

# Aggregate Optimization Chart

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

Production Gradation Report

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

Sample Date: 5/21/18

Concrete Grade: **P1M**

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

Dates Test Represents: 5/22/2018 to 5/28/2018

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	800	4.89	2.62	26.1
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"	99.1	100.0	100.0	99.7	0.3	0.3
1"	49.7	100.0	100.0	84.4	15.3	15.6
3/4"	19.1	99.2	100.0	74.8	9.7	25.2
1/2"	5.7	87.5	100.0	67.6	7.2	32.4
3/8"	4.0	64.7	100.0	61.1	6.5	38.9
#4	3.0	15.6	96.7	46.6	14.5	53.4
#8	2.6	5.2	77.6	35.5	11.0	64.5
#16	2.4	3.1	59.2	27.0	8.5	73.0
#30	2.3	2.6	44.0	20.3	6.7	79.7
#50	2.2	2.3	24.0	11.6	8.7	88.4
#100	2.1	2.1	6.6	4.0	7.6	96.0
LBW	1.8	1.9	0.8	1.4	2.6	98.6

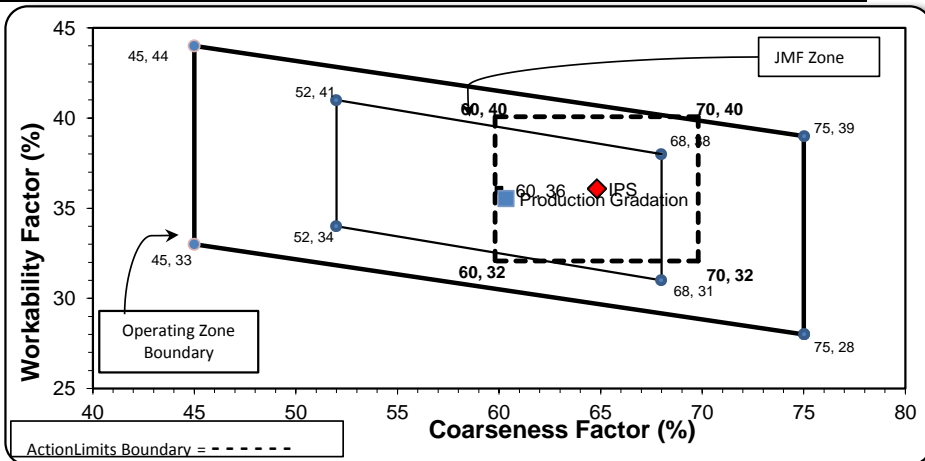


**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

\*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

<b>Coarseness Factor:</b>	<b>60</b>	<b>Workability Factor:</b>	<b>36</b>
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Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>65</b>		
<b>Workability Factor:</b>	<b>36</b>		
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 and DDP154E8

Production Gradation Report

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

Sample Date: 5/21/18

Concrete Grade: **P1M**

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

Dates Test Represents: 5/22/2018 to 5/28/2018

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

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
CA	71-47	Presque Isle	800	4.89	2.62	25.8
IA	71-47	Presque Isle	1100	6.73	2.62	35.5
2NS	63-92	AA Grange Hall	1200	7.26	2.65	38.7
<b>Total Wt</b>			<b>3100</b>	<b>18.88</b>		<b>100.0</b>

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



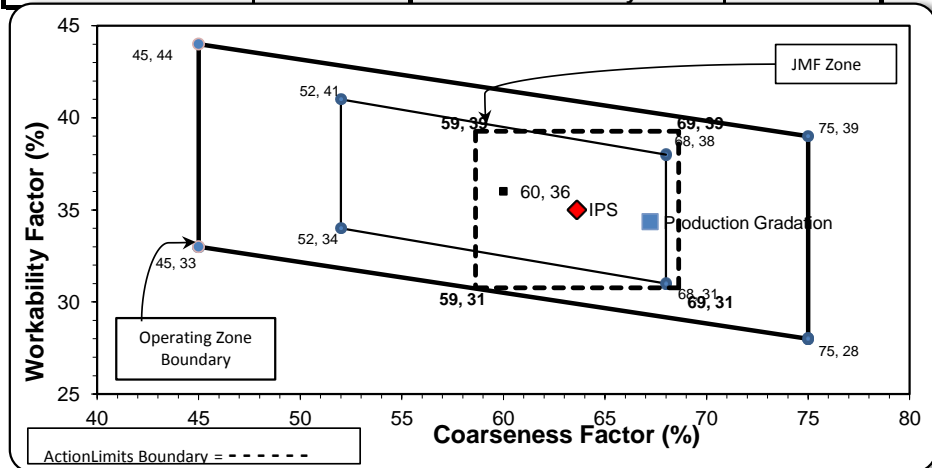
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.3	100.0	100.0	98.5	1.5	1.5
1"	36.3	100.0	100.0	83.6	15.0	16.4
3/4"	7.5	96.7	100.0	75.0	8.6	25.0
1/2"	2.9	73.2	100.0	65.4	9.5	34.6
3/8"	1.6	47.2	100.0	55.9	9.6	44.1
#4	1.4	7.7	97.8	41.0	14.9	59.0
#8	1.4	2.3	85.7	34.4	6.6	65.6
#16	1.3	1.9	69.6	28.0	6.4	72.0
#30	1.3	1.8	49.0	19.9	8.0	80.1
#50	1.3	1.7	23.2	9.9	10.0	90.1
#100	1.4	1.6	3.2	2.2	7.8	97.8
LBW	0.9	1.2	0.2	0.7	1.4	99.3

\*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.  
 \*% 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

<b>Coarseness Factor:</b>	<b>67</b>	<b>Workability Factor:</b>	<b>34</b>
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Initial Production Sample (IPS)

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

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 SM, LLC Technical Service

Approved By: