

# Aggregate Optimization Chart

## Production Gradation Report

PLANT #: **P-36**

Sample Date: **5/24/21**

Dates Test Represents: **5/25/2021** through **5/31/2021**

Concrete Grade: **P1M**

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

MIDOT No.: \_\_\_\_\_

| Agg. Class | Pit # | Source          | Weight (SSD) | ft <sup>3</sup> | Specific Gravity | % Contribution |
|------------|-------|-----------------|--------------|-----------------|------------------|----------------|
| CA         | 71-47 | Presque Isle    | 1050         | 6.42            | 2.62             | 34.2           |
| IA         | 71-47 | Presque Isle    | 820          | 5.02            | 2.62             | 26.7           |
| 2NS        | 63-92 | Grange Hall     | 1200         | 7.26            | 2.65             | 39.1           |
|            |       | <b>Total Wt</b> | <b>3070</b>  | <b>18.70</b>    |                  | <b>100.0</b>   |

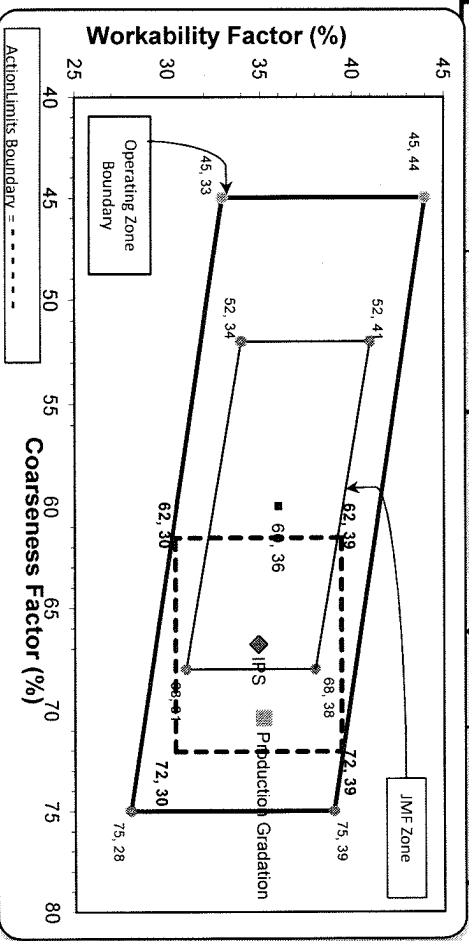
<----- Verify this number is 100%

| 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"    | 55.6  | 100.0 | 100.0 | 84.8                 | 15.2       | 15.2                  |
| 3/4"  | 12.6  | 97.4  | 100.0 | 69.4                 | 15.4       | 30.6                  |
| 1/2"  | 3.8   | 75.6  | 100.0 | 60.6                 | 8.8        | 39.4                  |
| 3/8"  | 3.1   | 53.2  | 100.0 | 54.4                 | 6.2        | 45.6                  |
| #4    | 2.6   | 8.5   | 97.5  | 41.3                 | 13.1       | 58.7                  |
| #8    | 2.4   | 3.5   | 85.5  | 35.2                 | 6.1        | 64.8                  |
| #16   | 2.3   | 2.6   | 70.0  | 28.8                 | 6.3        | 71.2                  |
| #30   | 2.3   | 2.3   | 52.1  | 21.8                 | 7.1        | 78.2                  |
| #50   | 2.2   | 2.2   | 26.2  | 11.6                 | 10.2       | 88.4                  |
| #100  | 2.1   | 2.0   | 4.7   | 3.1                  | 8.5        | 96.9                  |
| LBW   | 1.7   | 1.6   | 0.6   | 1.2                  | 1.8        | 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 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)

| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2"    | 100.0                | 0.0        | 0.0                   |
| 1.5"  | 100.0                | 0.0        | 0.0                   |
| 1"    | 85.0                 | 15.0       | 15.0                  |
| 3/4"  | 72.1                 | 12.9       | 27.9                  |
| 1/2"  | 64.5                 | 7.6        | 35.5                  |
| 3/8"  | 56.5                 | 8.0        | 43.5                  |
| #4    | 42.7                 | 13.8       | 57.3                  |
| #8    | 34.9                 | 7.8        | 65.1                  |
| #16   | 29.0                 | 5.9        | 71.0                  |
| #30   | 21.0                 | 8.0        | 79.0                  |
| #50   | 8.2                  | 12.8       | 91.8                  |
| #100  | 1.6                  | 6.5        | 98.4                  |
| LBW   | 0.7                  | 0.9        | 99.3                  |



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

PREPARED BY:  
 SM, LLC Technical Service

Approved By: \_\_\_\_\_



Superior Auburn Hills  
 2470 Auburn Road  
 Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 05/23/2021 - 05/29/2021

Report Date 05/29/2021

| Procedure | Sieve/Test            | Result | Unit | 2NS GR Spec |
|-----------|-----------------------|--------|------|-------------|
|           | 3/8" (9.5mm)          | 100.0  | %    | 100-100     |
|           | #4 (4.75mm)           | 97.5   | %    | 95-100      |
|           | #8 (2.36mm)           | 85.5   | %    | 65-95       |
|           | #16 (1.18mm)          | 70.0   | %    | 35-75       |
|           | #30 (.6mm)            | 52.1   | %    | 20-55       |
|           | #50 (.3mm)            | 26.2   | %    | 10-30       |
|           | #100 (.15mm)          | 4.7    | %    | 0-10        |
|           | #200 (75µm)           | 0.8    | %    |             |
|           | FM                    | 2.64   |      | 2.6-3       |
|           | Wash Loss (#200/75um) | 0.6    | %    | 0-3         |
|           | Total Moisture        | 3.96   | %    |             |



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Plant S36-Superior Auburn Hills  
 Product 7920-INTERMED AGG P1M LS  
 Period: 05/23/2021 - 05/29/2021

Name/Title Doug Storey / QC Technician  
 Report Date 05/29/2021

| Procedure | Sieve/Test            | Result | Unit | Intermed Agg P1M LS Target |
|-----------|-----------------------|--------|------|----------------------------|
|           | 2" (50mm)             | 100.0  | %    |                            |
|           | 1 1/2" (37.5mm)       | 100.0  | %    |                            |
|           | 1" (25mm)             | 100.0  | %    |                            |
|           | 3/4" (19mm)           | 97.4   | %    |                            |
|           | 1/2" (12.5mm)         | 75.6   | %    |                            |
|           | 3/8" (9.5mm)          | 53.2   | %    |                            |
|           | #4 (4.75mm)           | 8.5    | %    |                            |
|           | #8 (2.36mm)           | 3.5    | %    |                            |
|           | #16 (1.18mm)          | 2.6    | %    |                            |
|           | #30 (.6mm)            | 2.3    | %    |                            |
|           | #50 (.3mm)            | 2.2    | %    |                            |
|           | #100 (.15mm)          | 2.0    | %    |                            |
|           | #200 (75µm)           | 1.8    | %    |                            |
|           | Wash Loss (#200/75um) | 1.6    | %    | 0-3                        |
|           | Total Moisture        | 3.15   | %    |                            |



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**Plant** S36-Superior Auburn Hills

**Product** 7919-COARSE AGG P1M LS

**Name/Title** Doug Storey / QC Technician

**Period:** 05/23/2021 - 05/29/2021

**Report Date** 05/29/2021

| Procedure | Sieve/Test            | Result | Unit | Coarse Agg P1M LS Target |
|-----------|-----------------------|--------|------|--------------------------|
|           | 2" (50mm)             | 100.0  | %    |                          |
|           | 1 1/2" (37.5mm)       | 100.0  | %    |                          |
|           | 1" (25mm)             | 55.6   | %    |                          |
|           | 3/4" (19mm)           | 12.6   | %    |                          |
|           | 1/2" (12.5mm)         | 3.8    | %    |                          |
|           | 3/8" (9.5mm)          | 3.1    | %    |                          |
|           | #4 (4.75mm)           | 2.6    | %    |                          |
|           | #8 (2.36mm)           | 2.4    | %    |                          |
|           | #16 (1.18mm)          | 2.3    | %    |                          |
|           | #30 (.6mm)            | 2.3    | %    |                          |
|           | #50 (.3mm)            | 2.2    | %    |                          |
|           | #100 (.15mm)          | 2.1    | %    |                          |
|           | #200 (75µm)           | 1.8    | %    |                          |
|           | Wash Loss (#200/75um) | 1.7    | %    | 0-2                      |
|           | Total Moisture        | 1.76   | %    |                          |