

Aggregate Optimization Chart

PLANT #: **P-101**

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 5/14/2024 through 5/20/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1070	6.54	2.62	34.9
IA	71-47	Presque Isle	800	4.89	2.62	26.1
2NS	75-051	Mid Michigan	1200	7.23	2.66	39.1
Total Wt			3070	18.67		100.0

<---- 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"	94.0	100.0	100.0	97.9	2.1	2.1
1"	34.6	100.0	100.0	77.2	20.7	22.8
3/4"	8.8	98.5	100.0	67.8	9.4	32.2
1/2"	3.2	83.2	100.0	61.9	5.9	38.1
3/8"	3.0	63.7	100.0	56.7	5.2	43.3
#4	2.5	17.3	95.9	42.9	13.9	57.1
#8	2.4	4.5	81.0	33.7	9.2	66.3
#16	2.4	2.7	66.5	27.5	6.1	72.5
#30	2.3	2.3	51.6	21.6	6.0	78.4
#50	2.2	2.1	27.8	12.2	9.4	87.8
#100	2.0	1.9	7.5	4.1	8.1	95.9
LBW	1.6	1.7	1.1	1.4	2.7	98.6

*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.

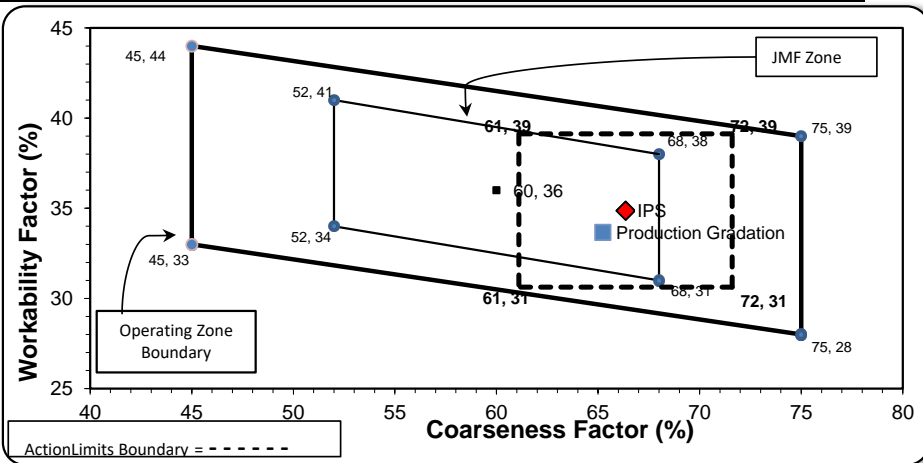
Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	65	Workability Factor:	34
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Initial Production Sample (IPS)

Coarseness Factor:	66
Workability Factor:	35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.6	0.4	0.4
1"	84.3	15.3	15.7
3/4"	74.8	9.6	25.2
1/2"	64.3	10.4	35.7
3/8"	56.8	7.5	43.2
#4	43.0	13.8	57.0
#8	34.9	8.1	65.1
#16	26.4	8.5	73.6
#30	19.9	6.5	80.1
#50	10.4	9.5	89.6
#100	3.4	7.0	96.6
LBW	1.2	2.2	98.8



PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 5/14/2024 through 5/20/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	63-114	Highland	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



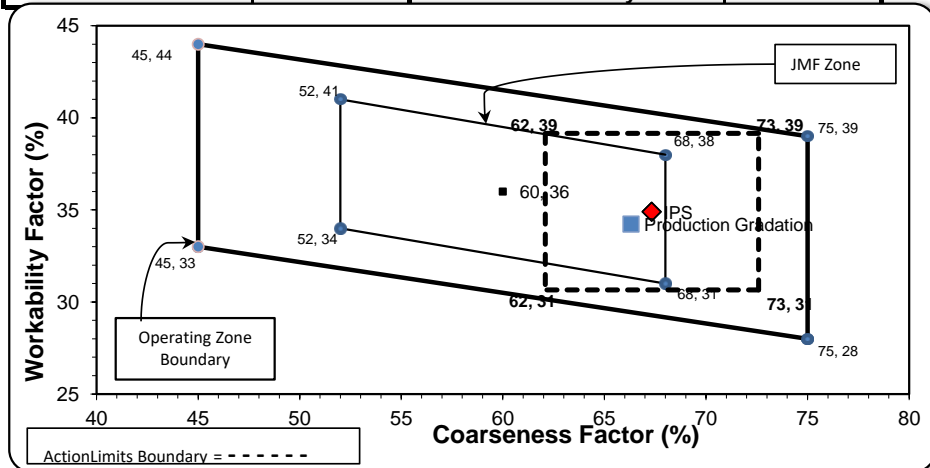
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 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	65.8	100.0	100.0	83.9	16.1	16.1
3/4"	39.8	100.0	100.0	71.6	12.3	28.4
1/2"	19.9	96.4	100.0	61.7	9.9	38.3
3/8"	12.8	82.5	100.0	56.4	5.4	43.6
#4	3.1	17.0	98.8	41.9	14.5	58.1
#8	2.2	4.8	84.5	34.2	7.7	65.8
#16	1.8	2.6	67.6	27.2	7.0	72.8
#30	1.6	1.9	50.5	20.5	6.8	79.5
#50	1.6	1.6	21.0	9.1	11.4	90.9
#100	1.5	1.5	2.1	1.7	7.3	98.3
LBW	1.3	1.2	0.3	0.9	0.8	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:	66	Workability Factor:	34
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Initial Production Sample (IPS)

Coarseness Factor:	67		
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"	85.5	14.5	14.5
3/4"	73.4	12.1	26.6
1/2"	61.0	12.4	39.0
3/8"	56.2	4.8	43.8
#4	43.1	13.1	56.9
#8	34.9	8.2	65.1
#16	29.4	5.5	70.6
#30	21.6	7.8	78.4
#50	8.1	13.4	91.9
#100	2.2	5.9	97.8
LBW	1.4	0.8	98.6

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-103**

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/14/2024 through 5/20/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	63-114	Highland	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



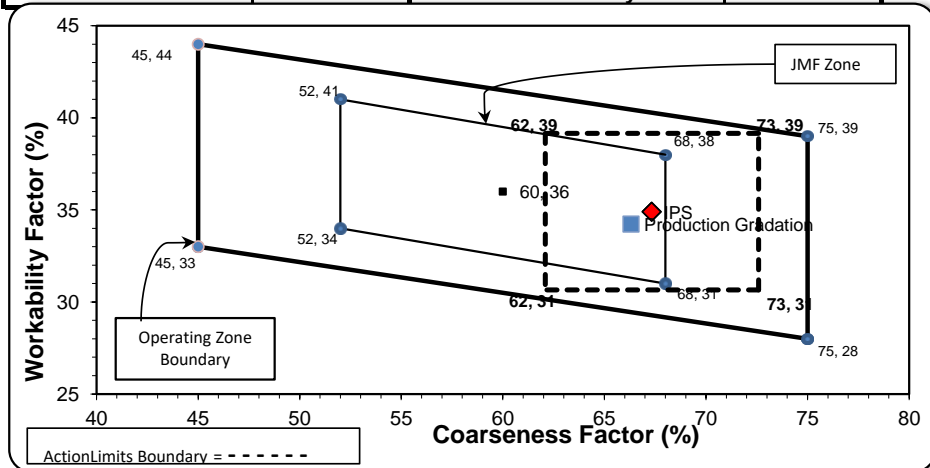
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 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	65.8	100.0	100.0	83.9	16.1	16.1
3/4"	39.8	100.0	100.0	71.6	12.3	28.4
1/2"	19.9	96.4	100.0	61.7	9.9	38.3
3/8"	12.8	82.5	100.0	56.4	5.4	43.6
#4	3.1	17.0	98.8	41.9	14.5	58.1
#8	2.2	4.8	84.5	34.2	7.7	65.8
#16	1.8	2.6	67.6	27.2	7.0	72.8
#30	1.6	1.9	50.5	20.5	6.8	79.5
#50	1.6	1.6	21.0	9.1	11.4	90.9
#100	1.5	1.5	2.1	1.7	7.3	98.3
LBW	1.3	1.2	0.3	0.9	0.8	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: **66** **Workability Factor:** **34**



Initial Production Sample (IPS)

Coarseness Factor: **67**
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"	85.5	14.5	14.5
3/4"	73.4	12.1	26.6
1/2"	61.0	12.4	39.0
3/8"	56.2	4.8	43.8
#4	43.1	13.1	56.9
#8	34.9	8.2	65.1
#16	29.4	5.5	70.6
#30	21.6	7.8	78.4
#50	8.1	13.4	91.9
#100	2.2	5.9	97.8
LBW	1.4	0.8	98.6

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Aggregate Optimization Chart

PLANT #: 12

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/14/2024 through 5/20/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	970	5.93	2.62	31.6
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



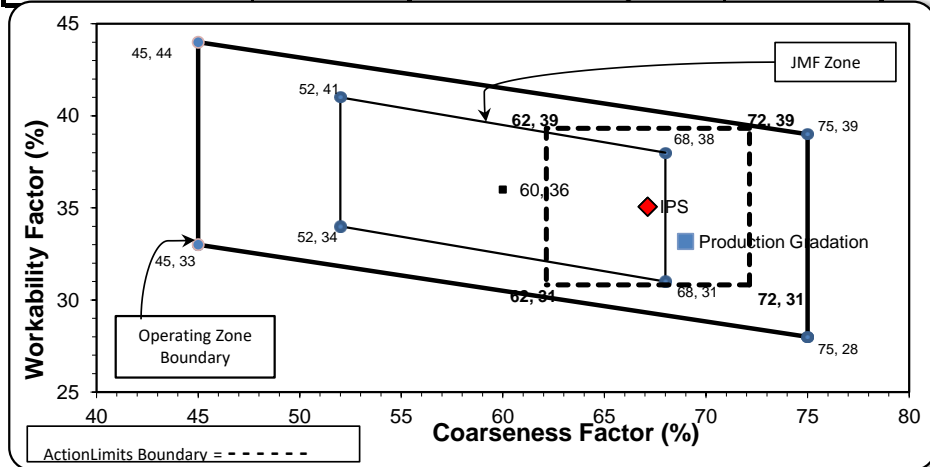
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Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	92.8	100.0	100.0	97.7	2.3	2.3
1"	36.5	100.0	100.0	79.9	17.8	20.1
3/4"	21.0	98.8	100.0	74.7	5.2	25.3
1/2"	6.5	74.8	100.0	63.1	11.6	36.9
3/8"	3.0	47.3	100.0	53.9	9.2	46.1
#4	2.0	7.3	95.8	40.2	13.7	59.8
#8	1.9	2.6	81.4	33.2	7.0	66.8
#16	1.8	2.1	65.9	26.9	6.2	73.1
#30	1.7	2.0	50.0	20.7	6.3	79.3
#50	1.7	1.9	25.2	10.9	9.7	89.1
#100	1.6	1.8	4.4	2.8	8.2	97.2
LBW	1.3	1.6	0.5	1.1	1.7	98.9

*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:** 33



Initial Production Sample (IPS)

Coarseness Factor: 67
Workability Factor: 35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.6	0.4	0.4
1"	83.9	15.7	16.1
3/4"	74.0	9.8	26.0
1/2"	63.7	10.3	36.3
3/8"	56.4	7.3	43.6
#4	43.0	13.4	57.0
#8	35.1	7.9	64.9
#16	29.0	6.1	71.0
#30	20.9	8.0	79.1
#50	8.1	12.8	91.9
#100	1.6	6.5	98.4
LBW	0.9	0.8	99.1

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Aggregate Optimization Chart

PLANT #: 20

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/14/2024 through 5/20/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	920	5.63	2.62	30.0
IA	71-47	Presque Isle	950	5.81	2.62	30.9
2NS	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



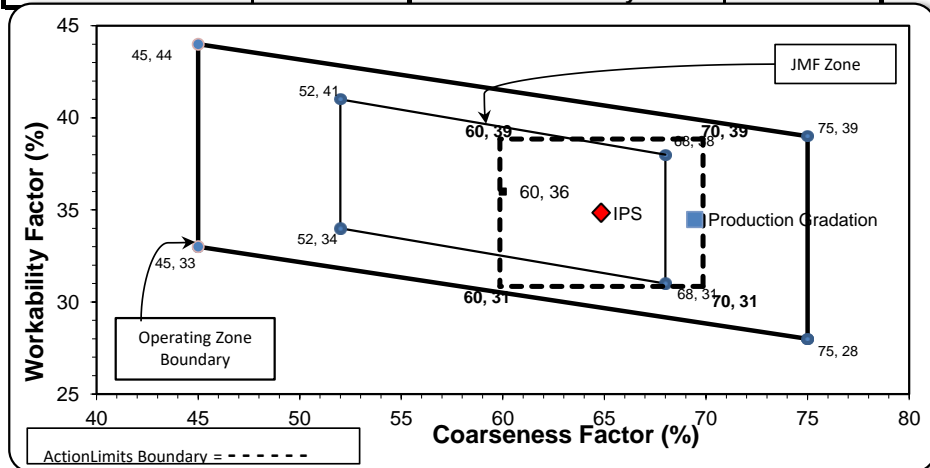
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Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	97.7	100.0	100.0	99.3	0.7	0.7
1"	39.2	100.0	100.0	81.8	17.5	18.2
3/4"	11.4	97.4	100.0	72.6	9.1	27.4
1/2"	3.4	71.4	100.0	62.2	10.4	37.8
3/8"	2.7	47.2	100.0	54.5	7.7	45.5
#4	2.4	10.0	98.0	42.1	12.4	57.9
#8	2.4	4.4	82.9	34.5	7.6	65.5
#16	2.4	3.4	67.4	28.1	6.4	71.9
#30	2.3	3.1	49.7	21.1	7.0	78.9
#50	2.2	2.9	22.8	10.5	10.6	89.5
#100	2.0	2.6	4.1	3.0	7.5	97.0
LBW	1.4	2.2	0.6	1.3	1.7	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: 69 **Workability Factor:** 34



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"	99.1	0.9	0.9
1"	80.8	18.2	19.2
3/4"	71.3	9.6	28.7
1/2"	64.0	7.3	36.0
3/8"	57.7	6.2	42.3
#4	42.8	15.0	57.2
#8	34.8	7.9	65.2
#16	28.4	6.4	71.6
#30	20.2	8.2	79.8
#50	7.6	12.6	92.4
#100	1.6	6.0	98.4
LBW	1.0	0.6	99.0

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: P11

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/14/2024 through 5/20/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	970	5.93	2.62	31.6
2NS	95-013	Smelter Bay	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



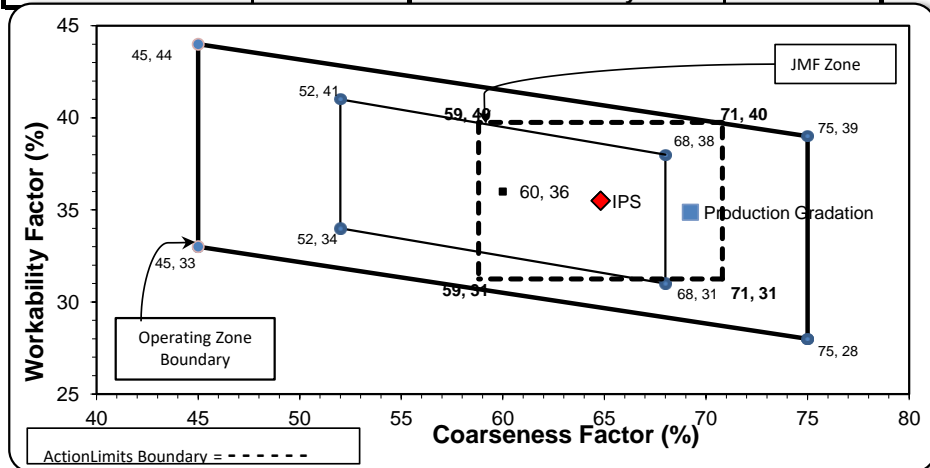
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	92.8	100.0	100.0	97.9	2.1	2.1
1"	36.5	100.0	100.0	81.4	16.5	18.6
3/4"	21.0	98.8	100.0	76.5	4.9	23.5
1/2"	6.5	74.8	100.0	64.6	11.8	35.4
3/8"	3.0	47.3	100.0	54.9	9.7	45.1
#4	2.0	7.3	96.4	40.6	14.3	59.4
#8	1.9	2.6	85.7	34.9	5.7	65.1
#16	1.8	2.1	70.9	28.9	6.0	71.1
#30	1.7	2.0	50.8	21.0	7.9	79.0
#50	1.7	1.9	24.1	10.5	10.5	89.5
#100	1.6	1.8	7.3	3.9	6.6	96.1
LBW	1.3	1.6	1.4	1.4	2.5	98.6

*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:** 35



Initial Production Sample (IPS)

Coarseness Factor: <u>65</u>		Workability Factor: <u>36</u>	
Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.0	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

PLANT #: **P-35**

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/14/2024 through 5/20/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



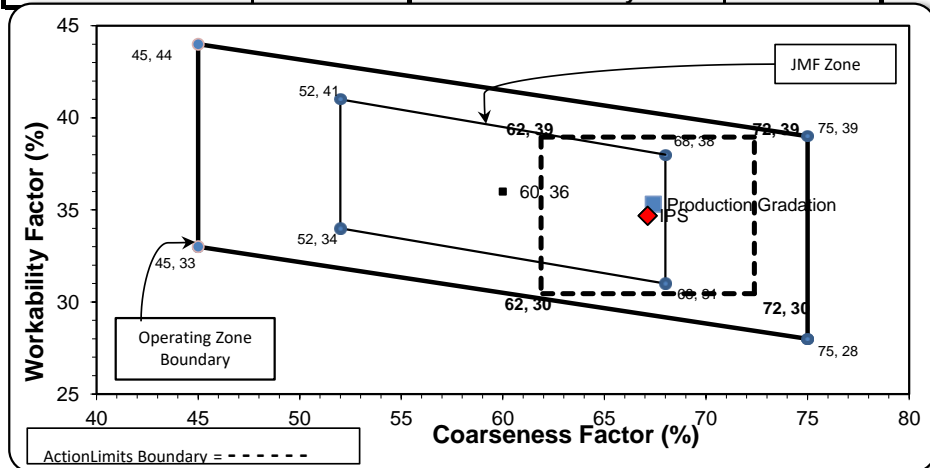
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	65.8	100.0	100.0	83.9	16.1	16.1
3/4"	39.8	100.0	100.0	71.6	12.3	28.4
1/2"	19.9	96.4	100.0	61.7	9.9	38.3
3/8"	12.8	82.5	100.0	56.4	5.4	43.6
#4	3.1	17.0	99.2	42.1	14.3	57.9
#8	2.2	4.8	87.3	35.3	6.8	64.7
#16	1.8	2.6	66.7	26.9	8.4	73.1
#30	1.6	1.9	43.1	17.6	9.3	82.4
#50	1.6	1.6	15.7	7.0	10.6	93.0
#100	1.5	1.5	2.7	2.0	5.1	98.0
LBW	1.3	1.2	0.6	1.0	0.9	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: **67** **Workability Factor:** **35**



Initial Production Sample (IPS)

Coarseness Factor: **67**
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"	86.9	13.1	13.1
3/4"	76.1	10.8	23.9
1/2"	63.7	12.4	36.3
3/8"	56.2	7.5	43.8
#4	43.2	13.0	56.8
#8	34.7	8.5	65.3
#16	27.5	7.2	72.5
#30	20.6	7.0	79.4
#50	9.0	11.6	91.0
#100	2.1	6.9	97.9
LBW	1.0	1.1	99.0

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-36**

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/14/2024 through 5/20/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	970	5.93	2.62	31.6
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



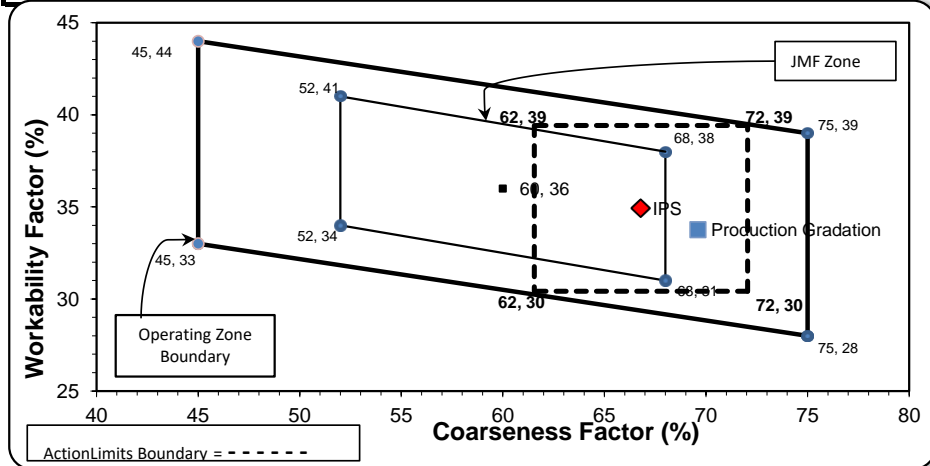
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	92.8	100.0	100.0	97.7	2.3	2.3
1"	36.5	100.0	100.0	79.9	17.8	20.1
3/4"	21.0	98.8	100.0	74.7	5.2	25.3
1/2"	6.5	74.8	100.0	63.1	11.6	36.9
3/8"	3.0	47.3	100.0	53.9	9.2	46.1
#4	2.0	7.3	98.0	41.1	12.8	58.9
#8	1.9	2.6	82.9	33.8	7.3	66.2
#16	1.8	2.1	67.4	27.5	6.2	72.5
#30	1.7	2.0	49.7	20.6	7.0	79.4
#50	1.7	1.9	22.8	10.0	10.5	90.0
#100	1.6	1.8	4.1	2.6	7.4	97.4
LBW	1.3	1.6	0.6	1.1	1.5	98.9

*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:** **34**



Initial Production Sample (IPS)

Coarseness Factor: **67**
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"	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

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-39**

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 5/14/2024 through 5/20/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1020	6.24	2.62	33.2
IA	71-47	Presque Isle	800	4.89	2.62	26.1
2NS	44-051	Krake Willis Rd	1250	7.56	2.65	40.7
Total Wt			3070	18.69		100.0

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



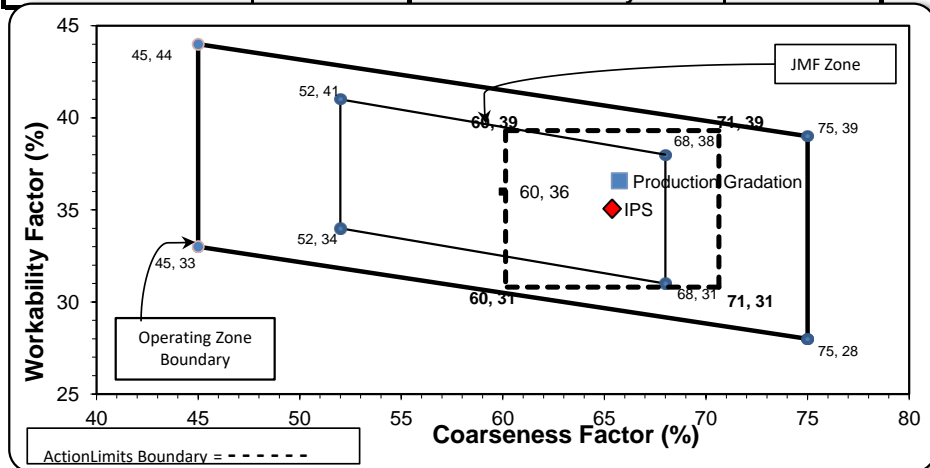
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 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.0	100.0	100.0	98.0	2.0	2.0
1"	34.6	100.0	100.0	78.3	19.7	21.7
3/4"	8.8	98.5	100.0	69.3	9.0	30.7
1/2"	3.2	83.2	100.0	63.5	5.8	36.5
3/8"	3.0	63.7	100.0	58.3	5.1	41.7
#4	2.5	17.3	99.6	45.9	12.4	54.1
#8	2.4	4.5	85.0	36.6	9.3	63.4
#16	2.4	2.7	68.0	29.2	7.4	70.8
#30	2.3	2.3	49.0	21.3	7.9	78.7
#50	2.2	2.1	20.0	9.4	11.9	90.6
#100	2.0	1.9	4.1	2.8	6.6	97.2
LBW	1.6	1.7	0.4	1.1	1.7	98.9

*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:** **37**



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"	99.6	0.4	0.4
1"	83.9	15.7	16.1
3/4"	74.1	9.8	25.9
1/2"	64.3	9.7	35.7
3/8"	57.5	6.8	42.5
#4	44.5	13.1	55.5
#8	35.1	9.4	64.9
#16	27.9	7.2	72.1
#30	21.7	6.2	78.3
#50	12.6	9.1	87.4
#100	3.5	9.1	96.5
LBW	1.2	2.4	98.8

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-02**

Sample Date: 5/13/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/14/2024 through 5/20/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	970	5.93	2.62	31.6
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



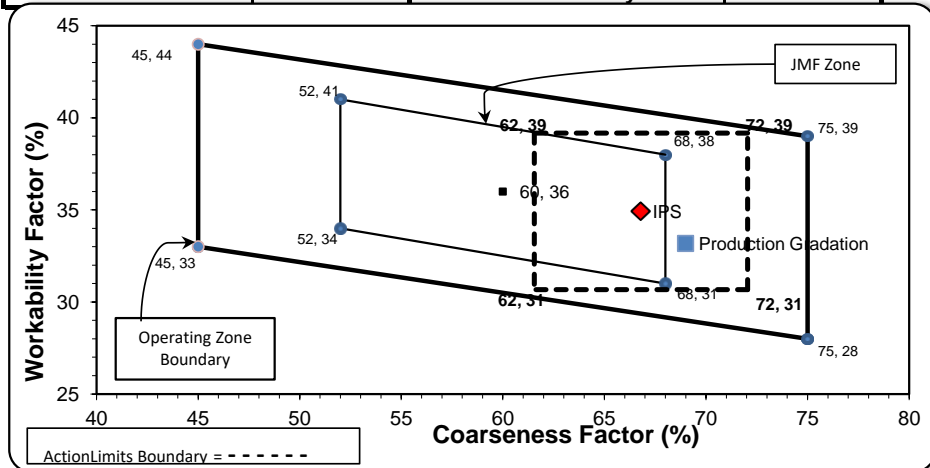
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	92.8	100.0	100.0	97.7	2.3	2.3
1"	36.5	100.0	100.0	79.9	17.8	20.1
3/4"	21.0	98.8	100.0	74.7	5.2	25.3
1/2"	6.5	74.8	100.0	63.1	11.6	36.9
3/8"	3.0	47.3	100.0	53.9	9.2	46.1
#4	2.0	7.3	95.8	40.2	13.7	59.8
#8	1.9	2.6	81.4	33.2	7.0	66.8
#16	1.8	2.1	65.9	26.9	6.2	73.1
#30	1.7	2.0	50.0	20.7	6.3	79.3
#50	1.7	1.9	25.2	10.9	9.7	89.1
#100	1.6	1.8	4.4	2.8	8.2	97.2
LBW	1.3	1.6	0.5	1.1	1.7	98.9

*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:** **33**



Initial Production Sample (IPS)

Coarseness Factor: **67**
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"	85.0	15.0	15.0
3/4"	72.3	12.7	27.7
1/2"	64.5	7.8	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

PREPARED BY:
 SM, LLC Technical Service

Approved By: