

Aggregate Optimization Chart

PLANT #: **P-101**

Sample Date: 6/24/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 6/25/2024 through 7/1/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	800	4.89	2.62	26.1
IA	71-47	Presque Isle	1070	6.54	2.62	34.9
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"	95.6	100.0	100.0	98.9	1.1	1.1
1"	44.2	100.0	100.0	85.5	13.4	14.5
3/4"	9.4	99.2	100.0	76.1	9.3	23.9
1/2"	1.6	67.2	100.0	62.9	13.2	37.1
3/8"	1.4	36.0	100.0	52.0	10.9	48.0
#4	1.4	4.4	96.4	39.6	12.4	60.4
#8	1.3	1.8	81.1	32.7	6.9	67.3
#16	1.2	1.4	66.8	26.9	5.8	73.1
#30	1.2	1.4	52.6	21.4	5.6	78.6
#50	1.2	1.3	28.4	11.9	9.5	88.1
#100	1.2	1.3	8.8	4.2	7.7	95.8
LBW	1.0	1.0	1.2	1.1	3.1	98.9

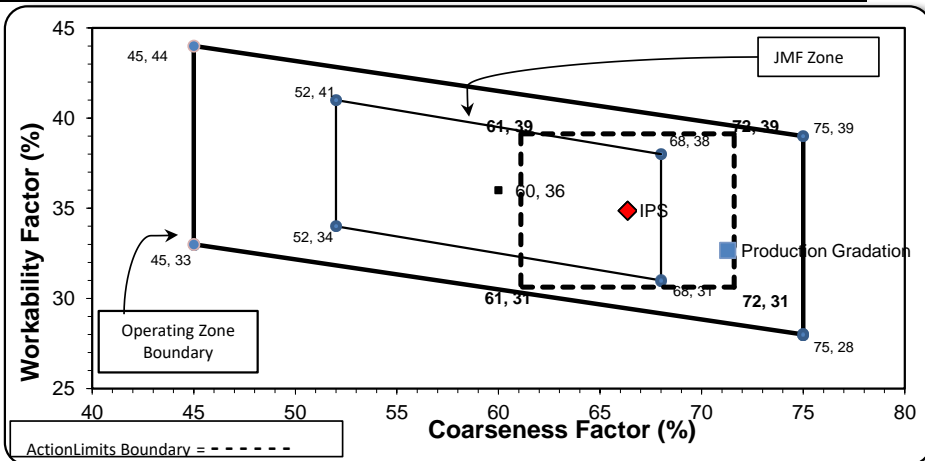
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	71	Workability Factor:	33
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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: 6/24/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 6/25/2024 through 7/1/2024

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%



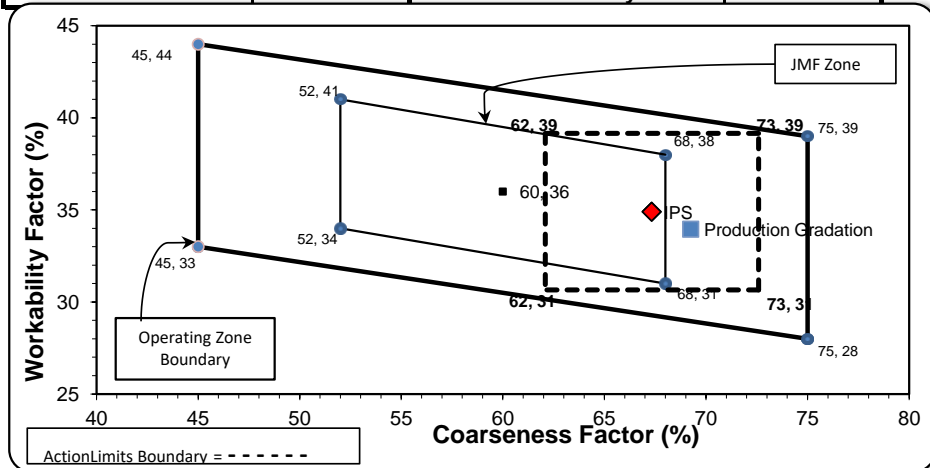
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 Suite 500
 Farmington Hills, MI 48336

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"	64.6	100.0	100.0	83.3	16.7	16.7
3/4"	32.2	100.0	100.0	68.1	15.3	31.9
1/2"	18.6	94.2	100.0	60.8	7.2	39.2
3/8"	10.4	75.6	100.0	54.3	6.5	45.7
#4	1.9	16.8	98.8	41.3	12.9	58.7
#8	1.2	4.0	85.3	34.0	7.4	66.1
#16	1.1	1.8	69.3	27.4	6.5	72.6
#30	1.0	1.2	50.7	20.1	7.3	79.9
#50	0.9	1.1	19.5	8.1	12.1	91.9
#100	0.9	1.0	2.7	1.6	6.5	98.4
LBW	0.8	0.9	0.4	0.7	0.9	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

Coarseness Factor: **69** **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

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-103**

Sample Date: 6/24/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 6/25/2024 through 7/1/2024

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%



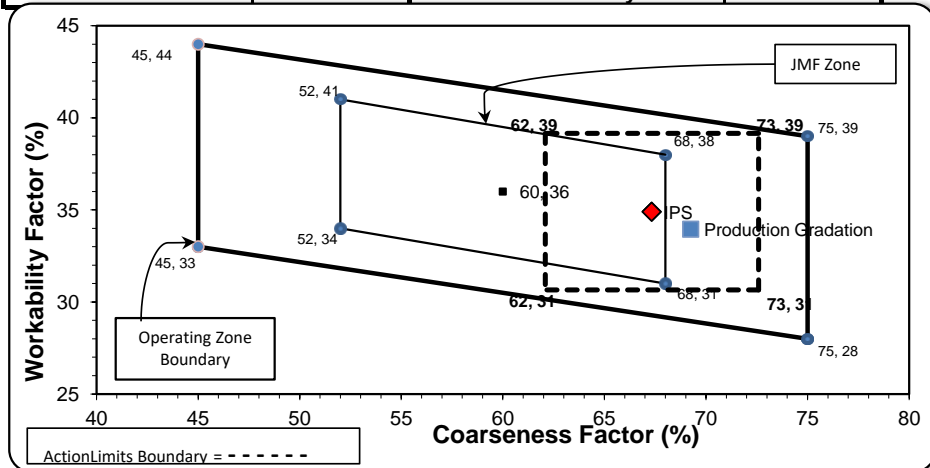
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 Suite 500
 Farmington Hills, MI 48336

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"	64.6	100.0	100.0	83.3	16.7	16.7
3/4"	32.2	100.0	100.0	68.1	15.3	31.9
1/2"	18.6	94.2	100.0	60.8	7.2	39.2
3/8"	10.4	75.6	100.0	54.3	6.5	45.7
#4	1.9	16.8	98.8	41.3	12.9	58.7
#8	1.2	4.0	85.3	34.0	7.4	66.1
#16	1.1	1.8	69.3	27.4	6.5	72.6
#30	1.0	1.2	50.7	20.1	7.3	79.9
#50	0.9	1.1	19.5	8.1	12.1	91.9
#100	0.9	1.0	2.7	1.6	6.5	98.4
LBW	0.8	0.9	0.4	0.7	0.9	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

Coarseness Factor:	69	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

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Aggregate Optimization Chart

PLANT #: 12

Sample Date: 6/24/24

Dates Test Represents: 6/25/2024 through 7/1/2024

Concrete Grade: **P1M, 3500HP**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	850	5.20	2.62	27.7
IA	71-47	Presque Isle	1020	6.24	2.62	33.2
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



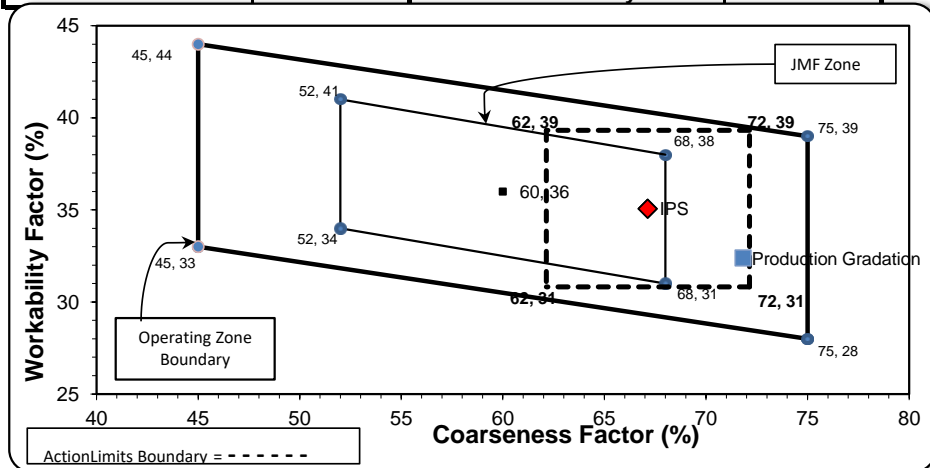
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Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	95.6	100.0	100.0	98.8	1.2	1.2
1"	44.2	100.0	100.0	84.6	14.2	15.4
3/4"	9.4	99.2	100.0	74.6	9.9	25.4
1/2"	1.6	67.2	100.0	61.9	12.8	38.1
3/8"	1.4	36.0	100.0	51.4	10.4	48.6
#4	1.4	4.4	95.9	39.3	12.1	60.7
#8	1.3	1.8	80.4	32.4	7.0	67.6
#16	1.2	1.4	65.1	26.2	6.1	73.8
#30	1.2	1.4	49.4	20.1	6.1	79.9
#50	1.2	1.3	25.9	10.9	9.2	89.1
#100	1.2	1.3	5.6	3.0	7.9	97.0
LBW	1.0	1.0	0.8	0.9	2.0	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:	72	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"	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: 6/24/24

Dates Test Represents: 6/25/2024 through 7/1/2024

Concrete Grade: **P1M, 3500HP**

Contractor: _____

MDOT No.: _____

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

<----- 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"	98.6	100.0	100.0	99.6	0.4	0.4
1"	42.6	100.0	100.0	82.2	17.3	17.8
3/4"	12.6	99.2	100.0	72.7	9.5	27.3
1/2"	4.2	82.8	100.0	65.2	7.5	34.8
3/8"	3.4	63.0	100.0	59.0	6.2	41.0
#4	2.6	12.3	97.6	42.6	16.4	57.4
#8	2.4	3.0	81.8	33.6	9.0	66.4
#16	2.2	2.2	66.6	27.4	6.2	72.6
#30	2.2	2.0	49.2	20.5	6.9	79.5
#50	2.0	1.8	21.8	9.7	10.8	90.3
#100	1.9	1.7	3.8	2.6	7.1	97.4
LBW	1.6	1.4	0.7	1.2	1.4	98.8

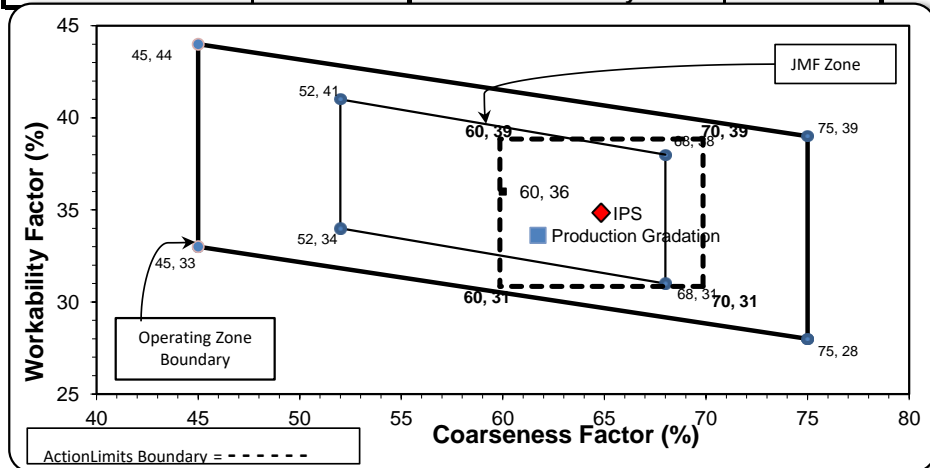


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*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must 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: 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: 6/24/24

Dates Test Represents: 6/25/2024 through 7/1/2024

Concrete Grade: **P1M, 3500HP**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	770	4.71	2.62	25.1
IA	71-47	Presque Isle	1100	6.73	2.62	35.8
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

<----- 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"	95.6	100.0	100.0	98.9	1.1	1.1
1"	44.2	100.0	100.0	86.0	12.9	14.0
3/4"	9.4	99.2	100.0	77.0	9.0	23.0
1/2"	1.6	67.2	100.0	63.6	13.4	36.4
3/8"	1.4	36.0	100.0	52.3	11.2	47.7
#4	1.4	4.4	95.9	39.4	12.9	60.6
#8	1.3	1.8	80.4	32.4	7.0	67.6
#16	1.2	1.4	65.1	26.2	6.1	73.8
#30	1.2	1.4	49.4	20.1	6.1	79.9
#50	1.2	1.3	25.9	10.9	9.2	89.1
#100	1.2	1.3	5.6	3.0	7.9	97.0
LBW	1.0	1.0	0.8	0.9	2.0	99.1

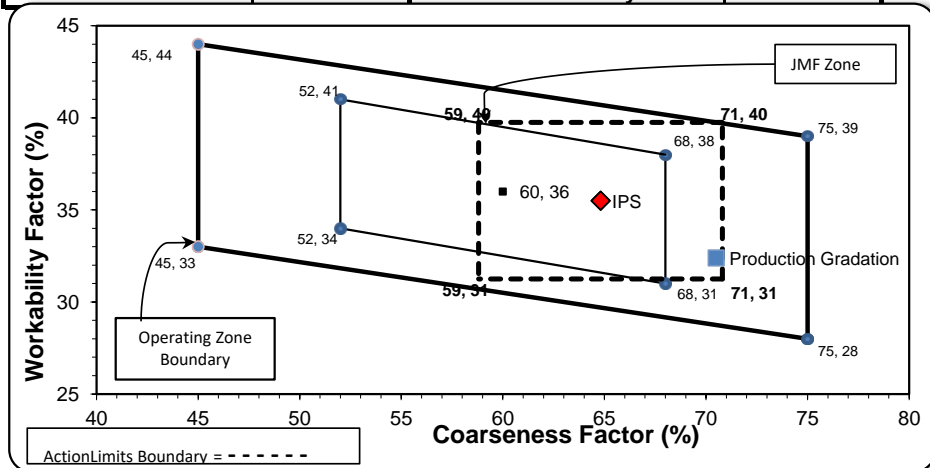
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



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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: 6/24/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 6/25/2024 through 7/1/2024

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	81-019	Pleasant Lake	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



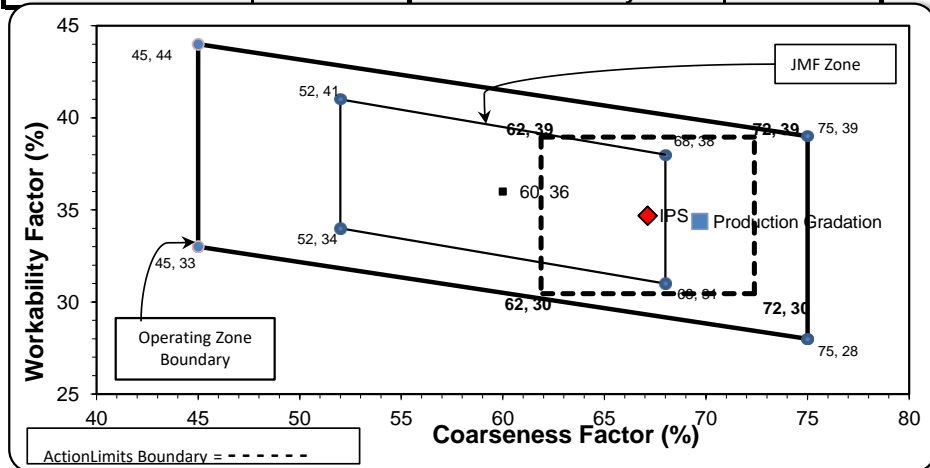
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 Farmington Hills, MI 48336

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"	64.6	100.0	100.0	83.3	16.7	16.7
3/4"	32.2	100.0	100.0	68.1	15.3	31.9
1/2"	18.6	94.2	100.0	60.8	7.2	39.2
3/8"	10.4	75.6	100.0	54.3	6.5	45.7
#4	1.9	16.8	98.5	41.2	13.1	58.8
#8	1.2	4.0	86.4	34.4	6.8	65.6
#16	1.1	1.8	64.6	25.6	8.7	74.4
#30	1.0	1.2	42.6	17.0	8.6	83.0
#50	0.9	1.1	19.7	8.2	8.9	91.8
#100	0.9	1.0	3.0	1.7	6.4	98.3
LBW	0.8	0.9	0.4	0.7	1.1	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

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"	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: 6/24/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 6/25/2024 through 7/1/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	800	4.89	2.62	26.1
IA	71-47	Presque Isle	1070	6.54	2.62	34.9
2NS	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



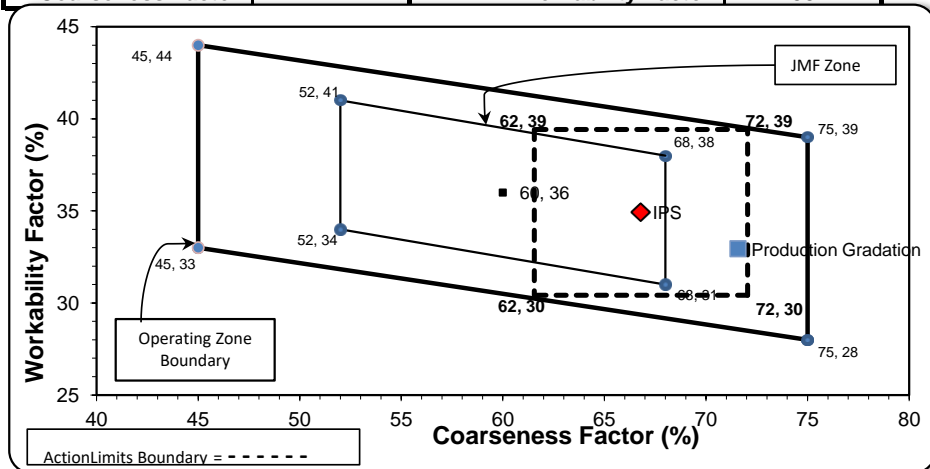
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	95.6	100.0	100.0	98.9	1.1	1.1
1"	44.2	100.0	100.0	85.5	13.4	14.5
3/4"	9.4	99.2	100.0	76.1	9.3	23.9
1/2"	1.6	67.2	100.0	62.9	13.2	37.1
3/8"	1.4	36.0	100.0	52.0	10.9	48.0
#4	1.4	4.4	97.6	40.0	12.0	60.0
#8	1.3	1.8	81.8	32.9	7.1	67.1
#16	1.2	1.4	66.6	26.8	6.1	73.2
#30	1.2	1.4	49.2	20.0	6.8	80.0
#50	1.2	1.3	21.8	9.3	10.7	90.7
#100	1.2	1.3	3.8	2.3	7.0	97.7
LBW	1.0	1.0	0.7	0.9	1.4	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:	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-39**

Sample Date: 6/24/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 6/25/2024 through 7/1/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	670	4.10	2.62	21.8
IA	71-47	Presque Isle	1150	7.03	2.62	37.5
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%



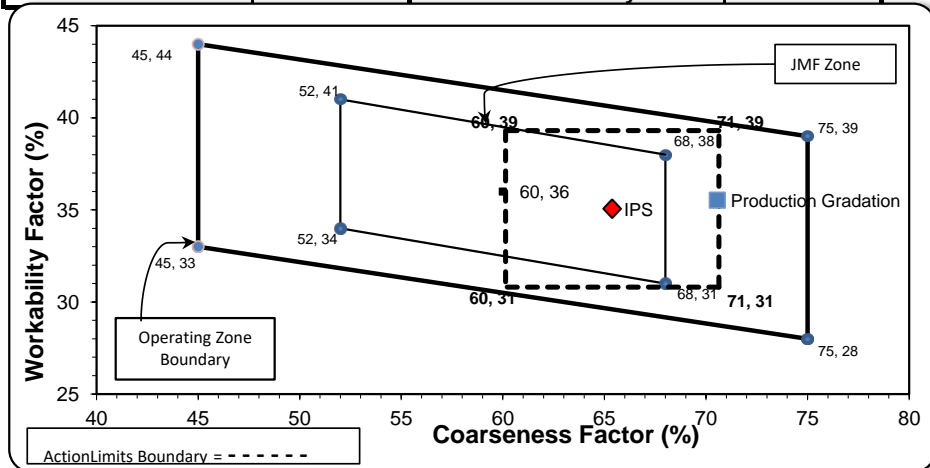
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	95.6	100.0	100.0	99.0	1.0	1.0
1"	44.2	100.0	100.0	87.8	11.2	12.2
3/4"	9.4	99.2	100.0	79.9	7.9	20.1
1/2"	1.6	67.2	100.0	66.2	13.7	33.8
3/8"	1.4	36.0	100.0	54.5	11.7	45.5
#4	1.4	4.4	99.2	42.3	12.2	57.7
#8	1.3	1.8	84.9	35.5	6.8	64.5
#16	1.2	1.4	68.2	28.6	7.0	71.4
#30	1.2	1.4	49.9	21.1	7.5	78.9
#50	1.2	1.3	24.1	10.6	10.5	89.4
#100	1.2	1.3	6.9	3.6	7.0	96.4
LBW	1.0	1.0	0.5	0.8	2.8	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: **71** **Workability Factor:** **36**



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: 6/24/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 6/25/2024 through 7/1/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	850	5.20	2.62	27.7
IA	71-47	Presque Isle	1020	6.24	2.62	33.2
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



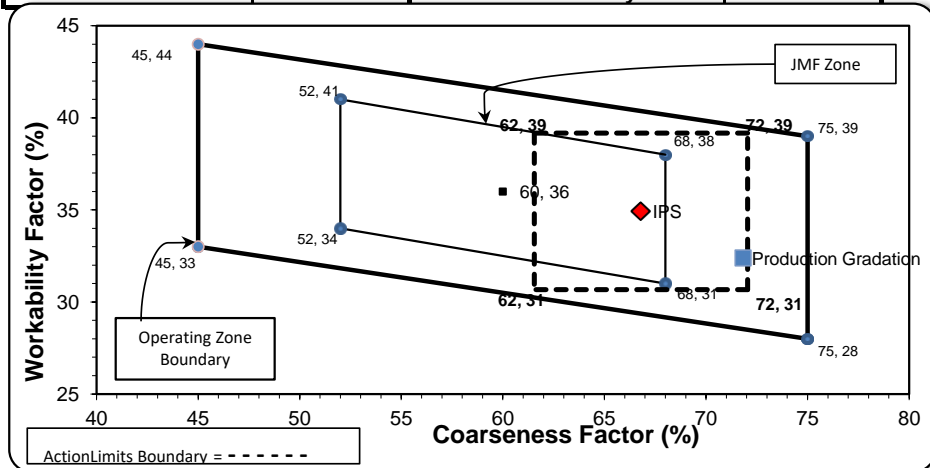
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	95.6	100.0	100.0	98.8	1.2	1.2
1"	44.2	100.0	100.0	84.6	14.2	15.4
3/4"	9.4	99.2	100.0	74.6	9.9	25.4
1/2"	1.6	67.2	100.0	61.9	12.8	38.1
3/8"	1.4	36.0	100.0	51.4	10.4	48.6
#4	1.4	4.4	95.9	39.3	12.1	60.7
#8	1.3	1.8	80.4	32.4	7.0	67.6
#16	1.2	1.4	65.1	26.2	6.1	73.8
#30	1.2	1.4	49.4	20.1	6.1	79.9
#50	1.2	1.3	25.9	10.9	9.2	89.1
#100	1.2	1.3	5.6	3.0	7.9	97.0
LBW	1.0	1.0	0.8	0.9	2.0	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:	72	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: