

Aggregate Optimization Chart

PLANT #: **P-101**

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1575	9.63	2.62	51.6
26A	71-47	Presque Isle	250	1.53	2.62	8.2
2NS	75-051	Mid Michigan	1230	7.41	2.66	40.3
Total Wt			3055	18.57		100.0

<---- Verify this number is 100%



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

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"	95.6	100.0	100.0	97.7	2.3	2.3
3/4"	79.1	100.0	100.0	89.2	8.5	10.8
1/2"	43.0	94.7	100.0	70.2	19.0	29.8
3/8"	28.2	85.2	100.0	61.8	8.4	38.2
#4	6.2	20.8	97.3	44.1	17.7	55.9
#8	2.5	5.8	83.8	35.5	8.6	64.5
#16	2.0	3.4	69.8	29.4	6.1	70.6
#30	1.9	2.9	52.5	22.4	7.1	77.6
#50	1.8	2.7	22.6	10.2	12.1	89.8
#100	1.8	2.5	5.0	3.1	7.1	96.9
LBW	1.6	2.2	0.8	1.3	1.8	98.7

*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

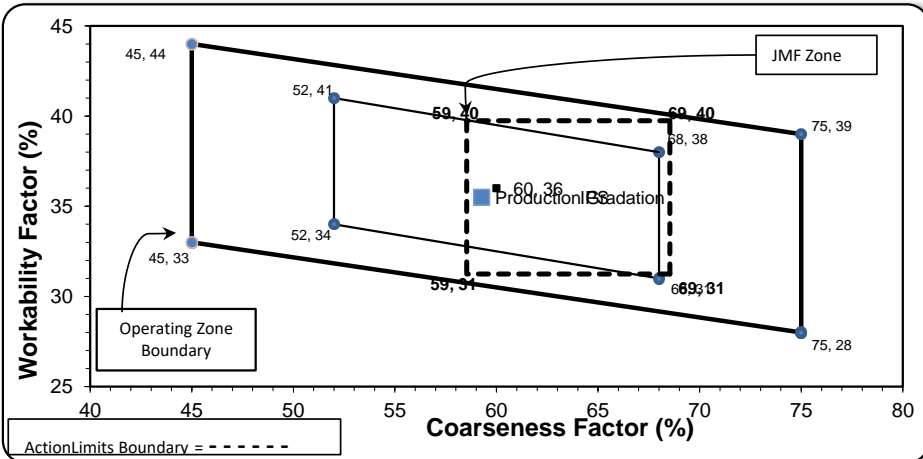
Coarseness Factor:	59	Workability Factor:	36
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Initial Production Sample (IPS)

Coarseness Factor:	64
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Workability Factor:	35
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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"	93.9	6.1	6.1
1/2"	71.4	22.5	28.6
3/8"	59.0	12.4	41.0
#4	45.1	13.9	54.9
#8	35.5	9.6	64.5
#16	28.3	7.2	71.7
#30	21.3	6.9	78.7
#50	11.0	10.3	89.0
#100	3.4	7.6	96.6
LBW	1.1	2.3	98.9



PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1725	10.28	2.69	55.6
26A	58-003	Stoneco	175	1.04	2.69	5.6
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



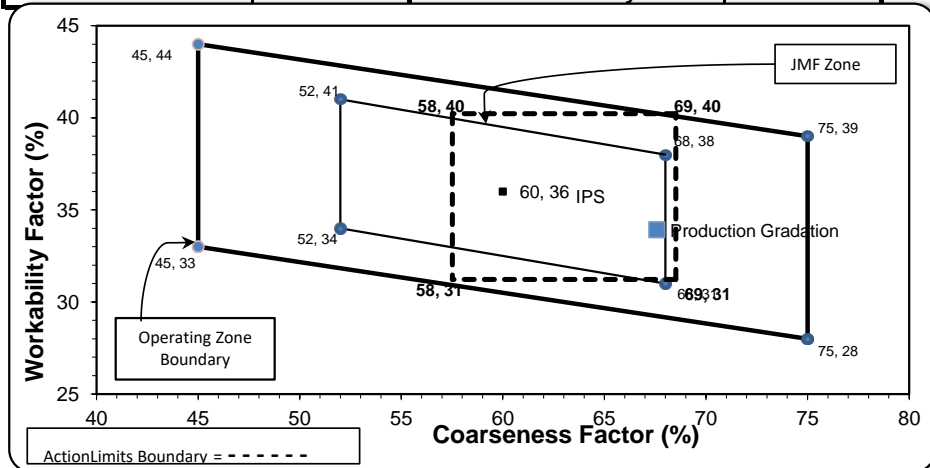
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.4	100.0	100.0	99.7	0.3	0.3
3/4"	85.3	100.0	100.0	91.8	7.8	8.2
1/2"	44.0	99.8	100.0	68.8	23.0	31.2
3/8"	21.1	86.7	100.0	55.3	13.5	44.7
#4	2.9	13.8	99.4	40.9	14.5	59.1
#8	1.2	4.2	85.3	33.9	6.9	66.1
#16	1.0	2.4	66.3	26.4	7.6	73.6
#30	0.9	1.9	45.5	18.2	8.1	81.8
#50	0.8	1.8	21.3	8.8	9.4	91.2
#100	0.7	1.7	5.4	2.6	6.2	97.4
LBW	0.6	1.5	0.9	0.8	1.8	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	68	Workability Factor:	34
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Initial Production Sample (IPS)

Coarseness Factor:	63		
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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.5	11.8	40.5
#4	43.8	15.7	56.2
#8	35.7	8.1	64.3
#16	27.0	8.7	73.0
#30	18.6	8.4	81.4
#50	6.8	11.8	93.2
#100	1.4	5.4	98.6
LBW	0.6	0.8	99.4

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-103**

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1725	10.28	2.69	55.6
26A	58-003	Stoneco	175	1.04	2.69	5.6
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



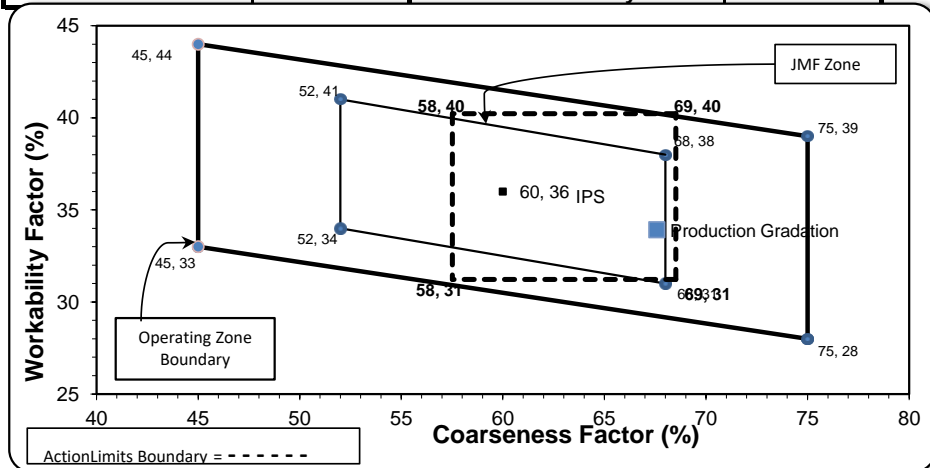
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.4	100.0	100.0	99.7	0.3	0.3
3/4"	85.3	100.0	100.0	91.8	7.8	8.2
1/2"	44.0	99.8	100.0	68.8	23.0	31.2
3/8"	21.1	86.7	100.0	55.3	13.5	44.7
#4	2.9	13.8	99.4	40.9	14.5	59.1
#8	1.2	4.2	85.3	33.9	6.9	66.1
#16	1.0	2.4	66.3	26.4	7.6	73.6
#30	0.9	1.9	45.5	18.2	8.1	81.8
#50	0.8	1.8	21.3	8.8	9.4	91.2
#100	0.7	1.7	5.4	2.6	6.2	97.4
LBW	0.6	1.5	0.9	0.8	1.8	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	68	Workability Factor:	34
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Initial Production Sample (IPS)

Coarseness Factor:	63		
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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.5	11.8	40.5
#4	43.8	15.7	56.2
#8	35.7	8.1	64.3
#16	27.0	8.7	73.0
#30	18.6	8.4	81.4
#50	6.8	11.8	93.2
#100	1.4	5.4	98.6
LBW	0.6	0.8	99.4

PREPARED BY:
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Approved BY:

Aggregate Optimization Chart

PLANT #: 14

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1700	10.13	2.69	54.7
26A	58-003	Stoneco	200	1.19	2.69	6.4
2NS	19-04	Schlegel	1210	7.26	2.67	38.9
Total Wt			3110	18.58		100.0

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



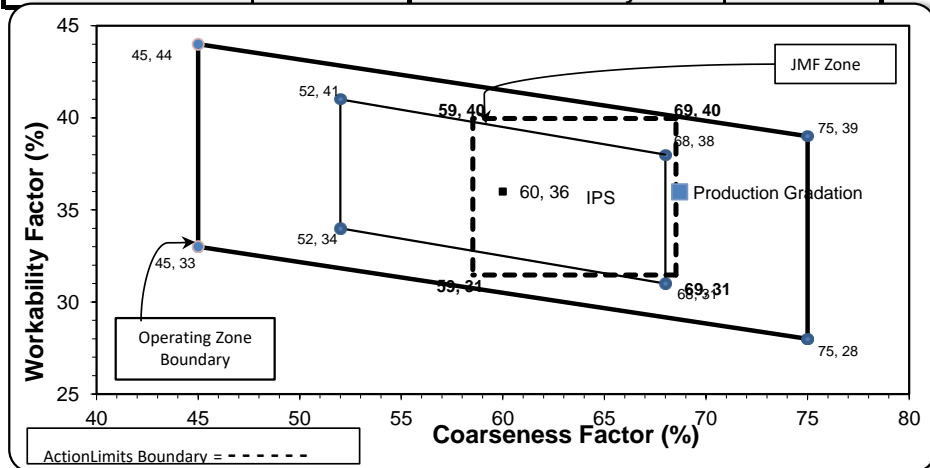
Builders Redi-Mix
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.4	100.0	100.0	99.7	0.3	0.3
3/4"	85.3	100.0	100.0	92.0	7.7	8.0
1/2"	44.0	99.8	100.0	69.4	22.6	30.6
3/8"	21.1	86.7	100.0	56.0	13.4	44.0
#4	2.9	13.8	99.9	41.3	14.7	58.7
#8	1.2	4.2	90.1	36.0	5.4	64.0
#16	1.0	2.4	69.4	27.7	8.3	72.3
#30	0.9	1.9	44.5	17.9	9.8	82.1
#50	0.8	1.8	14.3	6.1	11.8	93.9
#100	0.7	1.7	2.7	1.5	4.6	98.5
LBW	0.6	1.5	0.2	0.5	1.0	99.5

*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: 69 **Workability Factor:** 36



Initial Production Sample (IPS)

Coarseness Factor: 64
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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.2	12.1	40.8
#4	41.5	17.7	58.5
#8	35.7	5.8	64.3
#16	27.9	7.9	72.1
#30	18.3	9.5	81.7
#50	7.3	11.0	92.7
#100	2.0	5.3	98.0
LBW	0.9	1.1	99.1

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: 12

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1720	10.52	2.62	56.4
26A	71-47	Presque Isle	100	0.61	2.62	3.3
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



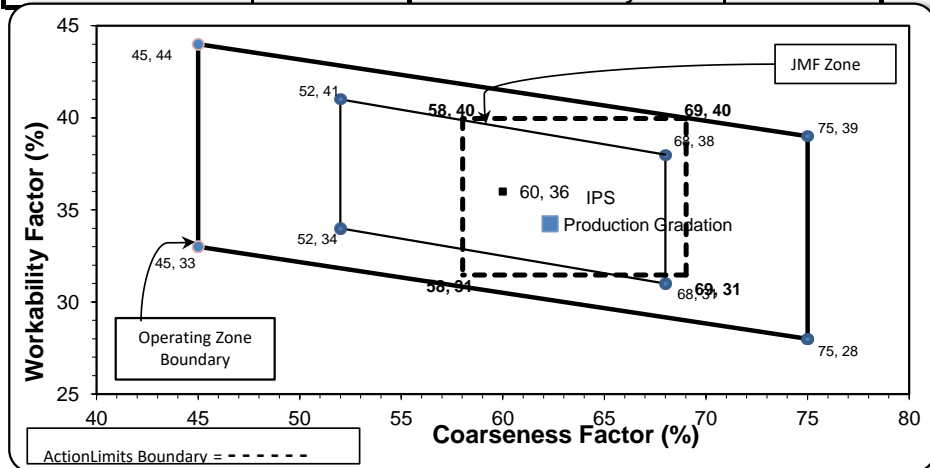
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.6	100.0	100.0	99.2	0.8	0.8
3/4"	84.1	100.0	100.0	91.0	8.2	9.0
1/2"	46.4	95.6	100.0	69.6	21.4	30.4
3/8"	28.1	86.8	100.0	59.0	10.6	41.0
#4	5.7	18.5	96.6	42.8	16.2	57.2
#8	2.4	4.6	81.2	34.3	8.5	65.7
#16	2.0	2.1	66.4	28.0	6.3	72.0
#30	1.8	1.5	50.6	21.5	6.5	78.5
#50	1.8	1.3	25.2	11.2	10.2	88.8
#100	1.7	1.2	4.1	2.7	8.6	97.3
LBW	1.2	1.0	0.5	0.9	1.7	99.1

*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:	62	Workability Factor:	34
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Intial Production Sample (IPS)

Coarseness Factor:	64		
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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.2	12.1	40.8
#4	41.5	17.7	58.5
#8	35.7	5.8	64.3
#16	27.9	7.9	72.1
#30	18.3	9.5	81.7
#50	7.3	11.0	92.7
#100	2.0	5.3	98.0
LBW	0.9	1.1	99.1

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: p11

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1520	9.30	2.62	49.8
26A	71-47	Presque Isle	300	1.83	2.62	9.8
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



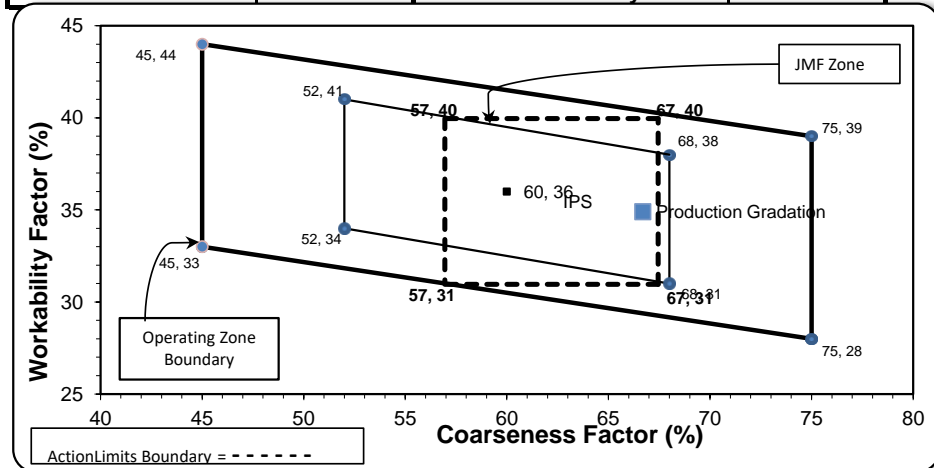
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	96.7	100.0	100.0	98.4	1.6	1.6
3/4"	78.5	100.0	100.0	89.3	9.1	10.7
1/2"	37.1	95.6	100.0	68.2	21.1	31.8
3/8"	15.5	86.8	100.0	56.6	11.6	43.4
#4	1.3	18.5	96.4	41.3	15.2	58.7
#8	1.0	4.6	84.2	34.9	6.4	65.1
#16	0.9	2.1	68.3	28.2	6.7	71.8
#30	0.9	1.5	48.1	20.0	8.2	80.0
#50	0.9	1.3	22.7	9.7	10.3	90.3
#100	0.9	1.2	6.8	3.3	6.4	96.7
LBW	0.7	1.0	1.4	1.0	2.3	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	67	Workability Factor:	35
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Initial Production Sample (IPS)

Coarseness Factor:	62		
Workability Factor:	35		
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"	94.0	6.0	6.0
1/2"	70.2	23.7	29.8
3/8"	59.9	10.4	40.1
#4	42.7	17.2	57.3
#8	35.5	7.2	64.5
#16	28.4	7.0	71.6
#30	19.2	9.2	80.8
#50	8.9	10.3	91.1
#100	3.1	5.9	96.9
LBW	1.4	1.7	98.6

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-32**

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1520	9.30	2.62	49.8
26A	71-47	Presque Isle	300	1.83	2.62	9.8
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



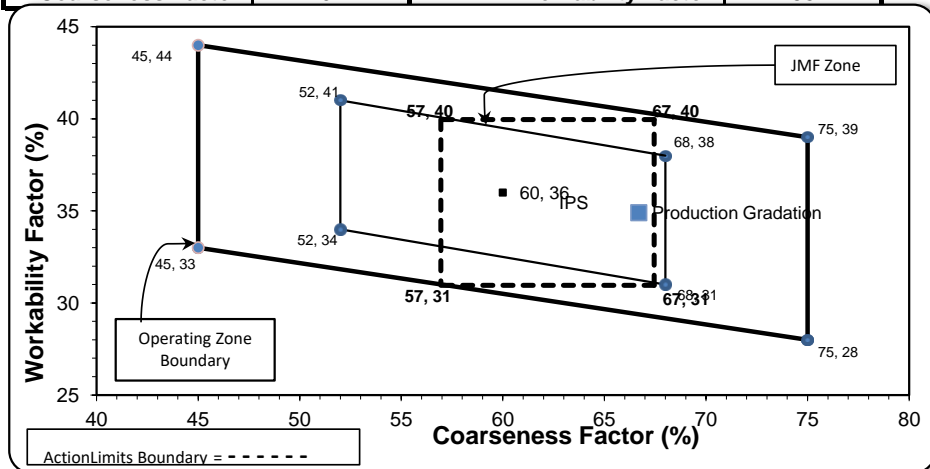
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	96.7	100.0	100.0	98.4	1.6	1.6
3/4"	78.5	100.0	100.0	89.3	9.1	10.7
1/2"	37.1	95.6	100.0	68.2	21.1	31.8
3/8"	15.5	86.8	100.0	56.6	11.6	43.4
#4	1.3	18.5	96.4	41.3	15.2	58.7
#8	1.0	4.6	84.2	34.9	6.4	65.1
#16	0.9	2.1	68.3	28.2	6.7	71.8
#30	0.9	1.5	48.1	20.0	8.2	80.0
#50	0.9	1.3	22.7	9.7	10.3	90.3
#100	0.9	1.2	6.8	3.3	6.4	96.7
LBW	0.7	1.0	1.4	1.0	2.3	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	67	Workability Factor:	35
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Initial Production Sample (IPS)

Coarseness Factor:	62		
Workability Factor:	35		
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"	94.0	6.0	6.0
1/2"	70.2	23.7	29.8
3/8"	59.9	10.4	40.1
#4	42.7	17.2	57.3
#8	35.5	7.2	64.5
#16	28.4	7.0	71.6
#30	19.2	9.2	80.8
#50	8.9	10.3	91.1
#100	3.1	5.9	96.9
LBW	1.4	1.7	98.6

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-35**

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1725	10.28	2.69	55.6
26A	58-003	Stoneco	175	1.04	2.69	5.6
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



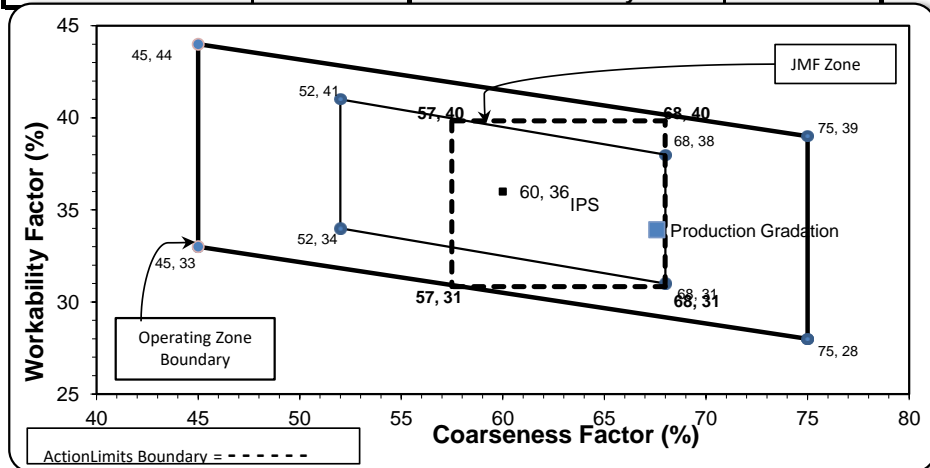
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.4	100.0	100.0	99.7	0.3	0.3
3/4"	85.3	100.0	100.0	91.8	7.8	8.2
1/2"	44.0	99.8	100.0	68.8	23.0	31.2
3/8"	21.1	86.7	100.0	55.3	13.5	44.7
#4	2.9	13.8	99.4	40.9	14.5	59.1
#8	1.2	4.2	85.3	33.9	6.9	66.1
#16	1.0	2.4	66.3	26.4	7.6	73.6
#30	0.9	1.9	45.5	18.2	8.1	81.8
#50	0.8	1.8	21.3	8.8	9.4	91.2
#100	0.7	1.7	5.4	2.6	6.2	97.4
LBW	0.6	1.5	0.9	0.8	1.8	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **68** **Workability Factor:** **34**



Initial Production Sample (IPS)

Coarseness Factor: **63**
Workability Factor: **35**

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.4	11.9	40.6
#4	43.0	16.5	57.0
#8	35.3	7.6	64.7
#16	28.2	7.1	71.8
#30	21.6	6.6	78.4
#50	9.1	12.5	90.9
#100	1.7	7.4	98.3
LBW	1.1	0.6	98.9

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-36**

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1600	9.79	2.62	52.5
26A	71-47	Presque Isle	250	1.53	2.62	8.2
2NS	63-92	Grange Hall	1200	7.26	2.65	39.3
Total Wt			3050	18.57		100.0

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



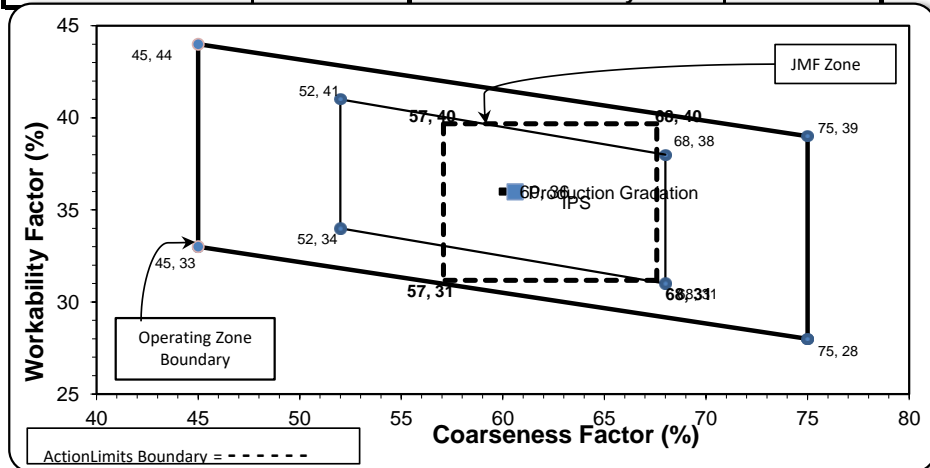
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 Suite 500
 Farmington Hills, MI 48336

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"	98.6	100.0	100.0	99.3	0.7	0.7
3/4"	84.1	100.0	100.0	91.7	7.6	8.3
1/2"	46.4	95.6	100.0	71.5	20.1	28.5
3/8"	28.1	86.8	100.0	61.2	10.3	38.8
#4	5.7	18.5	98.2	43.1	18.1	56.9
#8	2.4	4.6	87.3	36.0	7.2	64.0
#16	2.0	2.1	71.8	29.5	6.5	70.5
#30	1.8	1.5	47.3	19.7	9.8	80.3
#50	1.8	1.3	21.3	9.4	10.2	90.6
#100	1.7	1.2	4.7	2.8	6.6	97.2
LBW	1.2	1.0	0.7	1.0	1.9	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	61	Workability Factor:	36
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Initial Production Sample (IPS)

Coarseness Factor:	62
Workability Factor:	35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.1	0.9	0.9
3/4"	90.5	8.6	9.5
1/2"	69.8	20.7	30.2
3/8"	59.8	10.0	40.2
#4	42.2	17.6	57.8
#8	35.4	6.7	64.6
#16	28.8	6.7	71.2
#30	21.4	7.4	78.6
#50	8.8	12.6	91.2
#100	1.8	7.0	98.2
LBW	0.7	1.0	99.3

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-39**

Sample Date: 5/29/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1570	9.60	2.62	51.5
26A	71-47	Presque Isle	230	1.41	2.62	7.5
2NS	44-051	Krake Willis Rd	1250	7.56	2.65	41.0
Total Wt			3050	18.57		100.0

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



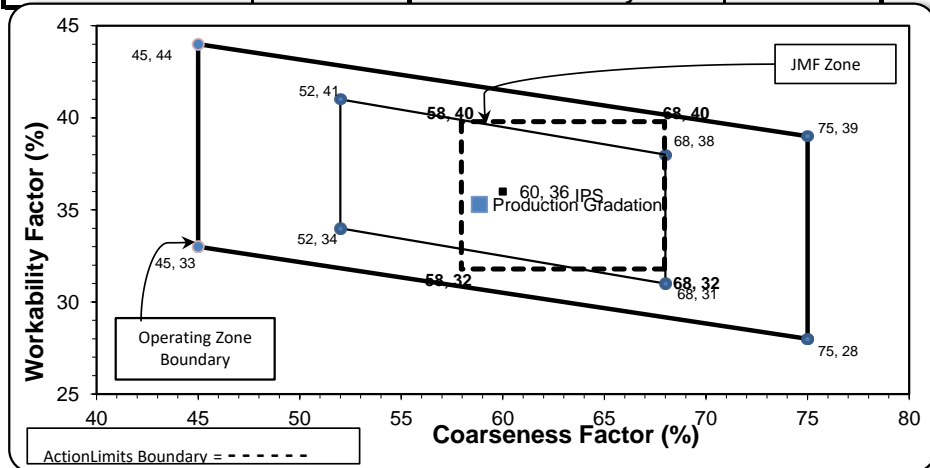
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	95.6	100.0	100.0	97.7	2.3	2.3
3/4"	79.1	100.0	100.0	89.2	8.5	10.8
1/2"	43.0	94.7	100.0	70.3	19.0	29.7
3/8"	28.2	85.2	100.0	61.9	8.3	38.1
#4	6.2	20.8	95.7	44.0	17.9	56.0
#8	2.5	5.8	81.9	35.3	8.7	64.7
#16	2.0	3.4	66.9	28.7	6.6	71.3
#30	1.9	2.9	50.2	21.8	6.9	78.2
#50	1.8	2.7	25.0	11.4	10.4	88.6
#100	1.8	2.5	7.5	4.2	7.2	95.8
LBW	1.6	2.2	1.3	1.5	2.7	98.5

*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:	35
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Initial Production Sample (IPS)

Coarseness Factor:	63
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"	89.8	10.2	10.2
1/2"	70.7	19.1	29.3
3/8"	59.6	11.1	40.4
#4	43.2	16.4	56.8
#8	35.8	7.4	64.2
#16	29.2	6.6	70.8
#30	21.4	7.8	78.6
#50	9.8	11.6	90.2
#100	3.7	6.1	96.3
LBW	1.2	2.5	98.8

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: P-02

Sample Date: 5/29/23

Concrete Grade: S2M, 3500HP

Dates Test Represents: 5/30/2023 through 6/5/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1720	10.52	2.62	56.4
26A	71-47	Presque Isle	100	0.61	2.62	3.3
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



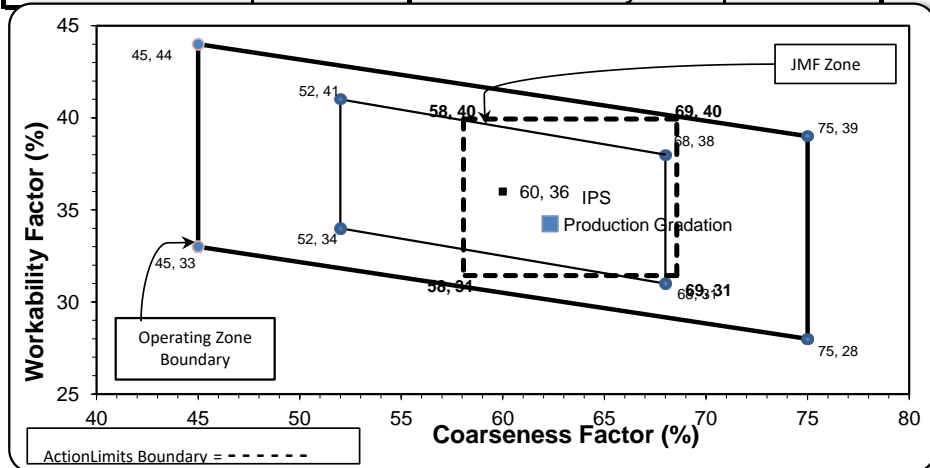
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.6	100.0	100.0	99.2	0.8	0.8
3/4"	84.1	100.0	100.0	91.0	8.2	9.0
1/2"	46.4	95.6	100.0	69.6	21.4	30.4
3/8"	28.1	86.8	100.0	59.0	10.6	41.0
#4	5.7	18.5	96.6	42.8	16.2	57.2
#8	2.4	4.6	81.2	34.3	8.5	65.7
#16	2.0	2.1	66.4	28.0	6.3	72.0
#30	1.8	1.5	50.6	21.5	6.5	78.5
#50	1.8	1.3	25.2	11.2	10.2	88.8
#100	1.7	1.2	4.1	2.7	8.6	97.3
LBW	1.2	1.0	0.5	0.9	1.7	99.1

*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: 62 **Workability Factor:** 34



Initial Production Sample (IPS)

Coarseness Factor: 63
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"	95.6	4.4	4.4
1/2"	73.1	22.6	26.9
3/8"	59.3	13.8	40.7
#4	42.8	16.5	57.2
#8	35.7	7.1	64.3
#16	28.9	6.8	71.1
#30	20.7	8.2	79.3
#50	9.9	10.8	90.1
#100	2.1	7.8	97.9
LBW	0.9	1.2	99.1

PREPARED BY:
 SM, LLC Technical Service

Approved By: