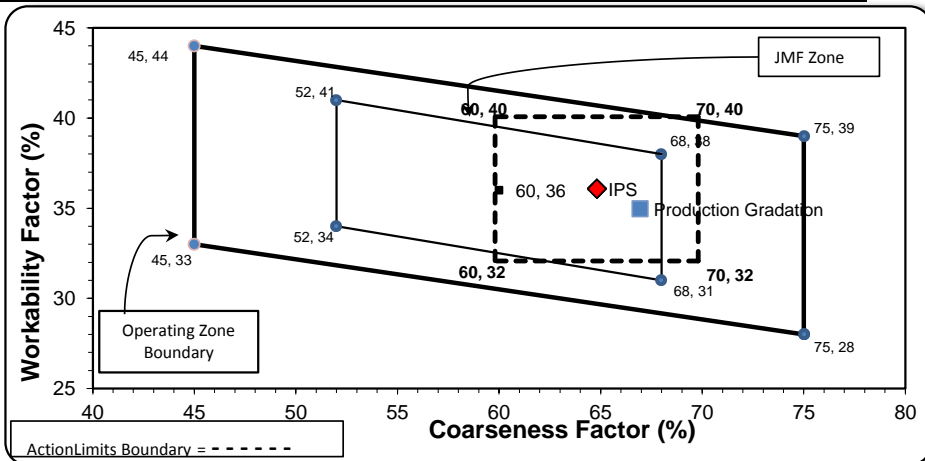


**Superior Materials, LLC**  
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 Suite 500  
 Farmington Hills, MI 48336

\*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.

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

**Coarseness Factor: 67**      **Workability Factor: 35**



Initial Production Sample (IPS)

| Coarseness Factor: 65 |                      | Workability Factor: 36 |                       |
|-----------------------|----------------------|------------------------|-----------------------|
| Sieve                 | Cumulative % Passing | % Retained             | Cumulative % Retained |
| 2"                    | 100.0                | 0.0                    | 0.0                   |
| 1.5"                  | 99.3                 | 0.7                    | 0.7                   |
| 1"                    | 83.6                 | 15.7                   | 16.4                  |
| 3/4"                  | 73.0                 | 10.6                   | 27.0                  |
| 1/2"                  | 65.1                 | 7.9                    | 34.9                  |
| 3/8"                  | 58.6                 | 6.5                    | 41.4                  |
| #4                    | 45.8                 | 12.8                   | 54.2                  |
| #8                    | 36.1                 | 9.7                    | 63.9                  |
| #16                   | 28.8                 | 7.3                    | 71.2                  |
| #30                   | 21.7                 | 7.1                    | 78.3                  |
| #50                   | 10.3                 | 11.4                   | 89.7                  |
| #100                  | 3.1                  | 7.2                    | 96.9                  |
| LBW                   | 1.3                  | 1.8                    | 98.7                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP154ER, DDP164E7 and DDP164E8

# Production Gradation Report

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

Sample Date: 8/20/18

Concrete Grade: **P1M**

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

Dates Test Represents: 8/21/2018 through 8/27/2018

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

| Agg. Class      | Pit #  | Source  | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|---------|--------------|-----------------|------------------|----------------|
| CA              | 58-003 | Stoneco | 1370         | 8.16            | 2.69             | 43.9           |
| IA              | 58-003 | Stoneco | 550          | 3.28            | 2.69             | 17.6           |
| 2NS             | 38-046 | Chelsea | 1200         | 7.26            | 2.65             | 38.5           |
| <b>Total Wt</b> |        |         | <b>3120</b>  | <b>18.70</b>    |                  | <b>100.0</b>   |

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

| Sieve | CA    | IA    | 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"    | 67.6  | 100.0 | 100.0 | 85.8                 | 14.2       | 14.2                  |
| 3/4"  | 38.0  | 100.0 | 100.0 | 72.8                 | 13.0       | 27.2                  |
| 1/2"  | 19.4  | 93.8  | 100.0 | 63.5                 | 9.3        | 36.5                  |
| 3/8"  | 9.6   | 82.7  | 100.0 | 57.3                 | 6.3        | 42.7                  |
| #4    | 2.4   | 22.0  | 100.0 | 43.4                 | 13.9       | 56.6                  |
| #8    | 1.5   | 5.8   | 90.0  | 36.3                 | 7.1        | 63.7                  |
| #16   | 1.3   | 2.4   | 65.0  | 26.0                 | 10.3       | 74.0                  |
| #30   | 1.2   | 1.8   | 45.0  | 18.2                 | 7.8        | 81.8                  |
| #50   | 1.1   | 1.6   | 25.0  | 10.4                 | 7.8        | 89.6                  |
| #100  | 1.0   | 1.5   | 6.0   | 3.0                  | 7.4        | 97.0                  |
| LBW   | 0.9   | 1.4   | 1.5   | 1.2                  | 1.8        | 98.8                  |

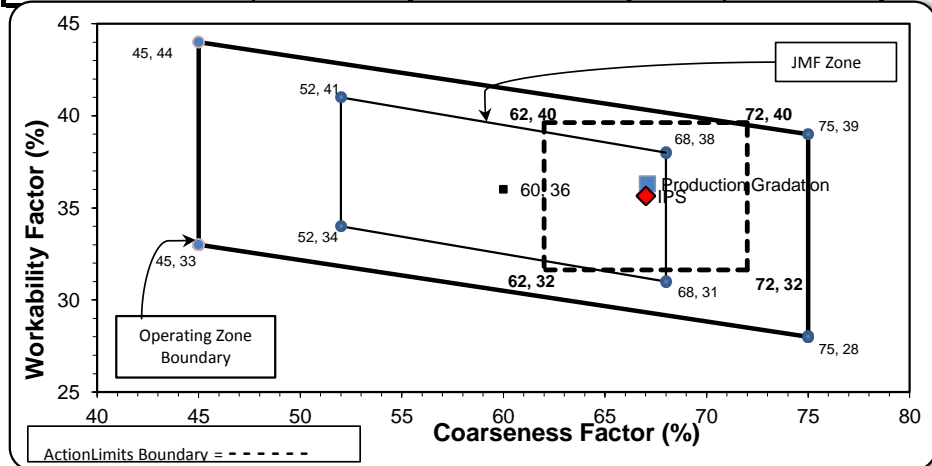


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\*Maximum % Retained must be above the 3/8" sieve.  
 \*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.  
 \*% Retained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

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

**Coarseness Factor: 67**      **Workability Factor: 36**



Initial Production Sample (IPS)

| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2"    | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 100.0                | 0.0        | 0.0                   |
| 1"    | 87.2                 | 12.8       | 12.8                  |
| 3/4"  | 76.6                 | 10.6       | 23.4                  |
| 1/2"  | 64.4                 | 12.2       | 35.6                  |
| 3/8"  | 56.9                 | 7.6        | 43.1                  |
| #4    | 44.1                 | 12.7       | 55.9                  |
| #8    | 35.6                 | 8.5        | 64.4                  |
| #16   | 27.7                 | 8.0        | 72.3                  |
| #30   | 19.5                 | 8.2        | 80.5                  |
| #50   | 7.8                  | 11.6       | 92.2                  |
| #100  | 2.3                  | 5.6        | 97.7                  |
| LBW   | 0.6                  | 1.6        | 99.4                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP154ER, DDP164E7 and DDP164E8

# Production Gradation Report

**PLANT #:** **P-32**

Sample Date: 8/20/18

Concrete Grade: **P1M**

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

Dates Test Represents: 8/21/2018 through 8/27/2018

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

| Agg. Class      | Pit # | Source       | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|-------|--------------|--------------|-----------------|------------------|----------------|
| CA              | 71-47 | Presque Isle | 520          | 3.18            | 2.62             | 16.9           |
| IA              | 71-47 | Presque Isle | 1300         | 7.95            | 2.62             | 42.3           |
| 2NS             | 95-13 | Smelter Bay  | 1250         | 7.56            | 2.65             | 40.7           |
| <b>Total Wt</b> |       |              | <b>3070</b>  | <b>18.69</b>    |                  | <b>100.0</b>   |

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

| Sieve | CA    | IA    | 2NS   | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|-------|-------|-------|----------------------|------------|-----------------------|
| 2"    | 100.0 | 100.0 | 100.0 | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 92.5  | 100.0 | 100.0 | 98.7                 | 1.3        | 1.3                   |
| 1"    | 28.1  | 100.0 | 100.0 | 87.8                 | 10.9       | 12.2                  |
| 3/4"  | 4.3   | 97.8  | 100.0 | 82.9                 | 5.0        | 17.1                  |
| 1/2"  | 1.6   | 65.7  | 100.0 | 68.8                 | 14.1       | 31.2                  |
| 3/8"  | 1.6   | 32.9  | 100.0 | 54.9                 | 13.9       | 45.1                  |
| #4    | 1.5   | 4.3   | 97.0  | 41.6                 | 13.3       | 58.4                  |
| #8    | 1.5   | 2.4   | 83.7  | 35.4                 | 6.2        | 64.6                  |
| #16   | 1.5   | 2.1   | 68.3  | 29.0                 | 6.4        | 71.0                  |
| #30   | 1.4   | 2.0   | 49.6  | 21.3                 | 7.7        | 78.7                  |
| #50   | 1.3   | 1.9   | 23.8  | 10.7                 | 10.6       | 89.3                  |
| #100  | 1.2   | 1.8   | 4.2   | 2.7                  | 8.0        | 97.3                  |
| LBW   | 0.8   | 1.2   | 0.6   | 0.9                  | 1.8        | 99.1                  |

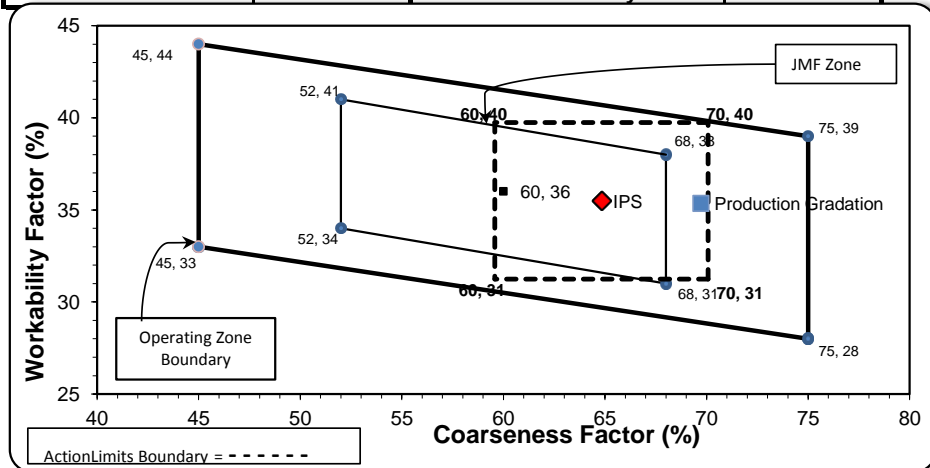


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\*Maximum % Retained must be above the 3/8" sieve.  
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 \*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 8% for the 1"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

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: **70**      Workability Factor: **35**



Initial Production Sample (IPS)

| Coarseness Factor: <b>65</b> |                      | Workability Factor: <b>35</b> |                       |
|------------------------------|----------------------|-------------------------------|-----------------------|
| Sieve                        | Cumulative % Passing | % Retained                    | Cumulative % Retained |
| 2"                           | 100.0                | 0.0                           | 0.0                   |
| 1.5"                         | 99.4                 | 0.6                           | 0.6                   |
| 1"                           | 84.0                 | 15.3                          | 16.0                  |
| 3/4"                         | 73.5                 | 10.5                          | 26.5                  |
| 1/2"                         | 65.2                 | 8.2                           | 34.8                  |
| 3/8"                         | 58.2                 | 7.1                           | 41.8                  |
| #4                           | 44.1                 | 14.1                          | 55.9                  |
| #8                           | 35.5                 | 8.6                           | 64.5                  |
| #16                          | 29.1                 | 6.4                           | 70.9                  |
| #30                          | 21.9                 | 7.3                           | 78.1                  |
| #50                          | 9.6                  | 12.2                          | 90.4                  |
| #100                         | 2.6                  | 7.1                           | 97.4                  |
| LBW                          | 1.0                  | 1.6                           | 99.0                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP154ER, DDP164E7 and DDP164E8

## Production Gradation Report

**PLANT #:** **P-36**

Sample Date: 8/20/18

Concrete Grade: **P1M**

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

Dates Test Represents: 8/21/2018 through 8/27/2018

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

| Agg. Class      | Pit # | Source         | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|-------|----------------|--------------|-----------------|------------------|----------------|
| CA              | 71-47 | Presque Isle   | 460          | 2.81            | 2.62             | 15.0           |
| IA              | 71-47 | Presque Isle   | 1360         | 8.32            | 2.62             | 44.3           |
| 2NS             | 63-92 | AA Grange Hall | 1250         | 7.56            | 2.65             | 40.7           |
| <b>Total Wt</b> |       |                | <b>3070</b>  | <b>18.69</b>    |                  | <b>100.0</b>   |

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

| Sieve | CA    | IA    | 2NS   | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|-------|-------|-------|----------------------|------------|-----------------------|
| 2"    | 100.0 | 100.0 | 100.0 | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 92.5  | 100.0 | 100.0 | 98.9                 | 1.1        | 1.1                   |
| 1"    | 28.1  | 100.0 | 100.0 | 89.2                 | 9.6        | 10.8                  |
| 3/4"  | 4.3   | 97.8  | 100.0 | 84.7                 | 4.5        | 15.3                  |
| 1/2"  | 1.6   | 65.7  | 100.0 | 70.1                 | 14.6       | 29.9                  |
| 3/8"  | 1.6   | 32.9  | 100.0 | 55.5                 | 14.5       | 44.5                  |
| #4    | 1.5   | 4.3   | 96.8  | 41.5                 | 14.0       | 58.5                  |
| #8    | 1.5   | 2.4   | 82.9  | 35.0                 | 6.5        | 65.0                  |
| #16   | 1.5   | 2.1   | 67.4  | 28.6                 | 6.4        | 71.4                  |
| #30   | 1.4   | 2.0   | 49.9  | 21.4                 | 7.2        | 78.6                  |
| #50   | 1.3   | 1.9   | 24.7  | 11.1                 | 10.3       | 88.9                  |
| #100  | 1.2   | 1.8   | 4.2   | 2.7                  | 8.4        | 97.3                  |
| LBW   | 0.8   | 1.2   | 0.4   | 0.8                  | 1.9        | 99.2                  |

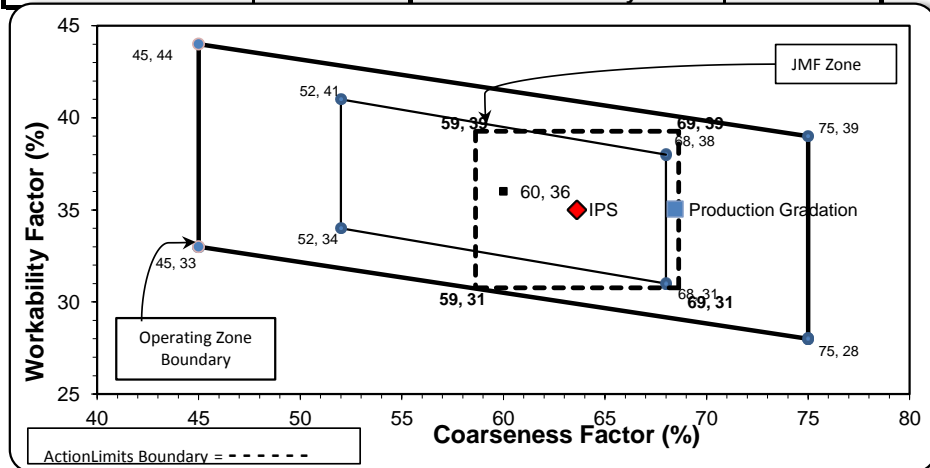
\*Maximum % Retained must be above the 3/8" sieve.  
 \*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 8% for the 1" sieve when a 2"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



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Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: **68**      Workability Factor: **35**



Initial Production Sample (IPS)

| Coarseness Factor: <b>64</b> |                      | Workability Factor: <b>35</b> |                       |
|------------------------------|----------------------|-------------------------------|-----------------------|
| Sieve                        | Cumulative % Passing | % Retained                    | Cumulative % Retained |
| 2"                           | 100.0                | 0.0                           | 0.0                   |
| 1.5"                         | 99.4                 | 0.6                           | 0.6                   |
| 1"                           | 84.6                 | 14.7                          | 15.4                  |
| 3/4"                         | 74.4                 | 10.3                          | 25.6                  |
| 1/2"                         | 66.0                 | 8.4                           | 34.0                  |
| 3/8"                         | 58.7                 | 7.4                           | 41.3                  |
| #4                           | 44.6                 | 14.0                          | 55.4                  |
| #8                           | 35.0                 | 9.6                           | 65.0                  |
| #16                          | 27.6                 | 7.4                           | 72.4                  |
| #30                          | 19.5                 | 8.1                           | 80.5                  |
| #50                          | 8.6                  | 11.0                          | 91.4                  |
| #100                         | 2.0                  | 6.6                           | 98.0                  |
| LBW                          | 0.9                  | 1.1                           | 99.1                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP154ER, DDP164E7 and DDP164E8

## Production Gradation Report

**PLANT #:** **P-39**

Sample Date: 8/20/18

Concrete Grade: **P1M**

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

Dates Test Represents: 8/21/2018 through 8/27/2018

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

| Agg. Class      | Pit #  | Source       | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|
| CA              | 71-47  | Presque Isle | 1000         | 6.12            | 2.62             | 32.6           |
| IA              | 71-47  | Presque Isle | 750          | 4.59            | 2.62             | 24.4           |
| 2NS             | 63-115 | Ray Road     | 1320         | 7.98            | 2.65             | 43.0           |
| <b>Total Wt</b> |        |              | <b>3070</b>  | <b>18.69</b>    |                  | <b>100.0</b>   |

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

| Sieve | CA    | IA    | 2NS   | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|-------|-------|-------|----------------------|------------|-----------------------|
| 2"    | 100.0 | 100.0 | 100.0 | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 98.7  | 100.0 | 100.0 | 99.6                 | 0.4        | 0.4                   |
| 1"    | 46.8  | 100.0 | 100.0 | 82.7                 | 16.9       | 17.3                  |
| 3/4"  | 14.0  | 98.0  | 100.0 | 71.5                 | 11.2       | 28.5                  |
| 1/2"  | 2.9   | 81.1  | 100.0 | 63.8                 | 7.7        | 36.2                  |
| 3/8"  | 1.8   | 53.6  | 100.0 | 56.7                 | 7.1        | 43.3                  |
| #4    | 1.5   | 8.3   | 96.1  | 43.8                 | 12.8       | 56.2                  |
| #8    | 1.3   | 2.9   | 77.7  | 34.5                 | 9.3        | 65.5                  |
| #16   | 1.2   | 2.2   | 60.8  | 27.1                 | 7.5        | 72.9                  |
| #30   | 1.2   | 2.1   | 45.4  | 20.4                 | 6.6        | 79.6                  |
| #50   | 1.2   | 2.0   | 24.7  | 11.5                 | 8.9        | 88.5                  |
| #100  | 1.2   | 1.8   | 7.1   | 3.9                  | 7.6        | 96.1                  |
| LBW   | 1.1   | 1.7   | 0.7   | 1.1                  | 2.8        | 98.9                  |

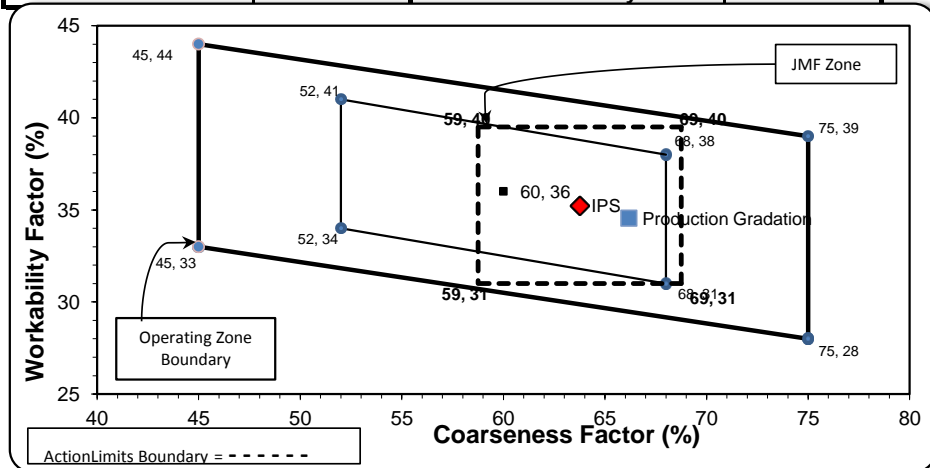


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\*Maximum % Retained must be above the 3/8" sieve.  
 \*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.  
 \*% Retained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

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: **66**      Workability Factor: **35**



Initial Production Sample (IPS)

| Coarseness Factor: <b>64</b> |                      | Workability Factor: <b>35</b> |                       |
|------------------------------|----------------------|-------------------------------|-----------------------|
| Sieve                        | Cumulative % Passing | % Retained                    | Cumulative % Retained |
| 2"                           | 100.0                | 0.0                           | 0.0                   |
| 1.5"                         | 99.4                 | 0.6                           | 0.6                   |
| 1"                           | 84.3                 | 15.1                          | 15.7                  |
| 3/4"                         | 73.9                 | 10.4                          | 26.1                  |
| 1/2"                         | 65.7                 | 8.2                           | 34.3                  |
| 3/8"                         | 58.7                 | 7.0                           | 41.3                  |
| #4                           | 45.1                 | 13.6                          | 54.9                  |
| #8                           | 35.3                 | 9.8                           | 64.7                  |
| #16                          | 28.1                 | 7.2                           | 71.9                  |
| #30                          | 21.2                 | 6.9                           | 78.8                  |
| #50                          | 10.1                 | 11.1                          | 89.9                  |
| #100                         | 3.1                  | 7.0                           | 96.9                  |
| LBW                          | 1.4                  | 1.7                           | 98.6                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP154ER, DDP164E7 and DDP164E8

## Production Gradation Report

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

Sample Date: 8/20/18

Concrete Grade: **P1M**

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

Dates Test Represents: 8/21/2018 through 8/27/2018

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

| Agg. Class      | Pit # | Source         | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|-----------------|-------|----------------|--------------|-----------------|------------------|----------------|
| CA              | 71-47 | Presque Isle   | 520          | 3.18            | 2.62             | 16.9           |
| IA              | 71-47 | Presque Isle   | 1300         | 7.95            | 2.62             | 42.3           |
| 2NS             | 63-92 | AA Grange Hall | 1250         | 7.56            | 2.65             | 40.7           |
| <b>Total Wt</b> |       |                | <b>3070</b>  | <b>18.69</b>    |                  | <b>100.0</b>   |

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

| Sieve | CA    | IA    | 2NS   | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|-------|-------|-------|----------------------|------------|-----------------------|
| 2"    | 100.0 | 100.0 | 100.0 | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 92.5  | 100.0 | 100.0 | 98.7                 | 1.3        | 1.3                   |
| 1"    | 28.1  | 100.0 | 100.0 | 87.8                 | 10.9       | 12.2                  |
| 3/4"  | 4.3   | 97.8  | 100.0 | 82.9                 | 5.0        | 17.1                  |
| 1/2"  | 1.6   | 65.7  | 100.0 | 68.8                 | 14.1       | 31.2                  |
| 3/8"  | 1.6   | 32.9  | 100.0 | 54.9                 | 13.9       | 45.1                  |
| #4    | 1.5   | 4.3   | 96.8  | 41.5                 | 13.4       | 58.5                  |
| #8    | 1.5   | 2.4   | 82.9  | 35.0                 | 6.5        | 65.0                  |
| #16   | 1.5   | 2.1   | 67.4  | 28.6                 | 6.4        | 71.4                  |
| #30   | 1.4   | 2.0   | 49.9  | 21.4                 | 7.2        | 78.6                  |
| #50   | 1.3   | 1.9   | 24.7  | 11.1                 | 10.3       | 88.9                  |
| #100  | 1.2   | 1.8   | 4.2   | 2.7                  | 8.4        | 97.3                  |
| LBW   | 0.8   | 1.2   | 0.4   | 0.8                  | 1.9        | 99.2                  |

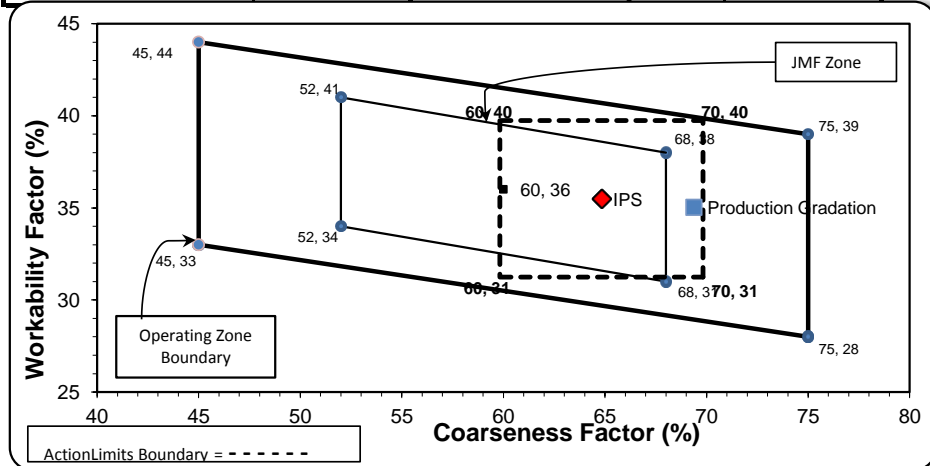
\*Maximum % Retained must be above the 3/8" sieve.  
 \*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 8% for the 1" sieve when a 2"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



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Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

**Coarseness Factor: 69**      **Workability Factor: 35**



Initial Production Sample (IPS)

| Coarseness Factor: 65 |                      | Workability Factor: 35 |                       |
|-----------------------|----------------------|------------------------|-----------------------|
| Sieve                 | Cumulative % Passing | % Retained             | Cumulative % Retained |
| 2"                    | 100.0                | 0.0                    | 0.0                   |
| 1.5"                  | 99.4                 | 0.6                    | 0.6                   |
| 1"                    | 84.0                 | 15.3                   | 16.0                  |
| 3/4"                  | 73.5                 | 10.5                   | 26.5                  |
| 1/2"                  | 65.2                 | 8.2                    | 34.8                  |
| 3/8"                  | 58.2                 | 7.1                    | 41.8                  |
| #4                    | 44.1                 | 14.1                   | 55.9                  |
| #8                    | 35.5                 | 8.6                    | 64.5                  |
| #16                   | 29.1                 | 6.4                    | 70.9                  |
| #30                   | 21.9                 | 7.3                    | 78.1                  |
| #50                   | 9.6                  | 12.2                   | 90.4                  |
| #100                  | 2.6                  | 7.1                    | 97.4                  |
| LBW                   | 1.0                  | 1.6                    | 99.0                  |

PREPARED BY:  
 SM, LLC Technical Service

Approved By: