

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-101**

Sample Date: 9/28/20

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1610	9.85	2.62	55.3
26A	71-47	Presque Isle	150	0.92	2.62	5.2
2NS	75-051	Mid-Michigan	1150	6.93	2.66	39.5
Total Wt			2910	17.69		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"	98.2	100.0	100.0	99.0	1.0	1.0
3/4"	78.2	100.0	100.0	87.9	11.1	12.1
1/2"	39.1	96.7	100.0	66.1	21.8	33.9
3/8"	24.3	86.4	100.0	57.4	8.7	42.6
#4	4.2	14.5	98.5	42.0	15.4	58.0
#8	2.2	3.8	80.9	33.4	8.6	66.6
#16	1.9	2.0	64.1	26.5	6.9	73.5
#30	1.9	1.7	48.6	20.3	6.1	79.7
#50	1.8	1.5	24.3	10.7	9.7	89.3
#100	1.7	1.4	4.8	2.9	7.8	97.1
LBW	1.5	1.3	0.6	1.1	1.8	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.

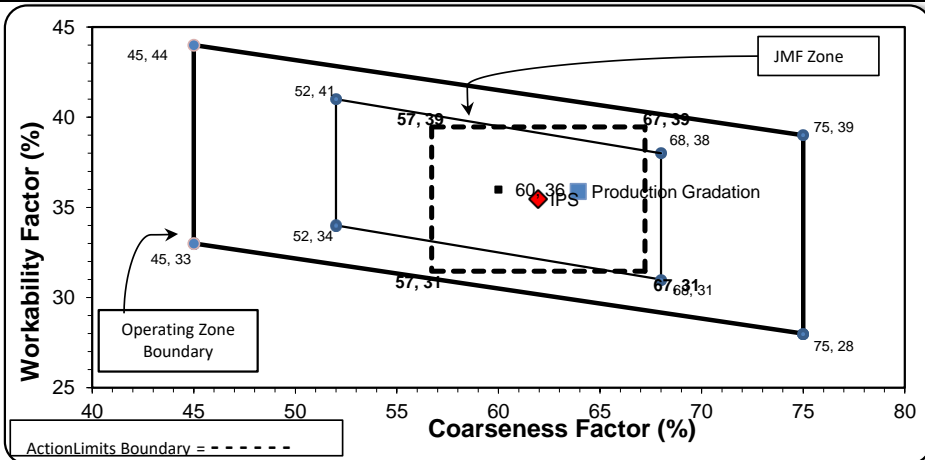
Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	64	Workability Factor:	33	Adjusted WF	35.9
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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"	95.0	5.0	5.0
1/2"	70.5	24.5	29.5
3/8"	60.0	10.5	40.0
#4	44.4	15.6	55.6
#8	35.5	9.0	64.5
#16	28.5	7.0	71.5
#30	21.5	7.0	78.5
#50	10.2	11.3	89.8
#100	3.1	7.1	96.9
LBW	1.3	1.8	98.7



PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 9/28/20

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	54.1
26A	58-003	Stoneco	205	1.22	2.69	6.9
2NS	63-114	Highland	1150	6.95	2.65	38.9
Total Wt			2955	17.71		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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	83.2	100.0	100.0	90.9	9.1	9.1
1/2"	45.5	99.6	100.0	70.5	20.4	29.5
3/8"	22.4	87.1	100.0	57.1	13.4	42.9
#4	3.9	24.8	99.2	42.4	14.7	57.6
#8	1.6	6.7	85.4	34.6	7.9	65.4
#16	1.2	3.3	69.0	27.7	6.8	72.3
#30	1.1	2.6	48.9	19.8	7.9	80.2
#50	1.0	2.4	17.8	7.6	12.2	92.4
#100	0.9	2.3	3.4	2.0	5.7	98.0
LBW	0.7	2.2	0.3	0.6	1.3	99.4

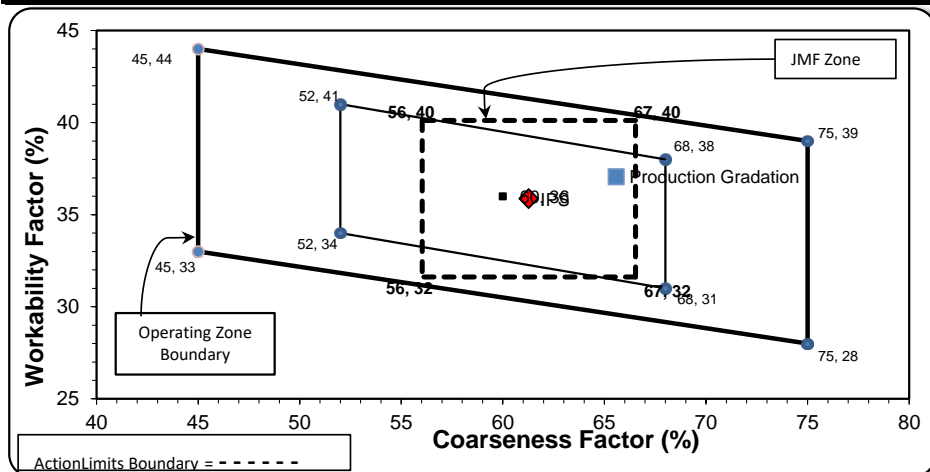
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	66	Workability Factor:	35	37.1	Coarseness Factor:	61
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Workability Factor:	36
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Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.3	0.7	0.7
3/4"	89.2	10.1	10.8
1/2"	70.7	18.5	29.3
3/8"	60.7	10.0	39.3
#4	44.4	16.3	55.6
#8	35.9	8.5	64.1
#16	27.3	8.6	72.7
#30	19.1	8.2	80.9
#50	7.4	11.7	92.6
#100	1.9	5.6	98.1
LBW	0.7	1.2	99.3

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-103**

Sample Date: 9/28/20

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	54.1
26A	58-003	Stoneco	205	1.22	2.69	6.9
2NS	63-114	Highland	1150	6.95	2.65	38.9
Total Wt			2955	17.71		100.0

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



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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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	83.2	100.0	100.0	90.9	9.1	9.1
1/2"	45.5	99.6	100.0	70.5	20.4	29.5
3/8"	22.4	87.1	100.0	57.1	13.4	42.9
#4	3.9	24.8	99.2	42.4	14.7	57.6
#8	1.6	6.7	85.4	34.6	7.9	65.4
#16	1.2	3.3	69.0	27.7	6.8	72.3
#30	1.1	2.6	48.9	19.8	7.9	80.2
#50	1.0	2.4	17.8	7.6	12.2	92.4
#100	0.9	2.3	3.4	2.0	5.7	98.0
LBW	0.7	2.2	0.3	0.6	1.3	99.4

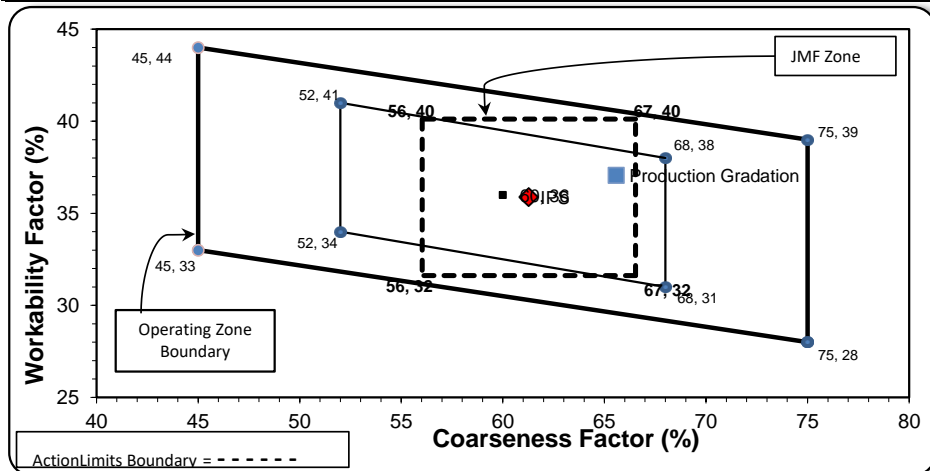
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	66	Workability Factor:	35	37.1
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Coarseness Factor:	61
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"	99.3	0.7	0.7
3/4"	89.2	10.1	10.8
1/2"	70.7	18.5	29.3
3/8"	60.7	10.0	39.3
#4	44.4	16.3	55.6
#8	35.9	8.5	64.1
#16	27.3	8.6	72.7
#30	19.1	8.2	80.9
#50	7.4	11.7	92.6
#100	1.9	5.6	98.1
LBW	0.7	1.2	99.3

PREPARED BY:
 SM, LLC Technical Service

Approved BY:

Aggregate Optimization Chart

PLANT #: **P-12**

Sample Date: 9/28/20

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1505	9.21	2.62	51.8
26A	71-47	Presque Isle	250	1.53	2.62	8.6
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
Total Wt			2905	17.69		100.0

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



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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"	97.4	100.0	100.0	98.7	1.3	1.3
3/4"	72.6	100.0	100.0	85.8	12.8	14.2
1/2"	38.7	97.4	100.0	68.0	17.8	32.0
3/8"	21.3	84.6	100.0	57.9	10.1	42.1
#4	4.8	21.2	98.0	43.1	14.8	56.9
#8	2.9	6.8	81.4	34.3	8.8	65.7
#16	2.5	3.8	64.9	27.3	7.0	72.7
#30	2.4	3.3	48.5	20.7	6.6	79.3
#50	2.3	3.0	22.9	10.5	10.2	89.5
#100	2.1	2.8	3.5	2.7	7.8	97.3
LBW	1.5	2.4	0.5	1.2	1.5	98.8

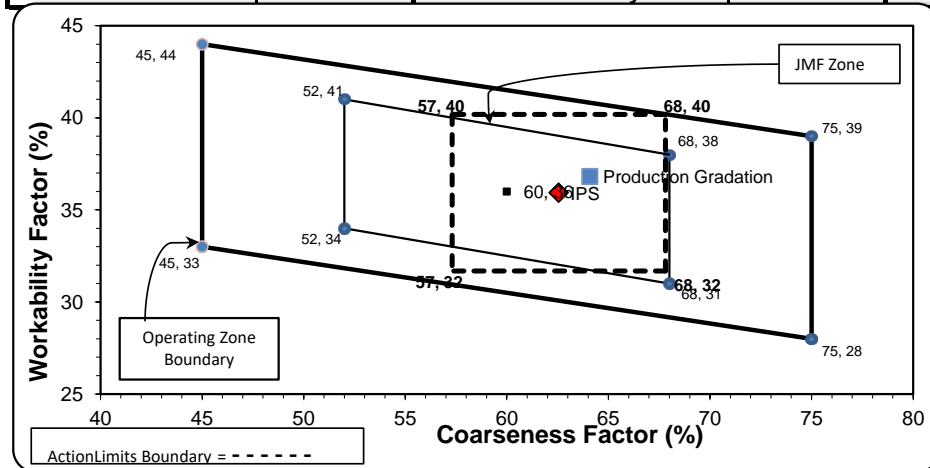
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	64	Workability Factor:	34	Adjusted WF	36.8
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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"	99.3	0.7	0.7
3/4"	89.0	10.3	11.0
1/2"	70.3	18.7	29.7
3/8"	59.9	10.4	40.1
#4	41.9	18.0	58.1
#8	35.9	6.0	64.1
#16	27.8	8.2	72.2
#30	18.9	8.8	81.1
#50	6.3	12.6	93.7
#100	1.7	4.6	98.3
LBW	1.0	0.7	99.0

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-20**

Sample Date: 9/28/20

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1605	9.82	2.62	55.2
26A	71-47	Presque Isle	200	1.22	2.62	6.9
2NS	63-92	Grange Hall	1100	6.65	2.65	37.9
Total Wt			2905	17.69		100.0

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



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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	99.2	0.8	0.8
3/4"	87.4	100.0	100.0	93.0	6.2	7.0
1/2"	51.4	97.1	100.0	72.9	20.1	27.1
3/8"	30.0	89.9	100.0	60.6	12.3	39.4
#4	5.3	24.6	97.4	41.5	19.1	58.5
#8	2.4	6.1	84.6	33.8	7.7	66.2
#16	2.0	2.5	69.4	27.6	6.2	72.4
#30	1.9	2.0	48.5	19.6	8.0	80.4
#50	1.8	1.8	17.1	7.6	12.0	92.4
#100	1.7	1.7	2.1	1.9	5.7	98.1
LBW	1.6	1.6	0.4	1.1	0.7	98.9

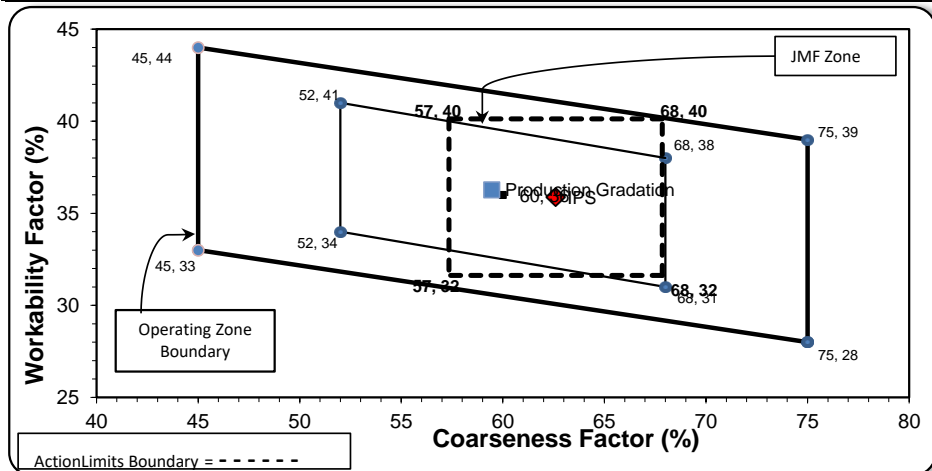
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	59	Workability Factor:	34	36.3	Coarseness Factor:	63
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Workability Factor:	36
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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"	89.2	10.8	10.8
1/2"	68.4	20.8	31.6
3/8"	59.9	8.6	40.1
#4	43.0	16.9	57.0
#8	35.9	7.1	64.1
#16	29.0	6.8	71.0
#30	21.3	7.7	78.7
#50	9.9	11.4	90.1
#100	2.4	7.5	97.6
LBW	1.2	1.2	98.8

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-32**

Sample Date: 9/28/20 Concrete Grade: DM
 Dates Test Represents: 9/29/2020 through 10/5/2020

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1755	10.73	2.62	60.4
26A	71-47	Presque Isle	0	0.00	2.62	0.0
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6
Total Wt			2905	17.69		100.0

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



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 Suite 500
 Farmington Hills, MI 48336

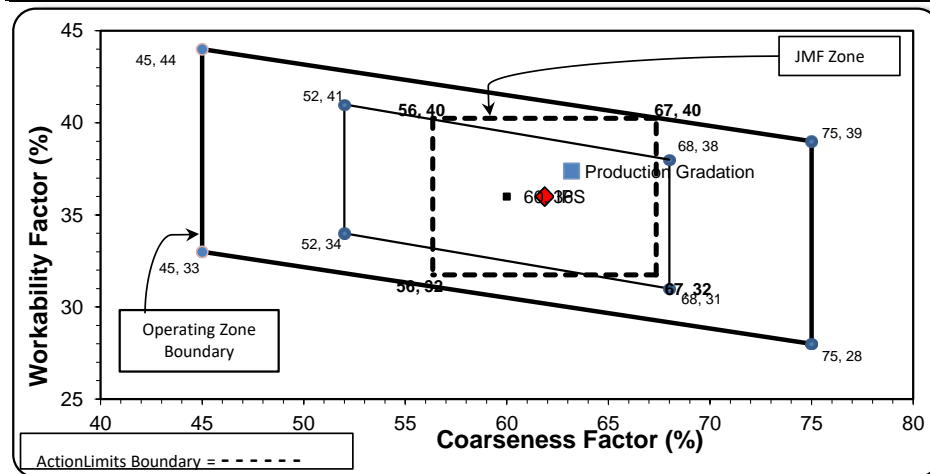
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.3	100.0	100.0	97.8	2.2	2.2
3/4"	83.1	100.0	100.0	89.8	8.0	10.2
1/2"	50.8	97.4	100.0	70.3	19.5	29.7
3/8"	31.9	84.6	100.0	58.9	11.4	41.1
#4	6.6	21.2	96.4	42.1	16.7	57.9
#8	2.9	6.8	83.7	34.9	7.3	65.1
#16	2.4	3.8	67.6	28.2	6.7	71.8
#30	2.2	3.3	45.8	19.5	8.8	80.5
#50	2.1	3.0	22.5	10.2	9.3	89.8
#100	2.1	2.8	7.1	4.1	6.1	95.9
LBW	1.6	2.4	1.6	1.6	2.5	98.4

*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 Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	63	Workability Factor:	35	Adjusted WF	37.4
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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"	100.0	0.0	0.0
3/4"	95.0	5.0	5.0
1/2"	72.3	22.8	27.7
3/8"	60.4	11.8	39.6
#4	42.6	17.8	57.4
#8	36.0	6.6	64.0
#16	29.5	6.5	70.5
#30	20.3	9.2	79.7
#50	9.5	10.8	90.5
#100	3.4	6.1	96.6
LBW	1.3	2.1	98.7

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-35**

Sample Date: 9/28/20

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	54.1
26A	58-003	Stoneco	205	1.22	2.69	6.9
2NS	81-093	Burmeister	1150	6.95	2.65	38.9
Total Wt			2955	17.71		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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	83.2	100.0	100.0	90.9	9.1	9.1
1/2"	45.5	99.6	100.0	70.5	20.4	29.5
3/8"	22.4	87.1	100.0	57.1	13.4	42.9
#4	3.9	24.8	97.8	41.9	15.2	58.1
#8	1.6	6.7	86.8	35.1	6.8	64.9
#16	1.2	3.3	64.2	25.9	9.2	74.1
#30	1.1	2.6	45.1	18.3	7.5	81.7
#50	1.0	2.4	16.7	7.2	11.1	92.8
#100	0.9	2.3	3.1	1.9	5.4	98.1
LBW	0.7	2.2	1.0	0.9	0.9	99.1

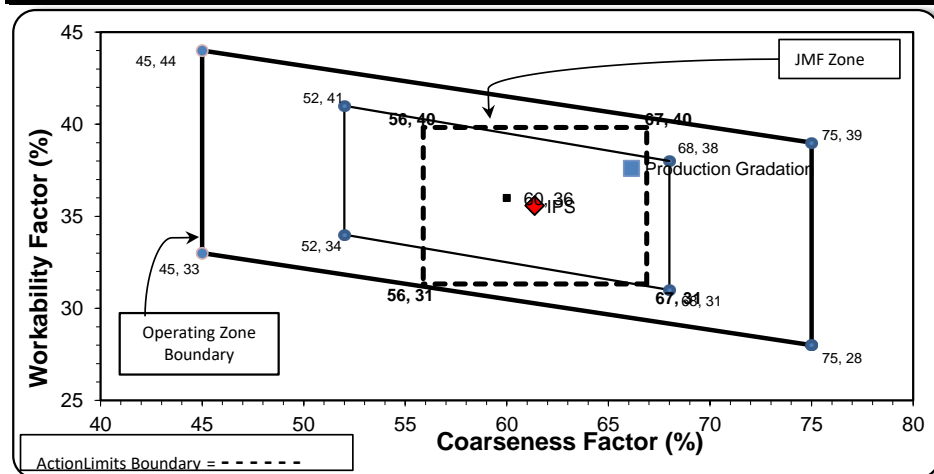
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	66	Workability Factor:	35	37.6
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Coarseness Factor:	61
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"	99.3	0.7	0.7
3/4"	89.1	10.2	10.9
1/2"	70.5	18.6	29.5
3/8"	60.5	10.0	39.5
#4	44.1	16.4	55.9
#8	35.6	8.5	64.4
#16	27.7	7.9	72.3
#30	20.6	7.1	79.4
#50	8.7	11.8	91.3
#100	1.6	7.1	98.4
LBW	1.1	0.6	98.9

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-36**

Sample Date: 9/28/20

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1455	8.90	2.62	50.1
26A	71-47	Presque Isle	350	2.14	2.62	12.0
2NS	63-92	Grange Hall	1100	6.65	2.65	37.9
Total Wt			2905	17.69		100.0

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



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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"	97.4	100.0	100.0	98.7	1.3	1.3
3/4"	72.6	100.0	100.0	86.3	12.4	13.7
1/2"	38.7	97.4	100.0	69.0	17.3	31.0
3/8"	21.3	84.6	100.0	58.7	10.3	41.3
#4	4.8	21.2	97.4	41.8	16.9	58.2
#8	2.9	6.8	84.6	34.3	7.5	65.7
#16	2.5	3.8	69.4	28.0	6.3	72.0
#30	2.4	3.3	48.5	20.0	8.0	80.0
#50	2.3	3.0	17.1	8.0	12.0	92.0
#100	2.1	2.8	2.1	2.2	5.8	97.8
LBW	1.5	2.4	0.4	1.2	1.0	98.8

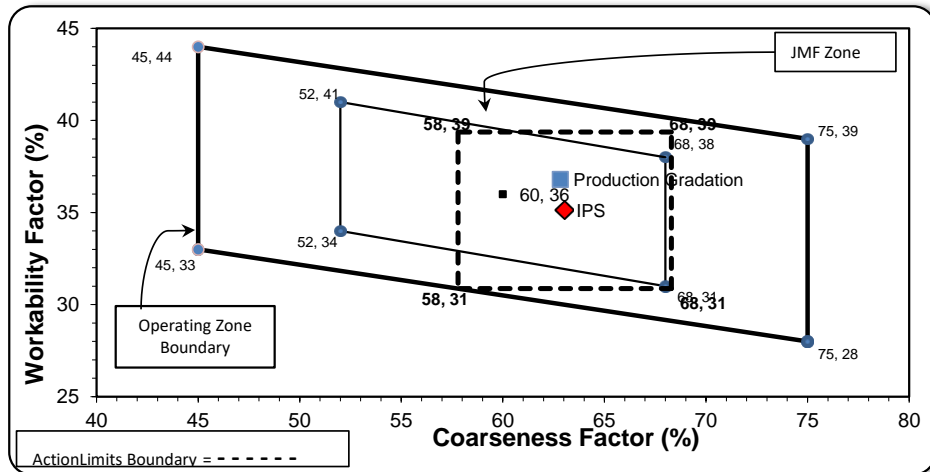
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	63	Workability Factor:	34	Adjusted WF	36.8
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Coarseness Factor:	63
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"	99.1	0.9	0.9
3/4"	90.3	8.8	9.7
1/2"	69.2	21.1	30.8
3/8"	59.1	10.1	40.9
#4	41.8	17.3	58.2
#8	35.1	6.6	64.9
#16	28.5	6.6	71.5
#30	21.2	7.3	78.8
#50	8.7	12.5	91.3
#100	1.8	7.0	98.2
LBW	0.7	1.0	99.3

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Approved By:

Aggregate Optimization Chart

PLANT #: **P-39**

Sample Date: 9/28/20

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1605	9.82	2.62	55.2
26A	71-47	Presque Isle	150	0.92	2.62	5.2
2NS	44-051	Krake Willis Rd	1150	6.95	2.65	39.6
Total Wt			2905	17.69		100.0

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



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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"	98.2	100.0	100.0	99.0	1.0	1.0
3/4"	78.2	100.0	100.0	88.0	11.0	12.0
1/2"	39.1	96.7	100.0	66.2	21.8	33.8
3/8"	24.3	86.4	100.0	57.5	8.7	42.5
#4	4.2	14.5	95.6	40.9	16.6	59.1
#8	2.2	3.8	80.6	33.3	7.6	66.7
#16	1.9	2.0	64.8	26.8	6.5	73.2
#30	1.9	1.7	50.2	21.0	5.8	79.0
#50	1.8	1.5	26.3	11.5	9.5	88.5
#100	1.7	1.4	7.8	4.1	7.4	95.9
LBW	1.5	1.3	0.9	1.3	2.8	98.7

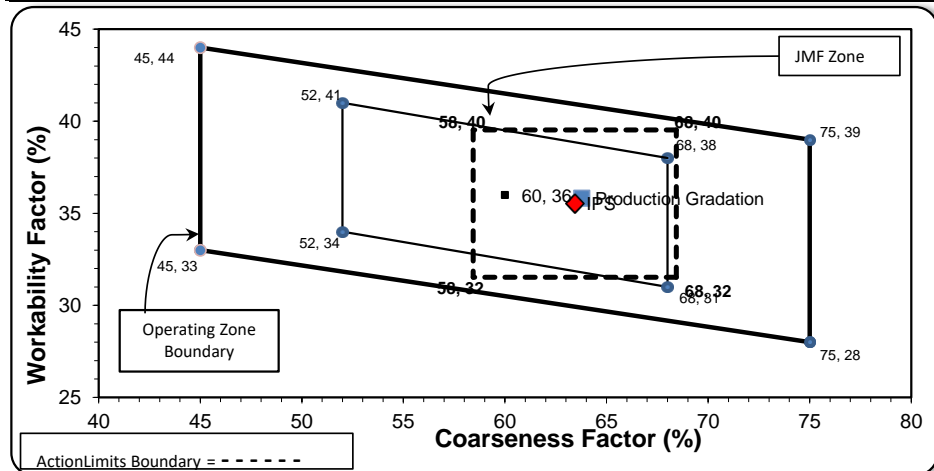
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	64	Workability Factor:	33	Adjusted WF	35.8
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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"	89.7	10.3	10.3
1/2"	70.3	19.4	29.7
3/8"	59.1	11.2	40.9
#4	42.8	16.3	57.2
#8	35.5	7.3	64.5
#16	29.0	6.5	71.0
#30	21.2	7.7	78.8
#50	9.8	11.5	90.2
#100	3.7	6.1	96.3
LBW	1.2	2.5	98.8

PREPARED BY:
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Approved By:

Aggregate Optimization Chart

PLANT #: **P-02**

Sample Date: 9/28/20 Concrete Grade: **DM**
 Dates Test Represents: 9/29/2020 through 10/5/2020

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1505	9.21	2.62	51.8
26A	71-47	Presque Isle	250	1.53	2.62	8.6
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
Total Wt			2905	17.69		100.0

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



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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"	97.4	100.0	100.0	98.7	1.3	1.3
3/4"	72.6	100.0	100.0	85.8	12.8	14.2
1/2"	38.7	97.4	100.0	68.0	17.8	32.0
3/8"	21.3	84.6	100.0	57.9	10.1	42.1
#4	4.8	21.2	98.0	43.1	14.8	56.9
#8	2.9	6.8	81.4	34.3	8.8	65.7
#16	2.5	3.8	64.9	27.3	7.0	72.7
#30	2.4	3.3	48.5	20.7	6.6	79.3
#50	2.3	3.0	22.9	10.5	10.2	89.5
#100	2.1	2.8	3.5	2.7	7.8	97.3
LBW	1.5	2.4	0.5	1.2	1.5	98.8

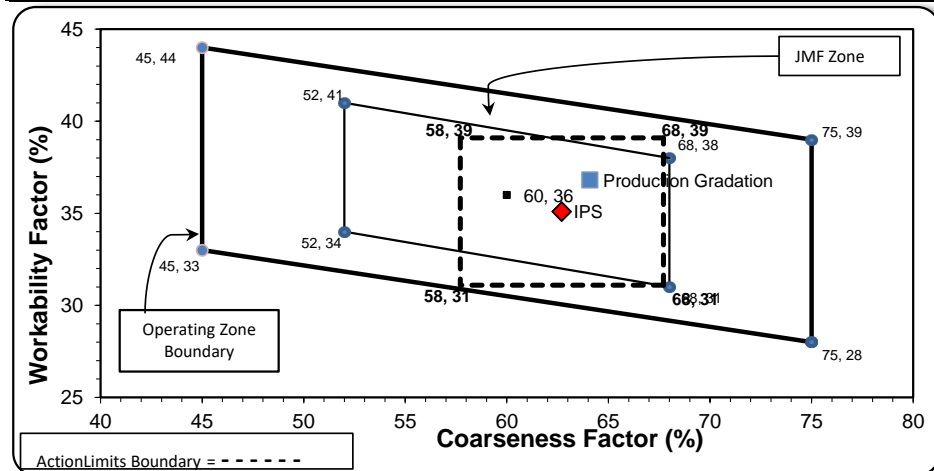
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor: 64	Workability Factor: 34	Adjusted WF 36.8
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Coarseness Factor: 63
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"	95.1	4.9	4.9
1/2"	74.6	20.5	25.4
3/8"	59.3	15.3	40.7
#4	42.1	17.2	57.9
#8	35.1	7.1	64.9
#16	29.2	5.9	70.8
#30	21.9	7.3	78.1
#50	9.6	12.4	90.4
#100	2.4	7.2	97.6
LBW	0.9	1.5	99.1

PREPARED BY:
 SM, LLC Technical Service

Approved By: