Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-101**

Contractor: _____

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	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%

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	96.0	42.9	13.8	57.1
#8	2.4	4.5	82.0	34.1	8.8	65.9
#16	2.4	2.7	68.0	28.1	5.9	71.9
#30	2.3	2.3	53.5	22.3	5.8	77.7
#50	2.2	2.1	28.5	12.5	9.9	87.5
#100	2.0	1.9	8.2	4.4	8.1	95.6
LBW	1.6	1.7	1.0	1.4	3.0	98.6

Superior Materials, LLC
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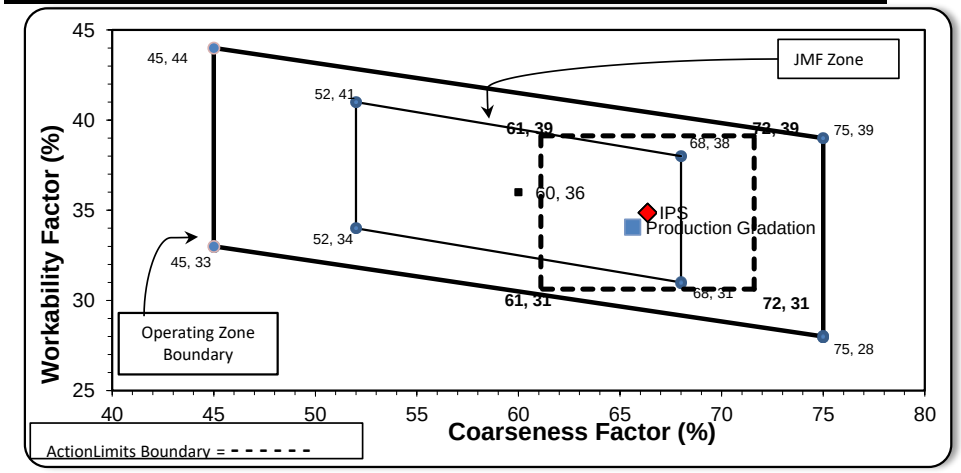
Suite 500
Farmington Hills, MI 48336

*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:	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

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SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-102**

Contractor:

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1370	8.16	2.69	43.9
IA	58-003	Stoneco	550	3.28	2.69	17.6
2NS	63-114	Highland	1200	7.26	2.65	38.5
		Total Wt	**3120**	**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"	100.0	100.0	100.0	100.0	0.0	0.0
1"	69.6	100.0	100.0	86.7	13.3	13.3
3/4"	40.1	100.0	100.0	73.7	13.0	26.3
1/2"	14.3	90.9	100.0	60.8	12.9	39.2
3/8"	8.6	71.7	100.0	54.9	5.9	45.1
#4	2.2	15.6	99.0	41.8	13.1	58.2
#8	1.6	2.2	85.3	33.9	7.9	66.1
#16	1.4	1.4	67.8	26.9	7.0	73.1
#30	1.3	1.2	49.6	19.9	7.1	80.1
#50	1.2	1.1	20.8	8.7	11.1	91.3
#100	1.2	1.1	3.1	1.9	6.8	98.1
LBW	1.0	0.9	0.7	0.9	1.0	99.1

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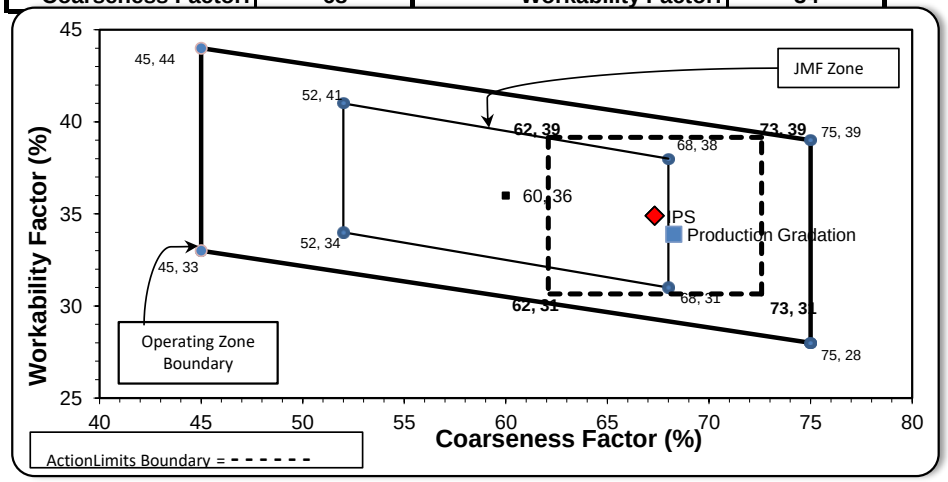
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	68	Workability Factor:	34



Intial 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

Production Gradation Report

PLANT #: **P-103**

Contractor: _____

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1370	8.16	2.69	43.9
IA	58-003	Stoneco	550	3.28	2.69	17.6
2NS	63-114	Highland	1200	7.26	2.65	38.5
		Total Wt	**3120**	**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"	100.0	100.0	100.0	100.0	0.0	0.0
1"	69.6	100.0	100.0	86.7	13.3	13.3
3/4"	40.1	100.0	100.0	73.7	13.0	26.3
1/2"	14.3	90.9	100.0	60.8	12.9	39.2
3/8"	8.6	71.7	100.0	54.9	5.9	45.1
#4	2.2	15.6	99.0	41.8	13.1	58.2
#8	1.6	2.2	85.3	33.9	7.9	66.1
#16	1.4	1.4	67.8	26.9	7.0	73.1
#30	1.3	1.2	49.6	19.9	7.1	80.1
#50	1.2	1.1	20.8	8.7	11.1	91.3
#100	1.2	1.1	3.1	1.9	6.8	98.1
LBW	1.0	0.9	0.7	0.9	1.0	99.1

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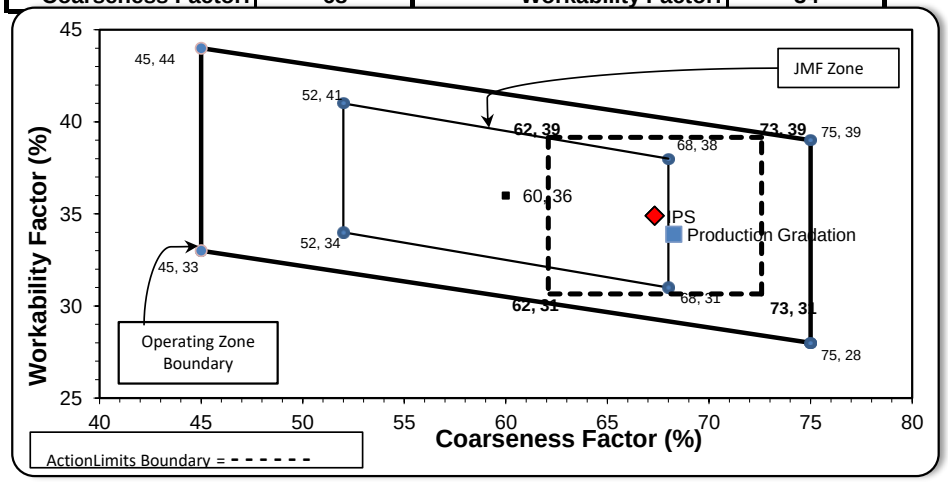
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	68	Workability Factor:	34



Intial 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

Production Gradation Report

PLANT #: 12

Contractor:

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	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%

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.2	100.0	100.0	99.4	0.6	0.6
1"	32.1	100.0	100.0	78.5	20.9	21.5
3/4"	12.6	98.5	100.0	71.9	6.6	28.1
1/2"	3.9	73.7	100.0	61.9	10.0	38.1
3/8"	2.4	44.4	100.0	52.9	9.1	47.1
#4	2.2	6.7	95.9	40.1	12.7	59.9
#8	2.0	2.3	81.3	33.1	7.1	66.9
#16	1.8	1.7	65.5	26.7	6.4	73.3
#30	1.7	1.6	49.2	20.2	6.4	79.8
#50	1.7	1.5	23.7	10.2	10.0	89.8
#100	1.5	1.5	3.7	2.4	7.9	97.6
LBW	1.2	1.3	0.5	1.0	1.4	99.0

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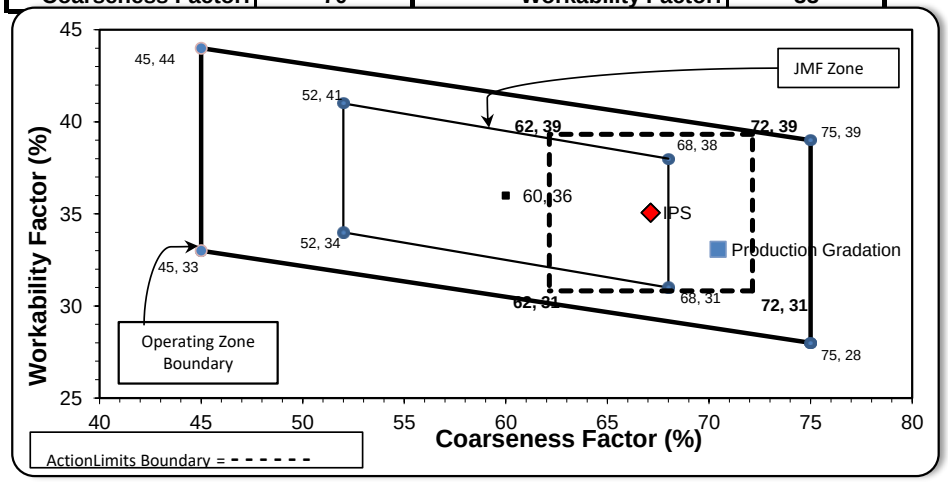
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	70	Workability Factor:	33



Intial 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

Production Gradation Report

PLANT #: **20**

Contractor:

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	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"	94.6	100.0	100.0	98.3	1.7	1.7
1"	27.9	100.0	100.0	77.7	20.6	22.3
3/4"	5.1	98.4	100.0	70.2	7.5	29.8
1/2"	2.2	72.5	100.0	61.5	8.7	38.5
3/8"	1.9	50.9	100.0	54.9	6.6	45.1
#4	1.8	12.4	98.3	42.7	12.2	57.3
#8	1.8	5.4	83.4	34.8	7.9	65.2
#16	1.8	3.8	68.2	28.4	6.4	71.6
#30	1.7	3.3	49.1	20.7	7.6	79.3
#50	1.7	3.1	20.9	9.6	11.1	90.4
#100	1.5	2.8	3.4	2.6	7.0	97.4
LBW	1.2	2.4	0.5	1.3	1.3	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 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

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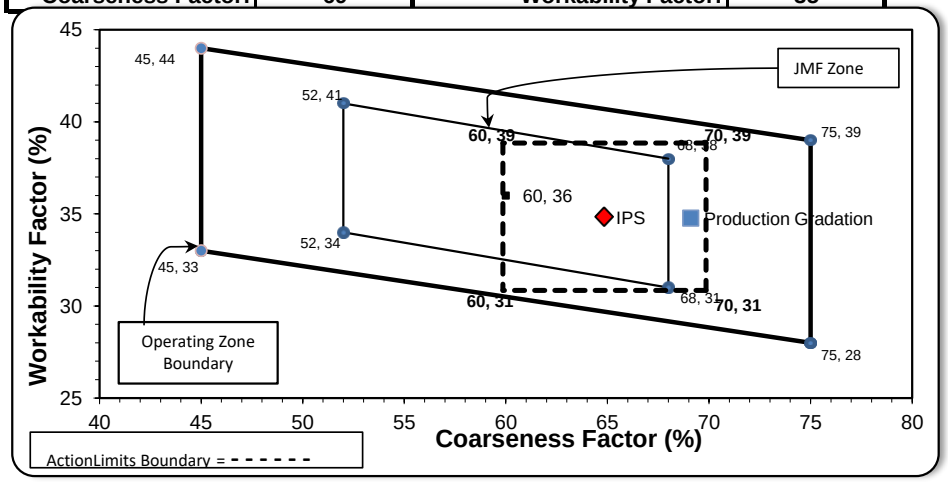
Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	69	Workability Factor:	35



Intial 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

Production Gradation Report

PLANT #: **P11**

Contractor: _____

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	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%

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.2	100.0	100.0	99.5	0.5	0.5
1"	32.1	100.0	100.0	80.1	19.4	19.9
3/4"	12.6	98.5	100.0	73.9	6.2	26.1
1/2"	3.9	73.7	100.0	63.5	10.4	36.5
3/8"	2.4	44.4	100.0	53.8	9.7	46.2
#4	2.2	6.7	95.7	40.2	13.7	59.8
#8	2.0	2.3	84.9	34.5	5.7	65.5
#16	1.8	1.7	70.6	28.7	5.8	71.3
#30	1.7	1.6	50.7	20.8	7.8	79.2
#50	1.7	1.5	23.7	10.2	10.6	89.8
#100	1.5	1.5	7.2	3.7	6.5	96.3
LBW	1.2	1.3	1.1	1.2	2.5	98.8

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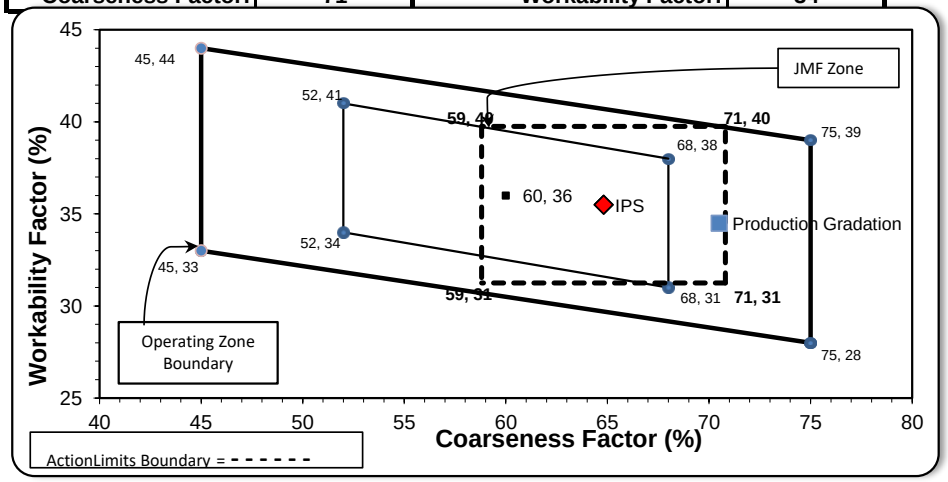
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	71	Workability Factor:	34



Intial 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

Production Gradation Report

PLANT #: **P-35**

Contractor: _____

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1370	8.16	2.69	43.9
IA	58-003	Stoneco	550	3.28	2.69	17.6
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.5
		Total Wt	**3120**	**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"	100.0	100.0	100.0	100.0	0.0	0.0
1"	69.6	100.0	100.0	86.7	13.3	13.3
3/4"	40.1	100.0	100.0	73.7	13.0	26.3
1/2"	14.3	90.9	100.0	60.8	12.9	39.2
3/8"	8.6	71.7	100.0	54.9	5.9	45.1
#4	2.2	15.6	98.9	41.8	13.1	58.2
#8	1.6	2.2	87.1	34.6	7.2	65.4
#16	1.4	1.4	66.9	26.6	8.0	73.4
#30	1.3	1.2	43.3	17.4	9.2	82.6
#50	1.2	1.1	16.0	6.9	10.6	93.1
#100	1.2	1.1	2.9	1.8	5.0	98.2
LBW	1.0	0.9	0.6	0.8	1.0	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.

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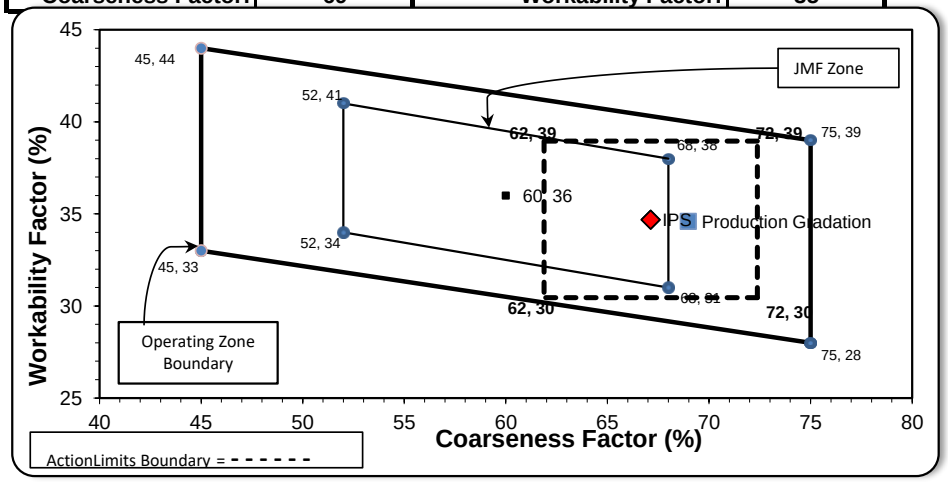
Farmington Hills, MI 48336

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	69	Workability Factor:	35



Intial 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

Production Gradation Report

PLANT #: **P-36**

Contractor: _____

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	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%

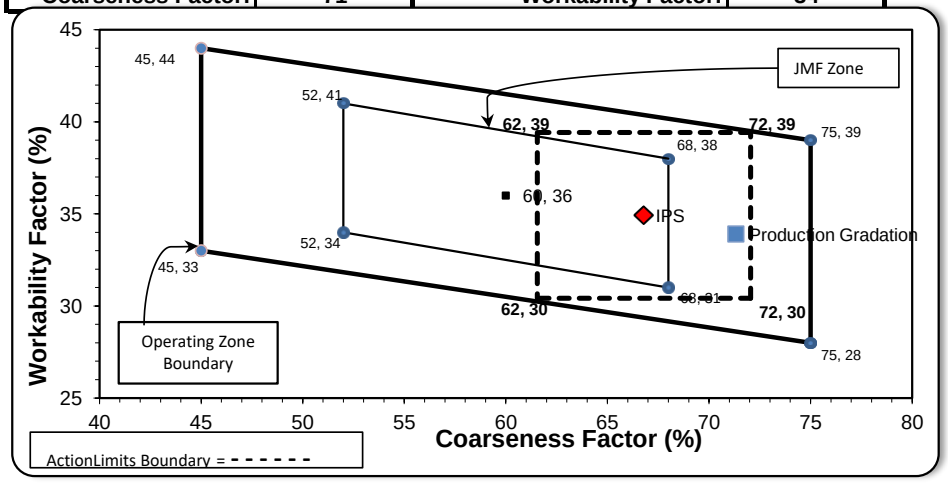
Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.2	100.0	100.0	99.4	0.6	0.6
1"	32.1	100.0	100.0	78.5	20.9	21.5
3/4"	12.6	98.5	100.0	71.9	6.6	28.1
1/2"	3.9	73.7	100.0	61.9	10.0	38.1
3/8"	2.4	44.4	100.0	52.9	9.1	47.1
#4	2.2	6.7	98.3	41.1	11.8	58.9
#8	2.0	2.3	83.4	33.9	7.2	66.1
#16	1.8	1.7	68.2	27.7	6.2	72.3
#30	1.7	1.6	49.1	20.2	7.5	79.8
#50	1.7	1.5	20.9	9.1	11.1	90.9
#100	1.5	1.5	3.4	2.2	6.9	97.8
LBW	1.2	1.3	0.5	1.0	1.3	99.0

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

*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:	34



Intial 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

Production Gradation Report

PLANT #: **P-39**

Contractor: _____

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	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%

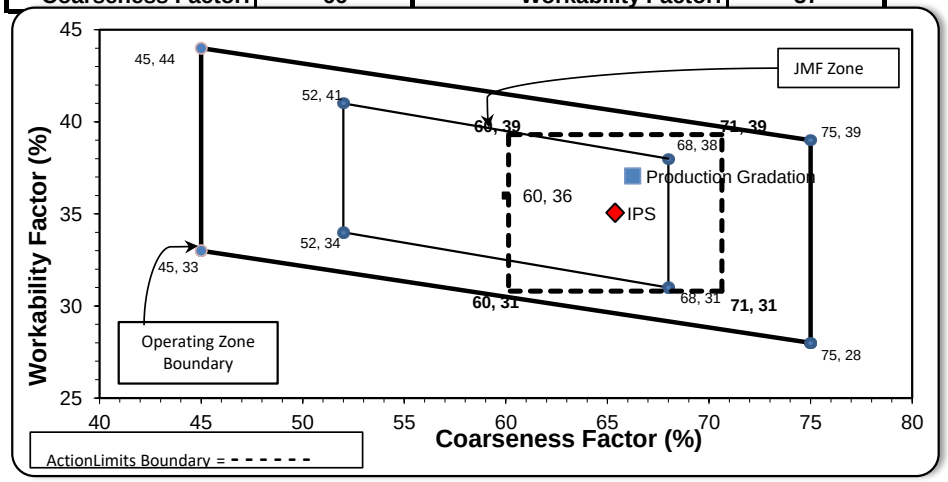
Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.0	100.0	100.0	98.0	2.0	2.0
1"	34.6	100.0	100.0	78.3	19.7	21.7
3/4"	8.8	98.5	100.0	69.3	9.0	30.7
1/2"	3.2	83.2	100.0	63.5	5.8	36.5
3/8"	3.0	63.7	100.0	58.3	5.1	41.7
#4	2.5	17.3	99.4	45.8	12.5	54.2
#8	2.4	4.5	86.2	37.1	8.7	62.9
#16	2.4	2.7	70.6	30.2	6.8	69.8
#30	2.3	2.3	52.4	22.7	7.5	77.3
#50	2.2	2.1	25.4	11.6	11.1	88.4
#100	2.0	1.9	6.0	3.6	8.0	96.4
LBW	1.6	1.7	0.5	1.2	2.4	98.8

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

*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 SupplierGradations

Coarseness Factor:	66	Workability Factor:	37



Intial 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

Production Gradation Report

PLANT #: **P-O2**

Contractor: _____

Sample Date: 5/6/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/7/2024 through 5/13/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	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%

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.2	100.0	100.0	99.4	0.6	0.6
1"	32.1	100.0	100.0	78.5	20.9	21.5
3/4"	12.6	98.5	100.0	71.9	6.6	28.1
1/2"	3.9	73.7	100.0	61.9	10.0	38.1
3/8"	2.4	44.4	100.0	52.9	9.1	47.1
#4	2.2	6.7	95.9	40.1	12.7	59.9
#8	2.0	2.3	81.3	33.1	7.1	66.9
#16	1.8	1.7	65.5	26.7	6.4	73.3
#30	1.7	1.6	49.2	20.2	6.4	79.8
#50	1.7	1.5	23.7	10.2	10.0	89.8
#100	1.5	1.5	3.7	2.4	7.9	97.6
LBW	1.2	1.3	0.5	1.0	1.4	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.

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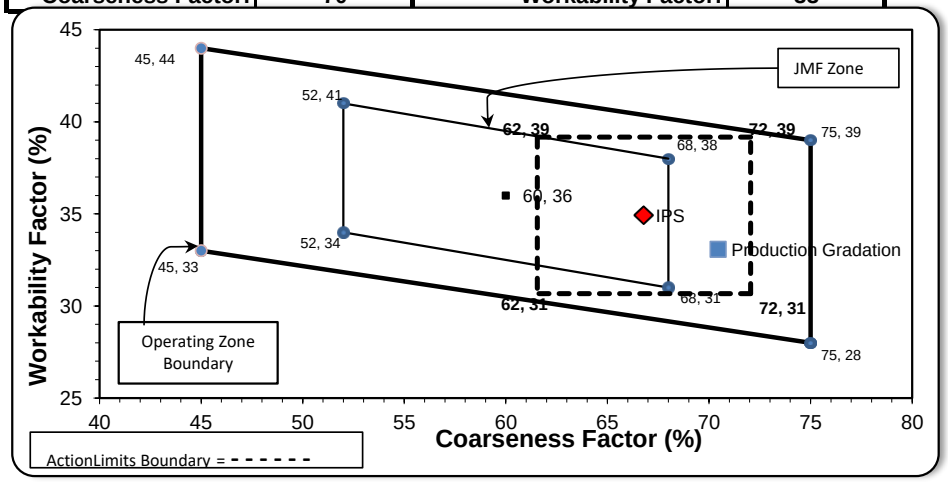
Production Gradation ○ Batch Plant Gradations ◉ Aggregate SupplierGradations

Coarseness Factor:	70	Workability Factor:	33



Intial 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

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SM, LLC Technical Service

Approved By: