

Aggregate Optimization Chart

PLANT #: **P-101**

Sample Date: 7/29/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 7/30/2024 through 8/5/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	700	4.28	2.62	22.8
IA	71-47	Presque Isle	1170	7.16	2.62	38.1
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"	94.3	100.0	100.0	98.7	1.3	1.3
1"	32.1	100.0	100.0	84.5	14.2	15.5
3/4"	9.0	98.2	100.0	78.6	6.0	21.4
1/2"	3.3	61.3	100.0	63.2	15.4	36.8
3/8"	2.5	31.6	100.0	51.7	11.5	48.3
#4	2.0	3.4	96.7	39.5	12.2	60.5
#8	1.7	1.3	80.3	32.3	7.3	67.7
#16	1.6	1.0	64.8	26.1	6.2	73.9
#30	1.5	0.9	49.9	20.2	5.9	79.8
#50	1.4	0.9	26.0	10.8	9.4	89.2
#100	1.3	0.9	7.6	3.6	7.2	96.4
LBW	1.0	0.7	1.0	0.9	2.7	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

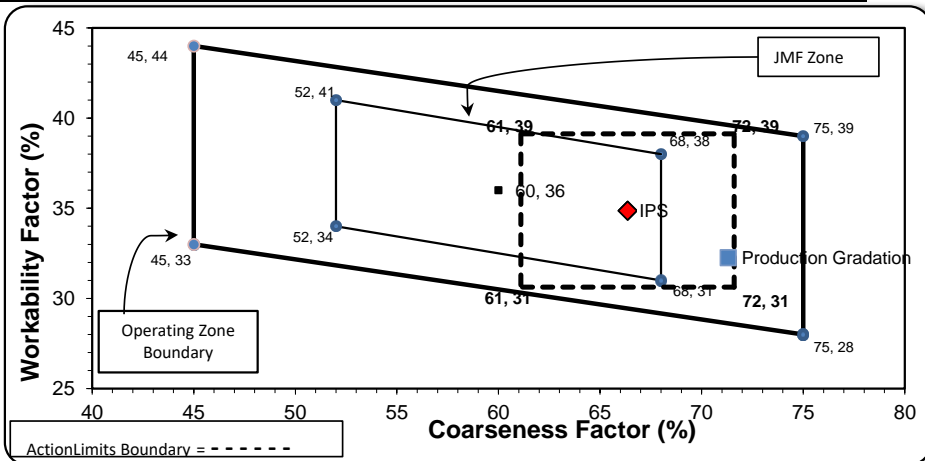
Coarseness Factor: **71** **Workability Factor:** **32**

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: 7/29/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 7/30/2024 through 8/5/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1420	8.46	2.69	45.5
IA	58-003	Stoneco	500	2.98	2.69	16.0
2NS	63-114	Highland	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



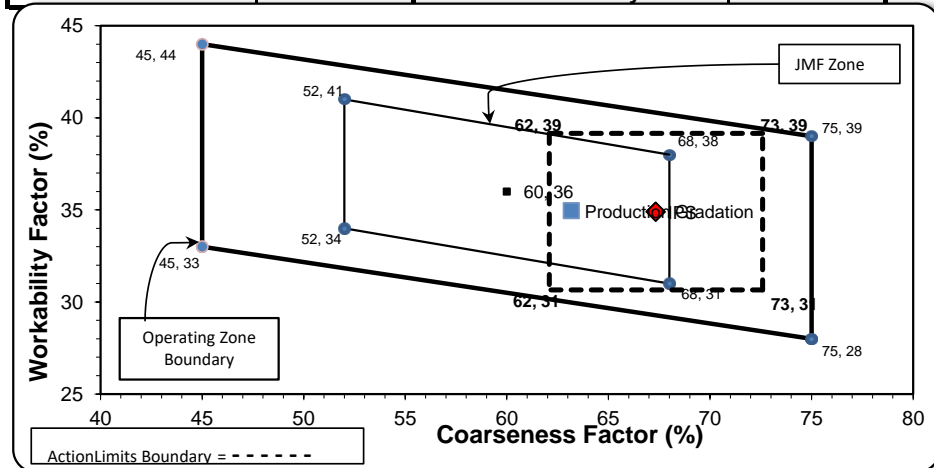
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	64.4	100.0	100.0	83.8	16.2	16.2
3/4"	45.2	100.0	100.0	75.1	8.7	24.9
1/2"	22.7	92.8	100.0	63.7	11.4	36.3
3/8"	17.4	78.2	100.0	58.9	4.8	41.1
#4	4.1	21.7	98.9	43.4	15.5	56.6
#8	2.8	6.2	85.0	35.0	8.4	65.0
#16	2.6	4.2	67.6	27.9	7.1	72.1
#30	2.3	2.1	47.6	19.7	8.2	80.3
#50	2.0	1.9	18.1	8.2	11.5	91.8
#100	1.9	1.7	3.2	2.4	5.8	97.6
LBW	1.5	1.5	0.3	1.0	1.3	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:	63	Workability Factor:	35
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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: 7/29/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 7/30/2024 through 8/5/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1420	8.46	2.69	45.5
IA	58-003	Stoneco	500	2.98	2.69	16.0
2NS	63-114	Highland	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



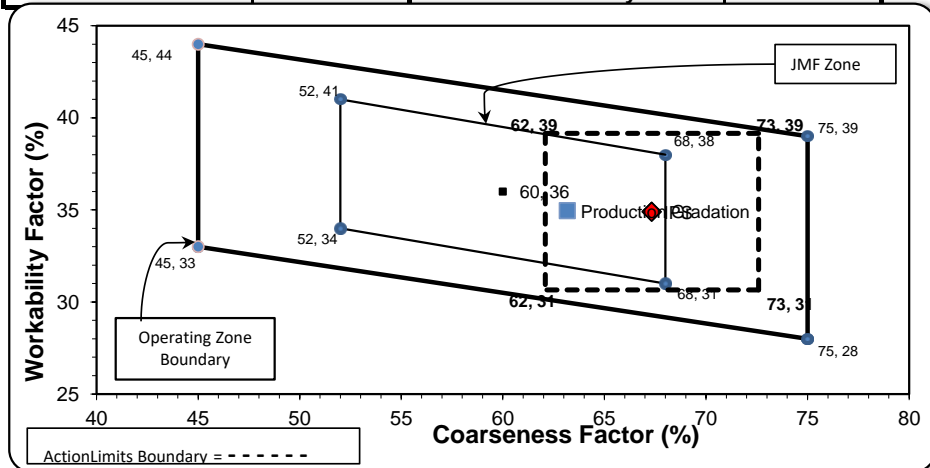
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	64.4	100.0	100.0	83.8	16.2	16.2
3/4"	45.2	100.0	100.0	75.1	8.7	24.9
1/2"	22.7	92.8	100.0	63.7	11.4	36.3
3/8"	17.4	78.2	100.0	58.9	4.8	41.1
#4	4.1	21.7	98.9	43.4	15.5	56.6
#8	2.8	6.2	85.0	35.0	8.4	65.0
#16	2.6	4.2	67.6	27.9	7.1	72.1
#30	2.3	2.1	47.6	19.7	8.2	80.3
#50	2.0	1.9	18.1	8.2	11.5	91.8
#100	1.9	1.7	3.2	2.4	5.8	97.6
LBW	1.5	1.5	0.3	1.0	1.3	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:	63	Workability Factor:	35
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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:
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Aggregate Optimization Chart

PLANT #: 12

Sample Date: 7/29/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 7/30/2024 through 8/5/2024

Contractor: _____

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	850	5.20	2.62	27.7
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



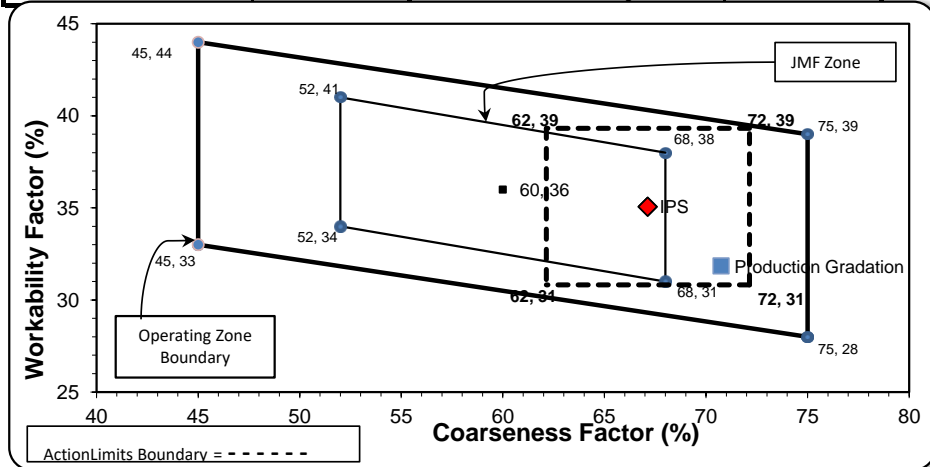
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 Suite 500
 Farmington Hills, MI 48336

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	98.1	1.9	1.9
1"	32.1	100.0	100.0	77.4	20.7	22.6
3/4"	9.0	98.8	100.0	69.4	8.0	30.6
1/2"	3.3	69.7	100.0	59.5	10.0	40.5
3/8"	2.5	42.9	100.0	51.8	7.7	48.2
#4	2.0	7.3	96.5	40.4	11.4	59.6
#8	1.7	2.2	78.5	31.9	8.5	68.1
#16	1.6	1.5	62.3	25.3	6.6	74.7
#30	1.5	1.4	46.5	19.1	6.2	80.9
#50	1.4	1.3	25.3	10.7	8.3	89.3
#100	1.3	1.2	6.4	3.3	7.4	96.7
LBW	1.0	1.0	0.9	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: 71 **Workability Factor:** 32



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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 SM, LLC Technical Service

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Aggregate Optimization Chart

PLANT #: 20

Sample Date: 7/29/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 7/30/2024 through 8/5/2024

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%



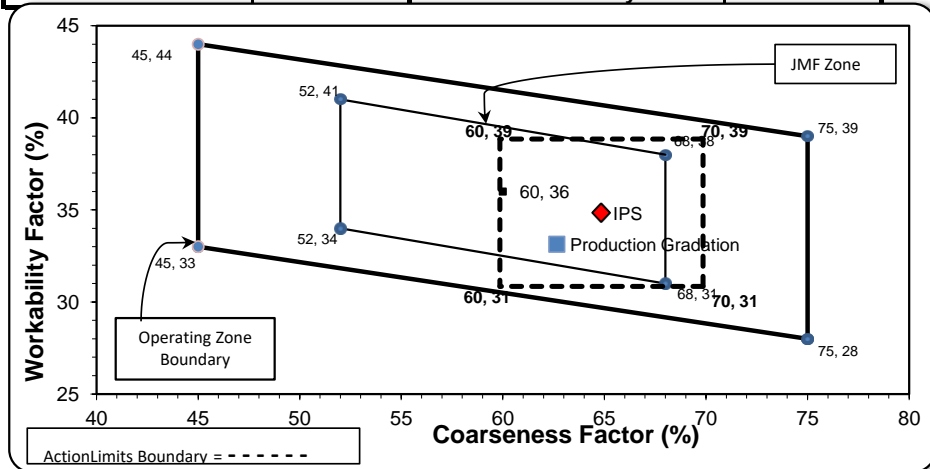
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 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.4	100.0	100.0	99.5	0.5	0.5
1"	35.4	100.0	100.0	79.6	19.9	20.4
3/4"	13.0	99.7	100.0	72.4	7.2	27.6
1/2"	3.4	82.8	100.0	64.4	8.0	35.6
3/8"	2.3	62.4	100.0	58.1	6.3	41.9
#4	1.8	13.3	97.4	42.5	15.6	57.5
#8	1.7	3.6	80.7	33.1	9.4	66.9
#16	1.7	2.3	65.2	26.7	6.4	73.3
#30	1.6	2.1	48.3	20.0	6.7	80.0
#50	1.6	1.9	24.3	10.6	9.4	89.4
#100	1.5	1.8	4.0	2.6	8.0	97.4
LBW	1.2	1.6	0.4	1.0	1.6	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: 63 **Workability Factor:** 33



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

MIX ID'S: DDP154E7 and DDP154E8

Production Gradation Report

PLANT #: 21

Contractor: _____

Sample Date: 7/29/24

Concrete Grade: P1M

Dates Test Represents: 7/30/2024 through 8/5/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1420	8.46	2.69	45.5
IA	58-003	Stoneco	500	2.98	2.69	16.0
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



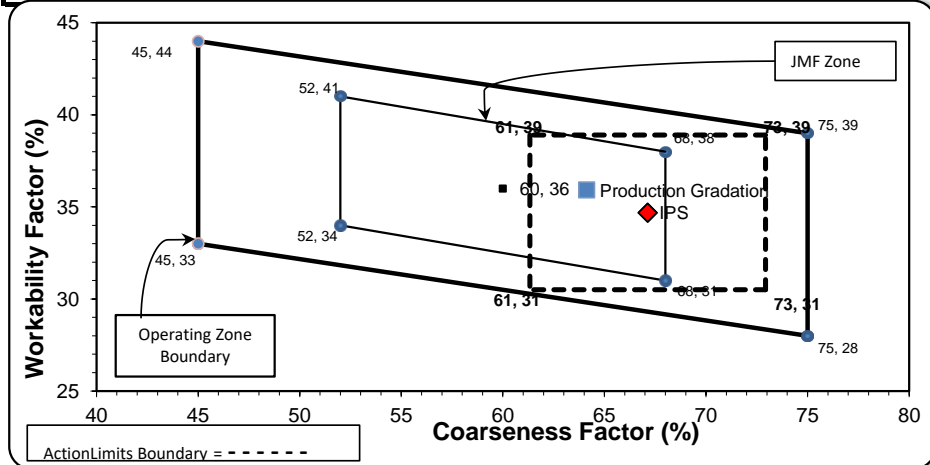
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	64.4	100.0	100.0	83.8	16.2	16.2
3/4"	45.2	100.0	100.0	75.1	8.7	24.9
1/2"	22.7	92.8	100.0	63.7	11.4	36.3
3/8"	17.4	78.2	100.0	58.9	4.8	41.1
#4	4.1	21.7	98.4	43.2	15.7	56.8
#8	2.8	6.2	87.5	35.9	7.3	64.1
#16	2.6	4.2	68.5	28.2	7.7	71.8
#30	2.3	2.1	47.7	19.7	8.5	80.3
#50	2.0	1.9	22.5	9.9	9.9	90.1
#100	1.9	1.7	4.3	2.8	7.1	97.2
LBW	1.5	1.5	0.6	1.2	1.6	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:	64	Workability Factor:	36
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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"	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 #: P11

Sample Date: 7/29/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 7/30/2024 through 8/5/2024

Contractor: _____

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	850	5.20	2.62	27.7
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



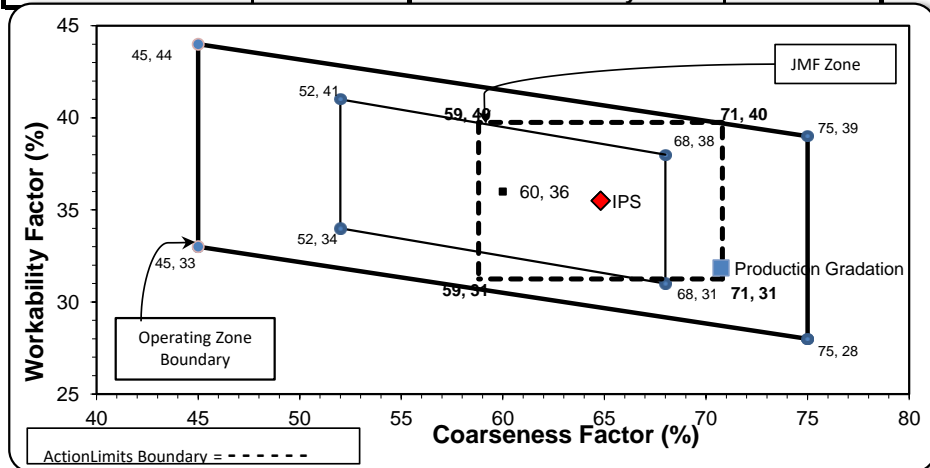
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.3	100.0	100.0	98.1	1.9	1.9
1"	32.1	100.0	100.0	77.4	20.7	22.6
3/4"	9.0	98.8	100.0	69.4	8.0	30.6
1/2"	3.3	69.7	100.0	59.5	10.0	40.5
3/8"	2.5	42.9	100.0	51.8	7.7	48.2
#4	2.0	7.3	96.5	40.4	11.4	59.6
#8	1.7	2.2	78.5	31.9	8.5	68.1
#16	1.6	1.5	62.3	25.3	6.6	74.7
#30	1.5	1.4	46.5	19.1	6.2	80.9
#50	1.4	1.3	25.3	10.7	8.3	89.3
#100	1.3	1.2	6.4	3.3	7.4	96.7
LBW	1.0	1.0	0.9	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: 71 **Workability Factor:** 32



Initial Production Sample (IPS)

Coarseness Factor: 65
Workability Factor: 36

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: 7/29/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 7/30/2024 through 8/5/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1420	8.46	2.69	45.5
IA	58-003	Stoneco	500	2.98	2.69	16.0
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



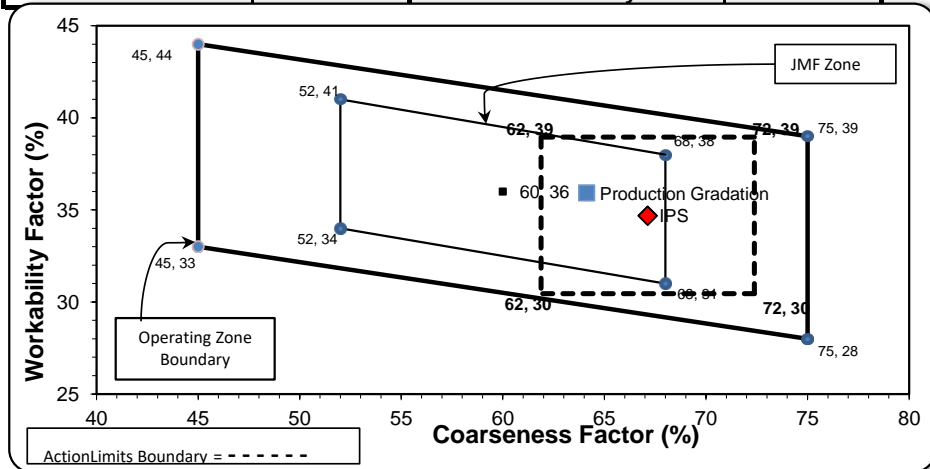
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	64.4	100.0	100.0	83.8	16.2	16.2
3/4"	45.2	100.0	100.0	75.1	8.7	24.9
1/2"	22.7	92.8	100.0	63.7	11.4	36.3
3/8"	17.4	78.2	100.0	58.9	4.8	41.1
#4	4.1	21.7	98.4	43.2	15.7	56.8
#8	2.8	6.2	87.5	35.9	7.3	64.1
#16	2.6	4.2	68.5	28.2	7.7	71.8
#30	2.3	2.1	47.7	19.7	8.5	80.3
#50	2.0	1.9	22.5	9.9	9.9	90.1
#100	1.9	1.7	4.3	2.8	7.1	97.2
LBW	1.5	1.5	0.6	1.2	1.6	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: **64** **Workability Factor:** **36**



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: 7/29/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 7/30/2024 through 8/5/2024

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	850	5.20	2.62	27.7
2NS	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



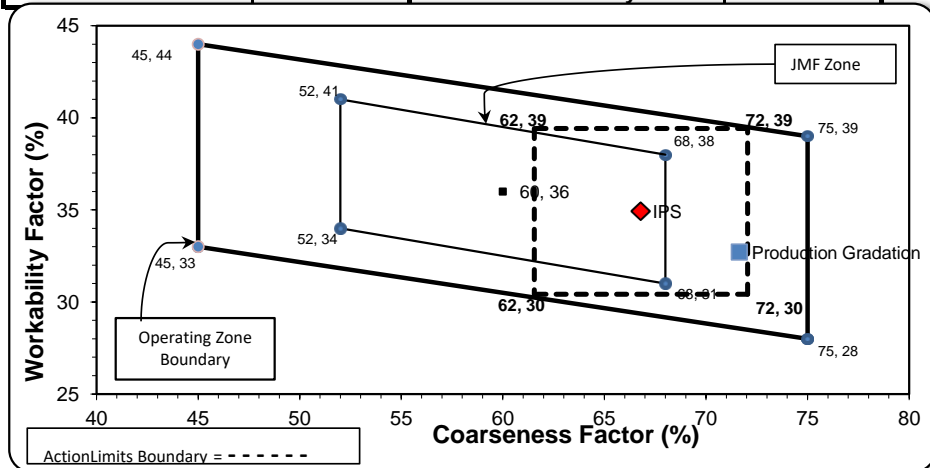
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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	98.1	1.9	1.9
1"	32.1	100.0	100.0	77.4	20.7	22.6
3/4"	9.0	98.8	100.0	69.4	8.0	30.6
1/2"	3.3	69.7	100.0	59.5	10.0	40.5
3/8"	2.5	42.9	100.0	51.8	7.7	48.2
#4	2.0	7.3	97.4	40.8	11.0	59.2
#8	1.7	2.2	80.7	32.7	8.0	67.3
#16	1.6	1.5	65.2	26.4	6.3	73.6
#30	1.5	1.4	48.3	19.8	6.7	80.2
#50	1.4	1.3	24.3	10.3	9.4	89.7
#100	1.3	1.2	4.0	2.3	8.0	97.7
LBW	1.0	1.0	0.4	0.8	1.6	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:	72	Workability Factor:	33
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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"	85.0	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-02**

Sample Date: 7/29/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 7/30/2024 through 8/5/2024

Contractor: _____

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	850	5.20	2.62	27.7
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



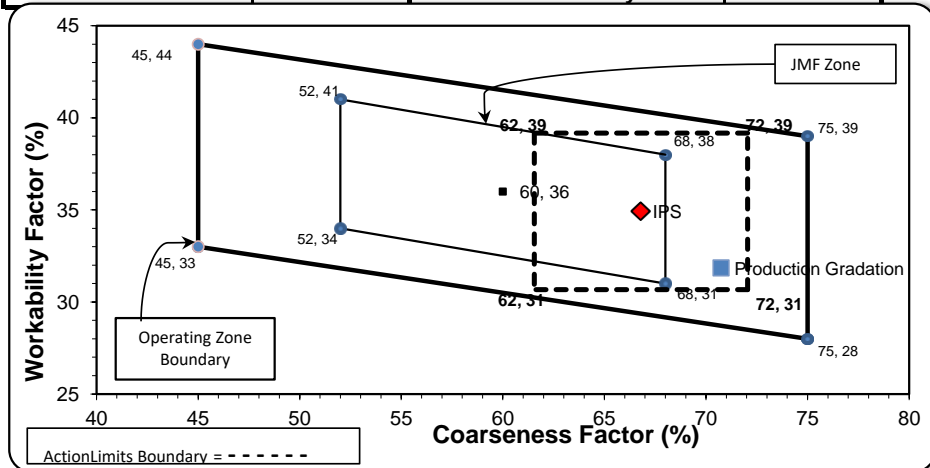
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.3	100.0	100.0	98.1	1.9	1.9
1"	32.1	100.0	100.0	77.4	20.7	22.6
3/4"	9.0	98.8	100.0	69.4	8.0	30.6
1/2"	3.3	69.7	100.0	59.5	10.0	40.5
3/8"	2.5	42.9	100.0	51.8	7.7	48.2
#4	2.0	7.3	96.5	40.4	11.4	59.6
#8	1.7	2.2	78.5	31.9	8.5	68.1
#16	1.6	1.5	62.3	25.3	6.6	74.7
#30	1.5	1.4	46.5	19.1	6.2	80.9
#50	1.4	1.3	25.3	10.7	8.3	89.3
#100	1.3	1.2	6.4	3.3	7.4	96.7
LBW	1.0	1.0	0.9	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:	71	Workability Factor:	32
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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"	85.0	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: