

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-101**

Sample Date: 4/24/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 4/24/2017 to 4/30/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1300	7.95	2.62	44.1
26A	71-47	Presque Isle	370	2.26	2.62	12.5
2NS	63-115	Ray Road	1280	7.74	2.65	43.4
Total Wt			2950	17.96		100.0

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

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"	83.8	100.0	100.0	92.9	7.1	7.1
1/2"	36.8	97.8	100.0	71.9	21.0	28.1
3/8"	16.2	85.2	100.0	61.2	10.7	38.8
#4	1.8	11.9	97.0	44.4	16.8	55.6
#8	1.2	3.2	78.9	35.2	9.2	64.8
#16	1.0	1.8	61.0	27.1	8.0	72.9
#30	0.9	1.6	44.6	19.9	7.2	80.1
#50	0.9	1.5	21.3	9.8	10.1	90.2
#100	0.9	1.4	3.6	2.1	7.7	97.9
LBW	0.8	1.2	0.4	0.7	1.5	99.3



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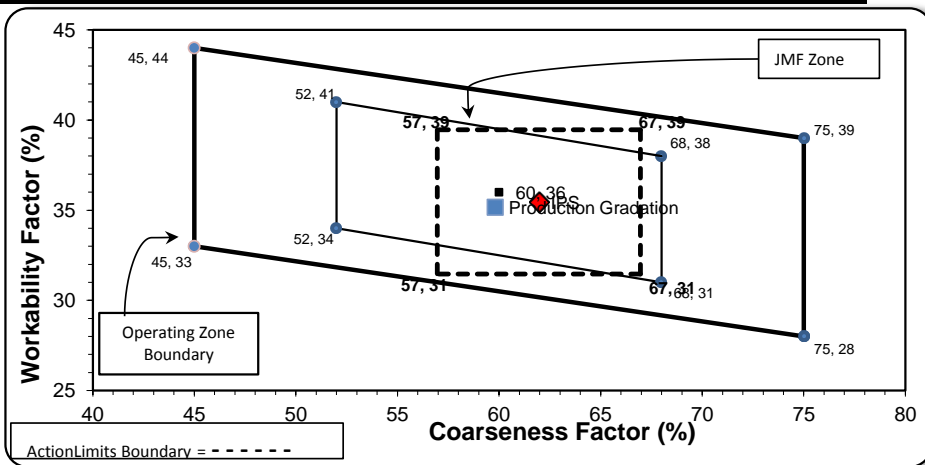
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **60** **Workability Factor:** **35**

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"	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

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-103**

Sample Date: 4/24/17

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 4/24/2017 to 4/30/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1520	9.06	2.69	50.8
26A	58-003	Stoneco	250	1.49	2.69	8.4
2NS	81-93	Burmeister	1220	7.41	2.64	40.8
Total Wt			2990	17.95		100.0

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

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"	99.8	100.0	100.0	99.9	0.1	0.1
3/4"	79.0	100.0	100.0	89.3	10.6	10.7
1/2"	39.9	100.0	100.0	69.4	19.9	30.6
3/8"	19.7	84.9	100.0	57.9	11.5	42.1
#4	2.8	28.7	98.9	44.2	13.7	55.8
#8	0.8	9.3	84.6	35.7	8.5	64.3
#16	0.7	4.0	67.6	28.3	7.4	71.7
#30	0.6	2.5	46.7	19.6	8.7	80.4
#50	0.6	2.1	16.2	7.1	12.5	92.9
#100	0.5	2.0	2.7	1.5	5.6	98.5
LBW	0.4	1.6	0.9	0.7	0.8	99.3

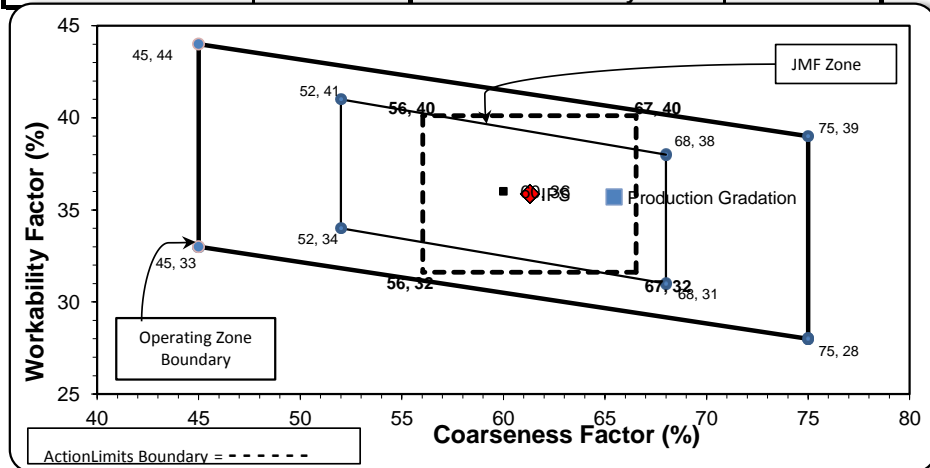


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*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must 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:	65	Workability Factor:	36
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Initial Production Sample (IPS)

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:
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Approved BY:

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-36**

Sample Date: 4/24/17

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 4/24/2017 to 4/30/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1530	9.11	2.69	51.2
26A	71-47	Presque Isle	230	1.41	2.62	7.7
2NS	63-92	AA Grange Hall	1230	7.44	2.65	41.1
Total Wt			2990	17.96		100.0

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

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"	99.8	100.0	100.0	99.9	0.1	0.1
3/4"	79.0	100.0	100.0	89.3	10.6	10.7
1/2"	39.9	97.8	100.0	69.1	20.2	30.9
3/8"	19.7	85.2	100.0	57.8	11.3	42.2
#4	2.8	11.9	97.9	42.6	15.2	57.4
#8	0.8	3.2	85.0	35.6	7.0	64.4
#16	0.7	1.8	68.7	28.8	6.9	71.2
#30	0.6	1.6	48.5	20.4	8.4	79.6
#50	0.6	1.5	20.3	8.8	11.6	91.2
#100	0.5	1.4	2.5	1.4	7.4	98.6
LBW	0.4	1.2	0.2	0.4	1.0	99.6

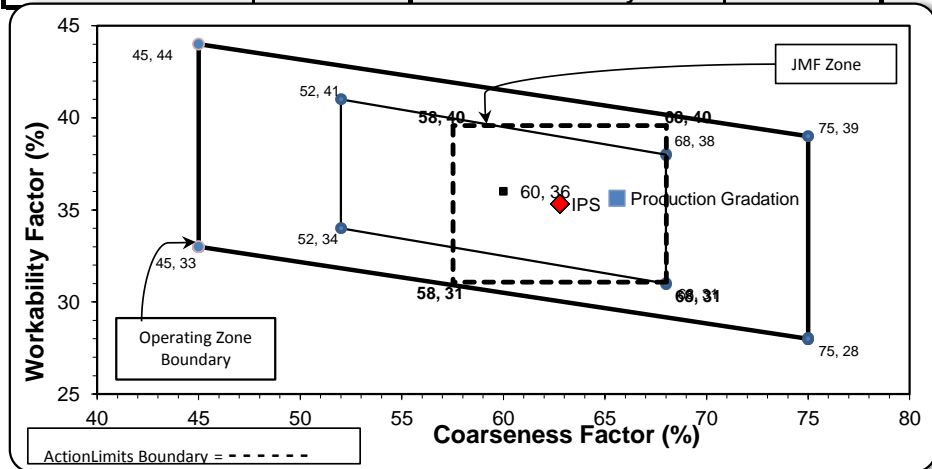


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 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **66** **Workability Factor:** **36**



Initial Production Sample (IPS)

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"	99.9	0.1	0.1
3/4"	89.1	10.8	10.9
1/2"	71.3	17.8	28.7
3/8"	59.4	11.9	40.6
#4	42.6	16.8	57.4
#8	35.3	7.3	64.7
#16	28.5	6.8	71.5
#30	20.9	7.6	79.1
#50	9.0	12.0	91.0
#100	1.7	7.3	98.3
LBW	0.7	1.0	99.3

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Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-38**

Sample Date: 4/24/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 4/24/2017 to 4/30/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1520	9.06	2.69	50.8
26A	58-003	Stoneco	250	1.49	2.69	8.4
2NS	81-93	Burmeister	1220	7.41	2.64	40.8
Total Wt			2990	17.95		100.0

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

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"	99.8	100.0	100.0	99.9	0.1	0.1
3/4"	79.0	100.0	100.0	89.3	10.6	10.7
1/2"	39.9	100.0	100.0	69.4	19.9	30.6
3/8"	19.7	84.9	100.0	57.9	11.5	42.1
#4	2.8	28.7	98.9	44.2	13.7	55.8
#8	0.8	9.3	84.6	35.7	8.5	64.3
#16	0.7	4.0	67.6	28.3	7.4	71.7
#30	0.6	2.5	46.7	19.6	8.7	80.4
#50	0.6	2.1	16.2	7.1	12.5	92.9
#100	0.5	2.0	2.7	1.5	5.6	98.5
LBW	0.4	1.6	0.9	0.7	0.8	99.3

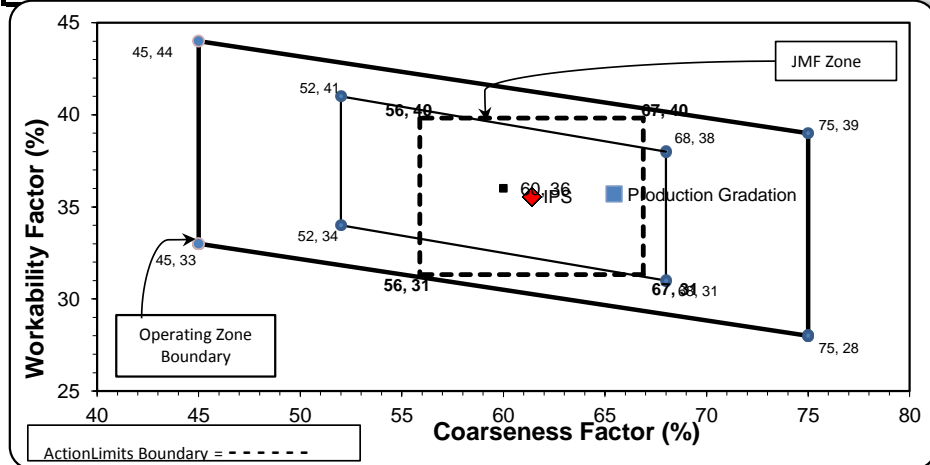
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 *% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.



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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **65** Workability Factor: **36**



Initial Production Sample (IPS)

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
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#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:
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Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-39**

Sample Date: 4/24/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 4/24/2017 to 4/30/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1300	7.95	2.62	44.1
26A	71-47	Presque Isle	370	2.26	2.62	12.5
2NS	63-115	Ray Road	1280	7.74	2.65	43.4
Total Wt			2950	17.96		100.0

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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"	83.8	100.0	100.0	92.9	7.1	7.1
1/2"	36.8	97.8	100.0	71.9	21.0	28.1
3/8"	16.2	85.2	100.0	61.2	10.7	38.8
#4	1.8	11.9	97.0	44.4	16.8	55.6
#8	1.2	3.2	78.9	35.2	9.2	64.8
#16	1.0	1.8	61.0	27.1	8.0	72.9
#30	0.9	1.6	44.6	19.9	7.2	80.1
#50	0.9	1.5	21.3	9.8	10.1	90.2
#100	0.9	1.4	3.6	2.1	7.7	97.9
LBW	0.8	1.2	0.4	0.7	1.5	99.3

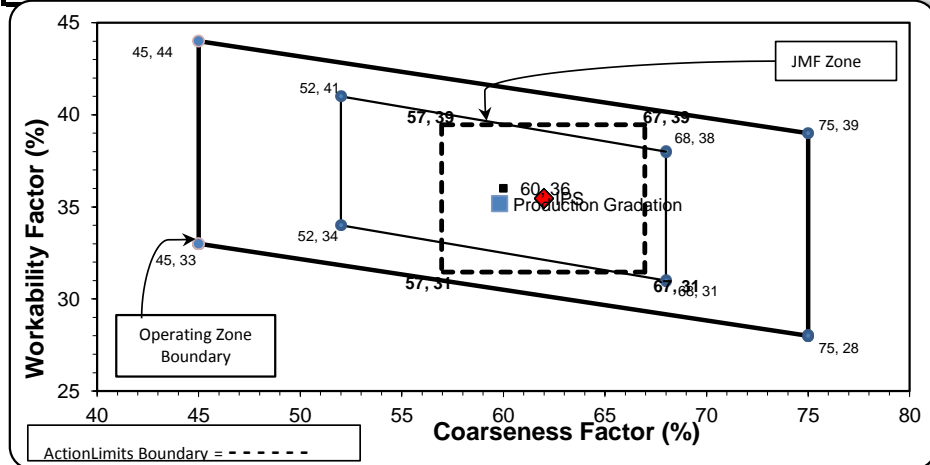


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	60	Workability Factor:	35
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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"	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

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