

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-103**

Sample Date: 10/9/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 10/9/2017 to 10/15/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	53.5
26A	58-003	Stoneco	150	0.89	2.69	5.0
2NS	81-93	Burmeister	1240	7.53	2.64	41.5
Total Wt			2990	17.95		100.0

<----- 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"	88.8	100.0	100.0	94.0	5.8	6.0
1/2"	53.2	99.4	100.0	74.9	19.1	25.1
3/8"	30.4	84.3	100.0	62.0	13.0	38.0
#4	3.9	24.4	96.1	43.2	18.8	56.8
#8	1.2	5.2	83.8	35.7	7.5	64.3
#16	1.2	1.6	69.2	29.4	6.2	70.6
#30	1.0	1.0	49.6	21.2	8.3	78.8
#50	0.9	0.9	20.2	8.9	12.3	91.1
#100	0.8	0.8	4.0	2.1	6.8	97.9
LBW	0.6	0.5	1.2	0.8	1.3	99.2

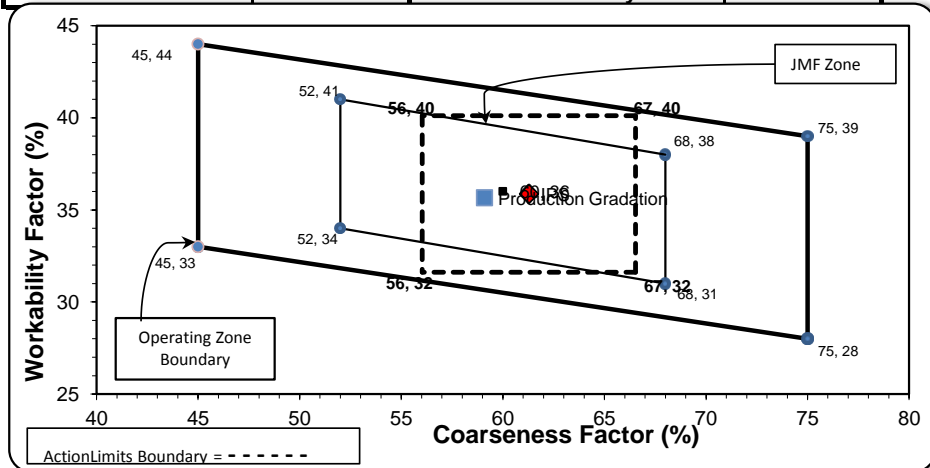
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **59** Workability Factor: **36**



Initial Production Sample (IPS)

Coarseness Factor: **61**
 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"	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:

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-32**

Sample Date: 10/9/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 10/9/2017 to 10/15/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	52.5
26A	71-47	Presque Isle	175	1.07	2.62	5.9
2NS	95-13	Smelter Bay	1225	7.41	2.65	41.5
Total Wt			2950	17.96		100.0

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



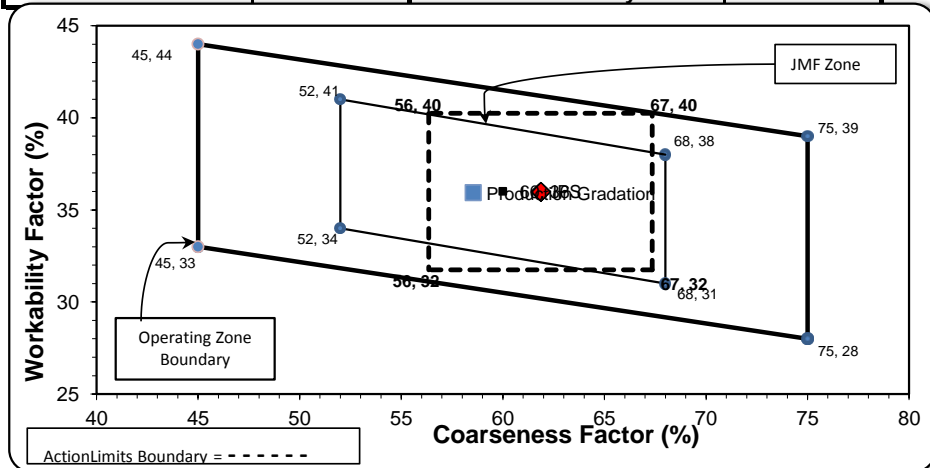
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	92.1	100.0	100.0	95.8	4.2	4.2
1/2"	52.9	97.2	100.0	75.1	20.8	24.9
3/8"	30.1	86.9	100.0	62.5	12.6	37.5
#4	5.3	14.5	97.0	43.9	18.6	56.1
#8	2.4	3.5	83.0	35.9	8.0	64.1
#16	2.1	2.3	66.1	28.7	7.2	71.3
#30	2.0	2.1	45.1	19.9	8.8	80.1
#50	1.9	2.0	18.4	8.8	11.1	91.2
#100	1.9	1.9	5.3	3.3	5.4	96.7
LBW	1.7	1.7	1.9	1.8	1.5	98.2

*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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 59 **Workability Factor:** 36



Initial Production Sample (IPS)

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:

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-38**

Sample Date: 10/9/17

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 10/9/2017 to 10/15/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	53.5
26A	58-003	Stoneco	150	0.89	2.69	5.0
2NS	81-93	Burmeister	1240	7.53	2.64	41.5
Total Wt			2990	17.95		100.0

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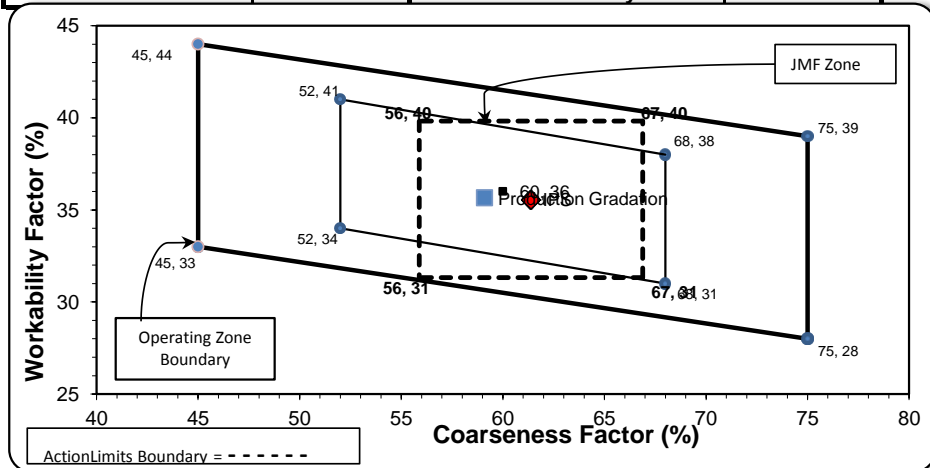
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2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.7	100.0	100.0	99.8	0.2	0.2
3/4"	88.8	100.0	100.0	94.0	5.8	6.0
1/2"	53.2	99.4	100.0	74.9	19.1	25.1
3/8"	30.4	84.3	100.0	62.0	13.0	38.0
#4	3.9	24.4	96.1	43.2	18.8	56.8
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#50	0.9	0.9	20.2	8.9	12.3	91.1
#100	0.8	0.8	4.0	2.1	6.8	97.9
LBW	0.6	0.5	1.2	0.8	1.3	99.2

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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	59	Workability Factor:	36
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Initial Production Sample (IPS)

Coarseness Factor:	61		
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"	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

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 SM, LLC Technical Service

Approved By: