

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 5/27/24

Concrete Grade: **S2M, 3500HP**

Contractor: _____

Dates Test Represents: 5/28/2024 through 6/3/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1700	10.13	2.69	54.8
26A	58-003	Stoneco	200	1.19	2.69	6.5
2NS	63-114	Highland	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



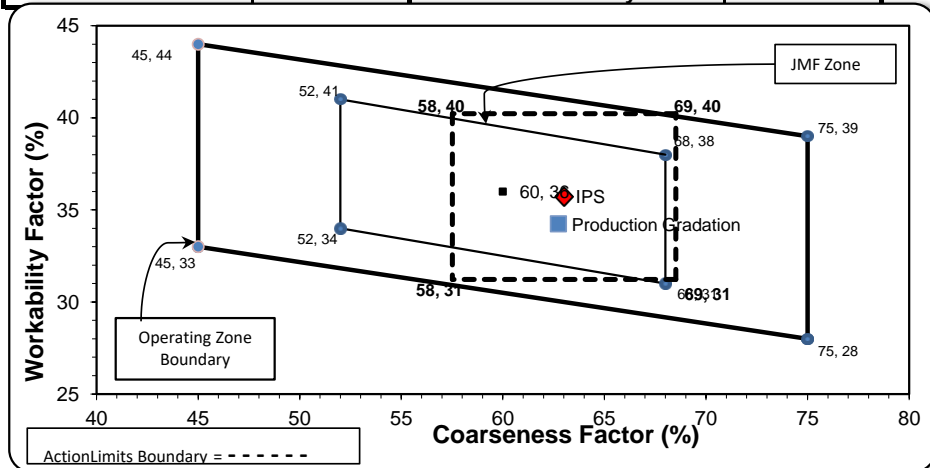
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	86.4	100.0	100.0	92.5	7.4	7.5
1/2"	47.4	99.7	100.0	71.1	21.4	28.9
3/8"	26.3	87.0	100.0	58.7	12.4	41.3
#4	4.0	5.2	98.9	40.8	17.9	59.2
#8	2.1	1.7	85.2	34.2	6.6	65.8
#16	1.9	1.4	67.8	27.4	6.9	72.6
#30	1.9	1.2	48.8	20.0	7.4	80.0
#50	1.8	1.1	18.8	8.3	11.7	91.7
#100	1.7	1.1	3.0	2.2	6.2	97.8
LBW	1.3	1.0	0.5	1.0	1.2	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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **63** **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"	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: 5/27/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1700	10.13	2.69	54.8
26A	58-003	Stoneco	200	1.19	2.69	6.5
2NS	63-114	Highland	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



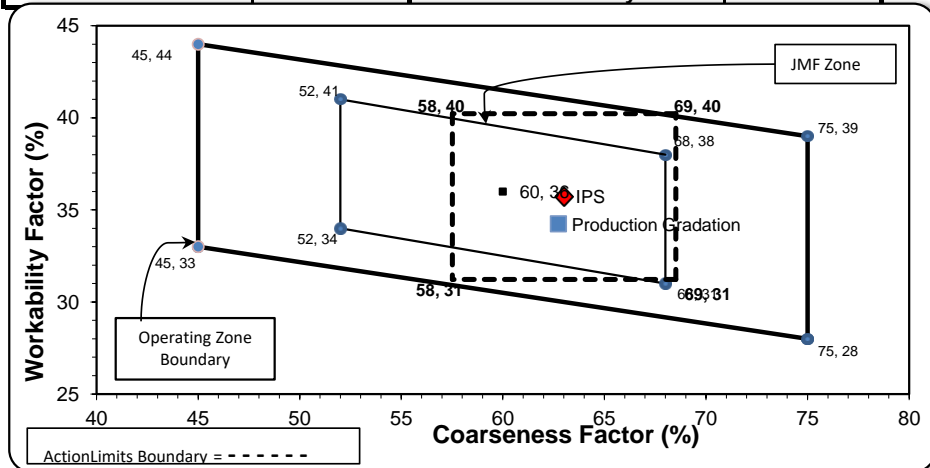
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 Suite 500
 Farmington Hills, MI 48336

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"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	86.4	100.0	100.0	92.5	7.4	7.5
1/2"	47.4	99.7	100.0	71.1	21.4	28.9
3/8"	26.3	87.0	100.0	58.7	12.4	41.3
#4	4.0	5.2	98.9	40.8	17.9	59.2
#8	2.1	1.7	85.2	34.2	6.6	65.8
#16	1.9	1.4	67.8	27.4	6.9	72.6
#30	1.9	1.2	48.8	20.0	7.4	80.0
#50	1.8	1.1	18.8	8.3	11.7	91.7
#100	1.7	1.1	3.0	2.2	6.2	97.8
LBW	1.3	1.0	0.5	1.0	1.2	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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **63** **Workability Factor:** **34**



Intial 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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Aggregate Optimization Chart

PLANT #: 12

Sample Date: 5/27/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	50.8
26A	71-47	Presque Isle	270	1.65	2.62	8.9
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



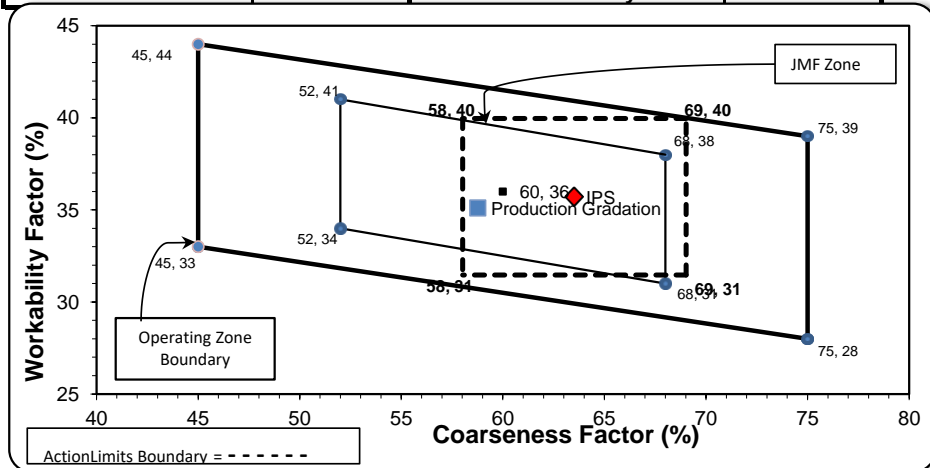
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.3	100.0	100.0	99.1	0.9	0.9
3/4"	83.9	100.0	100.0	91.8	7.3	8.2
1/2"	47.7	94.9	100.0	73.0	18.8	27.0
3/8"	28.0	82.5	100.0	61.9	11.1	38.1
#4	6.3	15.8	95.9	43.3	18.6	56.7
#8	3.9	3.3	81.4	35.1	8.2	64.9
#16	3.4	2.0	66.0	28.5	6.6	71.5
#30	3.2	1.7	50.8	22.3	6.3	77.7
#50	3.0	1.6	27.2	12.6	9.6	87.4
#100	2.8	1.5	6.0	4.0	8.7	96.0
LBW	2.5	1.3	0.8	1.7	2.3	98.3

*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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 59 **Workability Factor:** 35



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

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Aggregate Optimization Chart

PLANT #: p11

Sample Date: 5/27/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1450	8.87	2.62	47.5
26A	71-47	Presque Isle	370	2.26	2.62	12.1
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



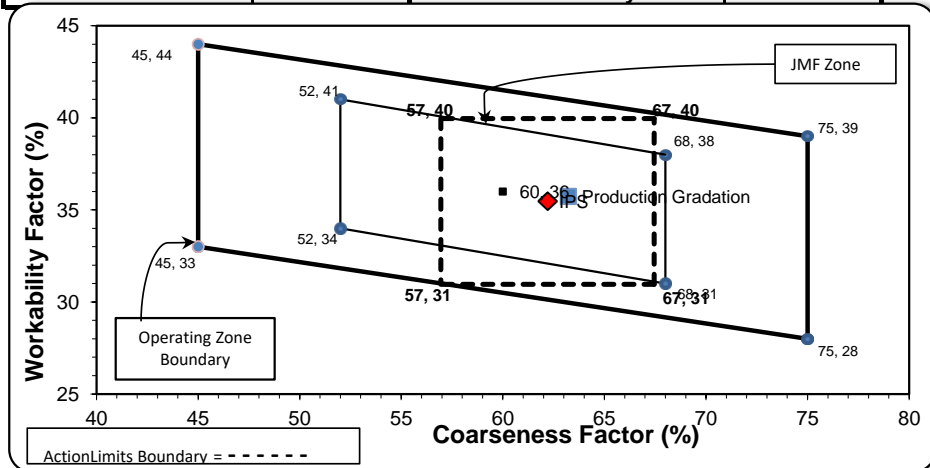
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 Farmington Hills, MI 48336

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"	77.8	100.0	100.0	89.4	9.9	10.6
1/2"	35.4	94.9	100.0	68.7	20.8	31.3
3/8"	19.0	82.5	100.0	59.4	9.3	40.6
#4	3.6	15.8	96.1	42.4	17.0	57.6
#8	2.3	3.3	84.9	35.7	6.7	64.3
#16	1.9	2.0	69.9	29.3	6.4	70.7
#30	1.8	1.7	48.5	20.6	8.7	79.4
#50	1.7	1.6	23.0	10.3	10.3	89.7
#100	1.6	1.5	6.6	3.6	6.7	96.4
LBW	1.3	1.3	1.2	1.3	2.3	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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 63 **Workability Factor:** 36



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: 5/27/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1700	10.13	2.69	54.8
26A	58-003	Stoneco	200	1.19	2.69	6.5
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



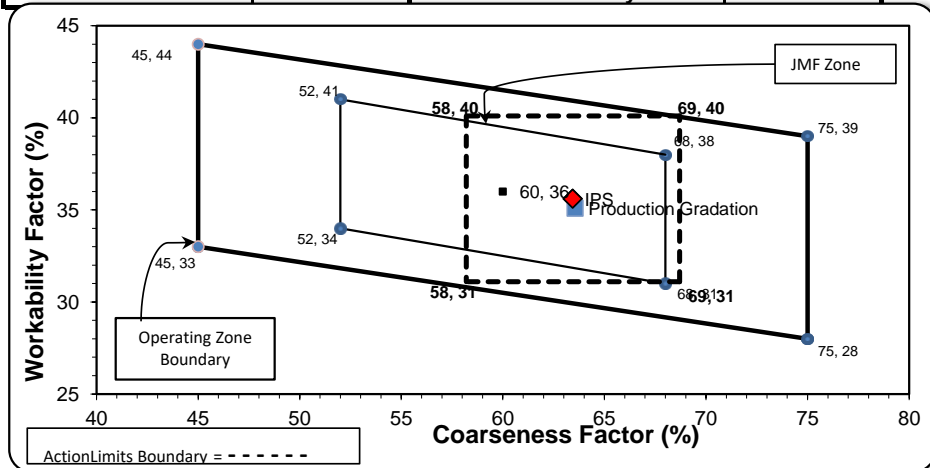
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 Suite 500
 Farmington Hills, MI 48336

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"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	86.4	100.0	100.0	92.5	7.4	7.5
1/2"	47.4	99.7	100.0	71.1	21.4	28.9
3/8"	26.3	87.0	100.0	58.7	12.4	41.3
#4	4.0	5.2	99.3	41.0	17.8	59.0
#8	2.1	1.7	87.4	35.1	5.9	64.9
#16	1.9	1.4	65.2	26.4	8.7	73.6
#30	1.9	1.2	40.6	16.8	9.5	83.2
#50	1.8	1.1	17.6	7.9	9.0	92.1
#100	1.7	1.1	2.8	2.1	5.8	97.9
LBW	1.3	1.0	0.3	0.9	1.2	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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **64** **Workability Factor:** **35**



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"	93.1	6.9	6.9
1/2"	70.0	23.1	30.0
3/8"	59.1	10.9	40.9
#4	46.0	13.1	54.0
#8	35.6	10.4	64.4
#16	27.2	8.4	72.8
#30	19.8	7.4	80.2
#50	10.1	9.7	89.9
#100	2.5	7.6	97.5
LBW	0.9	1.6	99.1

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-38**

Sample Date: 5/27/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1700	10.13	2.69	54.8
26A	58-003	Stoneco	200	1.19	2.69	6.5
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



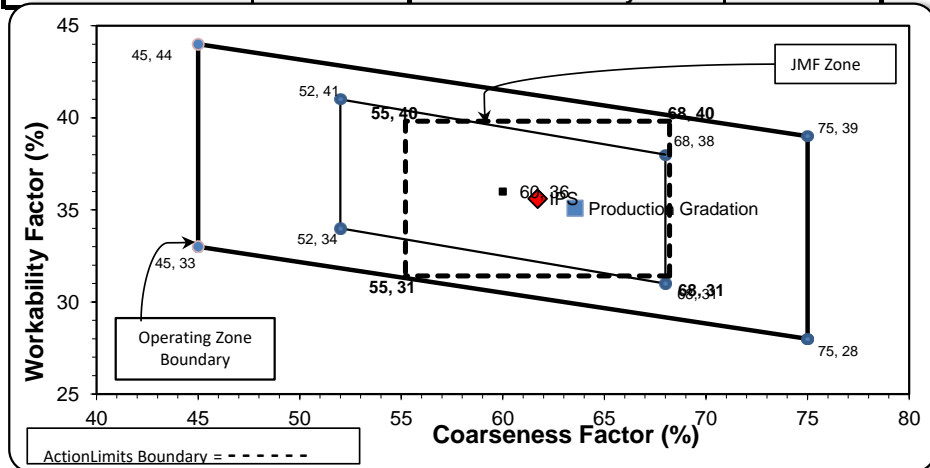
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	86.4	100.0	100.0	92.5	7.4	7.5
1/2"	47.4	99.7	100.0	71.1	21.4	28.9
3/8"	26.3	87.0	100.0	58.7	12.4	41.3
#4	4.0	5.2	99.3	41.0	17.8	59.0
#8	2.1	1.7	87.4	35.1	5.9	64.9
#16	1.9	1.4	65.2	26.4	8.7	73.6
#30	1.9	1.2	40.6	16.8	9.5	83.2
#50	1.8	1.1	17.6	7.9	9.0	92.1
#100	1.7	1.1	2.8	2.1	5.8	97.9
LBW	1.3	1.0	0.3	0.9	1.2	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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **64** **Workability Factor:** **35**



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"	99.2	0.8	0.8
3/4"	91.1	8.1	8.9
1/2"	72.0	19.1	28.0
3/8"	60.3	11.7	39.7
#4	43.4	16.9	56.6
#8	35.6	7.8	64.4
#16	28.4	7.2	71.6
#30	21.8	6.7	78.2
#50	9.1	12.6	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-02**

Sample Date: 5/27/24

Concrete Grade: **S2M, 3500HP**

Contractor: _____

Dates Test Represents: 5/28/2024 through 6/3/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	50.8
26A	71-47	Presque Isle	270	1.65	2.62	8.9
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



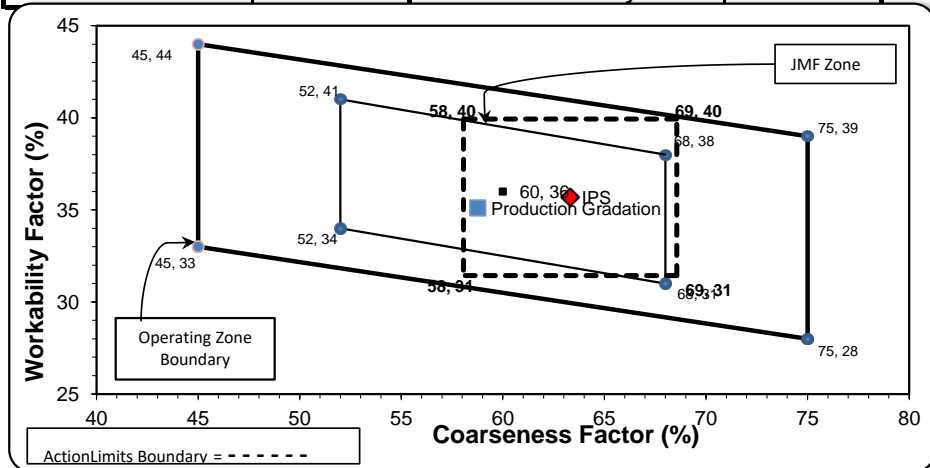
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.3	100.0	100.0	99.1	0.9	0.9
3/4"	83.9	100.0	100.0	91.8	7.3	8.2
1/2"	47.7	94.9	100.0	73.0	18.8	27.0
3/8"	28.0	82.5	100.0	61.9	11.1	38.1
#4	6.3	15.8	95.9	43.3	18.6	56.7
#8	3.9	3.3	81.4	35.1	8.2	64.9
#16	3.4	2.0	66.0	28.5	6.6	71.5
#30	3.2	1.7	50.8	22.3	6.3	77.7
#50	3.0	1.6	27.2	12.6	9.6	87.4
#100	2.8	1.5	6.0	4.0	8.7	96.0
LBW	2.5	1.3	0.8	1.7	2.3	98.3

*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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **59** **Workability Factor:** **35**



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: