

Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP164E7 and DDP164E8

Production Gradation Report

PLANT #: **P-101**

Sample Date: 8/28/17

Concrete Grade: **P1M**

Contractor: _____

Dates Test Represents: 8/28/2017 to 9/3/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1000	6.12	2.62	32.6
IA	71-47	Presque Isle	750	4.59	2.62	24.4
2NS	63-115	Ray Road	1320	7.98	2.65	43.0
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"	100.0	100.0	100.0	100.0	0.0	0.0
1"	57.4	100.0	100.0	86.1	13.9	13.9
3/4"	17.5	98.4	100.0	72.7	13.4	27.3
1/2"	4.5	79.6	100.0	63.9	8.8	36.1
3/8"	3.0	50.9	100.0	56.4	7.5	43.6
#4	2.2	7.9	97.2	44.4	12.0	55.6
#8	2.1	2.7	78.9	35.3	9.2	64.7
#16	2.1	2.1	60.8	27.3	7.9	72.7
#30	2.0	2.0	45.8	20.8	6.5	79.2
#50	2.0	1.9	25.8	12.2	8.6	87.8
#100	1.9	1.9	7.5	4.3	7.9	95.7
LBW	1.4	1.6	0.7	1.1	3.2	98.9



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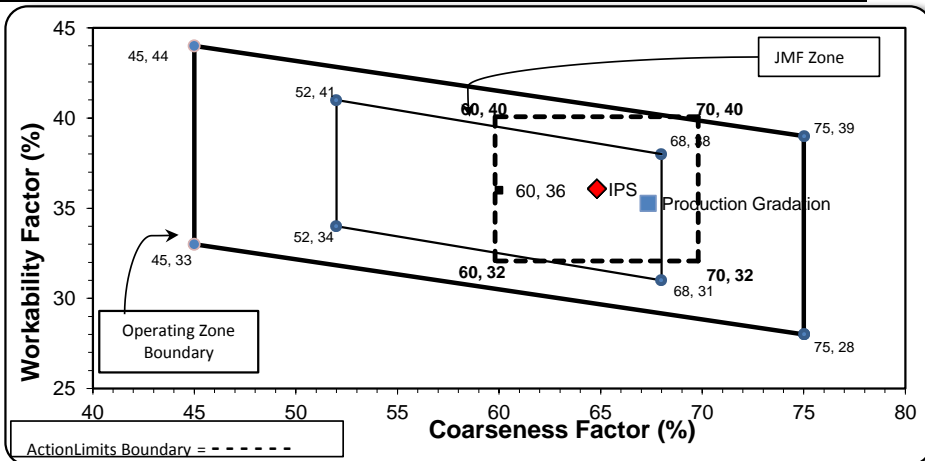
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	67	Workability Factor:	35
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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"	99.3	0.7	0.7
1"	83.6	15.7	16.4
3/4"	73.0	10.6	27.0
1/2"	65.1	7.9	34.9
3/8"	58.6	6.5	41.4
#4	45.8	12.8	54.2
#8	36.1	9.7	63.9
#16	28.8	7.3	71.2
#30	21.7	7.1	78.3
#50	10.3	11.4	89.7
#100	3.1	7.2	96.9
LBW	1.3	1.8	98.7



PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDP154E7 and DDP154E8

Production Gradation Report

PLANT #: **P-102**

Sample Date: 8/28/17

Concrete Grade: **P1M**

Contractor: _____

Dates Test Represents: 8/28/2017 to 9/3/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1320	7.86	2.69	41.9
IA	58-003	Stoneco	600	3.57	2.69	19.0
2NS	63-114	AA Highland	1230	7.44	2.65	39.0
Total Wt			3150	18.88		100.0

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



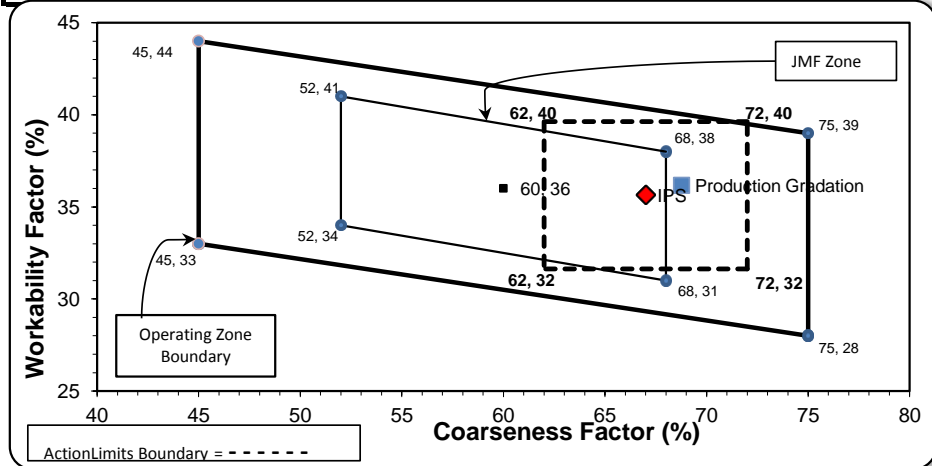
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Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	60.1	100.0	100.0	83.3	16.7	16.7
3/4"	33.7	100.0	100.0	72.2	11.1	27.8
1/2"	14.6	92.1	100.0	62.7	9.5	37.3
3/8"	6.1	76.1	100.0	56.1	6.6	43.9
#4	2.1	22.5	99.8	44.1	12.0	55.9
#8	1.4	5.8	88.3	36.2	8.0	63.8
#16	1.2	2.2	67.7	27.4	8.8	72.6
#30	1.0	1.5	45.2	18.4	9.0	81.6
#50	1.0	1.3	14.9	6.5	11.9	93.5
#100	1.0	1.3	2.4	1.6	4.9	98.4
LBW	0.9	1.0	0.4	0.7	0.9	99.3

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 *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: **36**



Initial Production Sample (IPS)

Coarseness Factor: 67		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"	87.2	12.8	12.8
3/4"	76.6	10.6	23.4
1/2"	64.4	12.2	35.6
3/8"	56.9	7.6	43.1
#4	44.1	12.7	55.9
#8	35.6	8.5	64.4
#16	27.7	8.0	72.3
#30	19.5	8.2	80.5
#50	7.8	11.6	92.2
#100	2.3	5.6	97.7
LBW	0.6	1.6	99.4

PREPARED BY:

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP164E7 and DDP164E8

Production Gradation Report

PLANT #: **P-39**

Sample Date: 8/28/17

Concrete Grade: **P1M**

Contractor: _____

Dates Test Represents: 8/28/2017 to 9/3/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1000	6.12	2.62	32.6
IA	71-47	Presque Isle	750	4.59	2.62	24.4
2NS	63-115	Ray Road	1320	7.98	2.65	43.0
Total Wt			3070	18.69		100.0

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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"	100.0	100.0	100.0	100.0	0.0	0.0
1"	57.4	100.0	100.0	86.1	13.9	13.9
3/4"	17.5	98.4	100.0	72.7	13.4	27.3
1/2"	4.5	79.6	100.0	63.9	8.8	36.1
3/8"	3.0	50.9	100.0	56.4	7.5	43.6
#4	2.2	7.9	97.2	44.4	12.0	55.6
#8	2.1	2.7	78.9	35.3	9.2	64.7
#16	2.1	2.1	60.8	27.3	7.9	72.7
#30	2.0	2.0	45.8	20.8	6.5	79.2
#50	2.0	1.9	25.8	12.2	8.6	87.8
#100	1.9	1.9	7.5	4.3	7.9	95.7
LBW	1.4	1.6	0.7	1.1	3.2	98.9

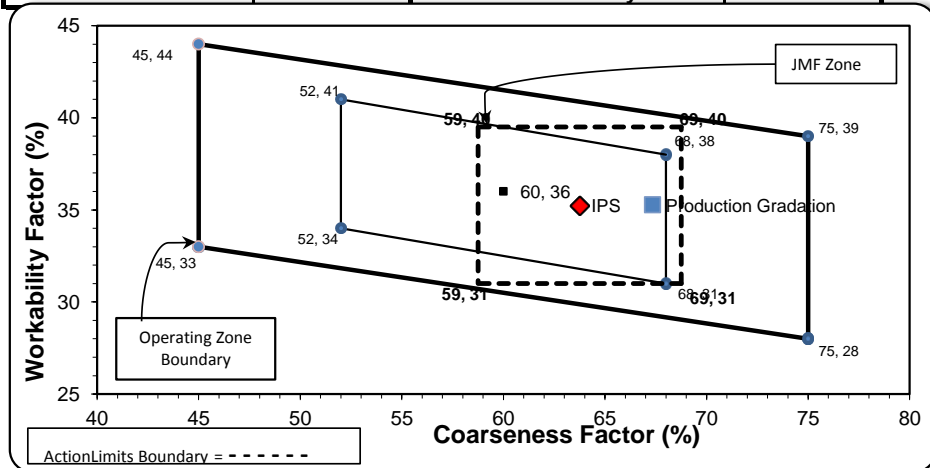


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 67 **Workability Factor: 35**



Initial Production Sample (IPS)

Coarseness Factor: 64		Workability Factor: 35	
Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.4	0.6	0.6
1"	84.3	15.1	15.7
3/4"	73.9	10.4	26.1
1/2"	65.7	8.2	34.3
3/8"	58.7	7.0	41.3
#4	45.1	13.6	54.9
#8	35.3	9.8	64.7
#16	28.1	7.2	71.9
#30	21.2	6.9	78.8
#50	10.1	11.1	89.9
#100	3.1	7.0	96.9
LBW	1.4	1.7	98.6

PREPARED BY:
 SM, LLC Technical Service

Approved By: