

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-101**

Sample Date: 5/1/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 5/1/2017 to 5/7/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1400	8.56	2.62	47.5
26A	71-47	Presque Isle	270	1.65	2.62	9.2
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"	86.1	100.0	100.0	93.4	6.6	6.6
1/2"	37.8	97.6	100.0	70.3	23.1	29.7
3/8"	18.1	84.1	100.0	59.7	10.6	40.3
#4	2.7	11.4	97.3	44.5	15.1	55.5
#8	1.7	2.8	78.7	35.2	9.3	64.8
#16	1.5	1.7	60.8	27.2	8.0	72.8
#30	1.4	1.5	43.9	19.8	7.4	80.2
#50	1.3	1.4	20.7	9.7	10.1	90.3
#100	1.3	1.4	3.8	2.4	7.3	97.6
LBW	1.1	1.3	0.5	0.9	1.5	99.1



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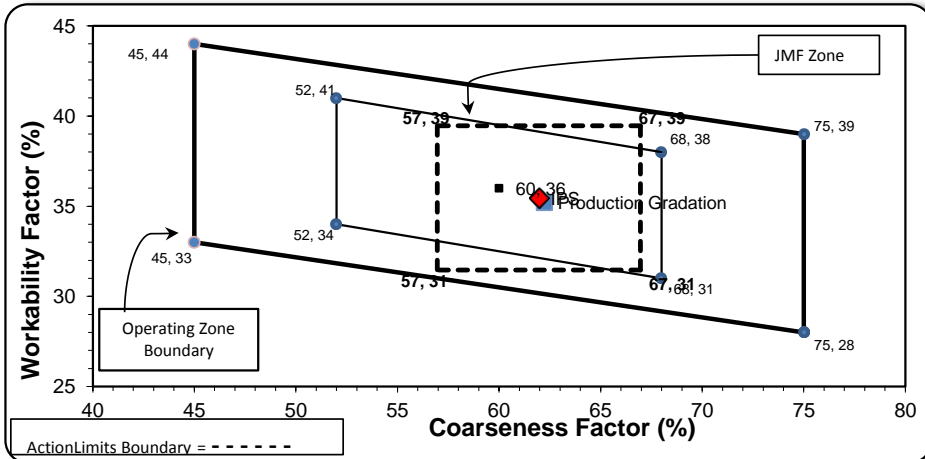
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 62 **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: 5/1/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 5/1/2017 to 5/7/2017

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%



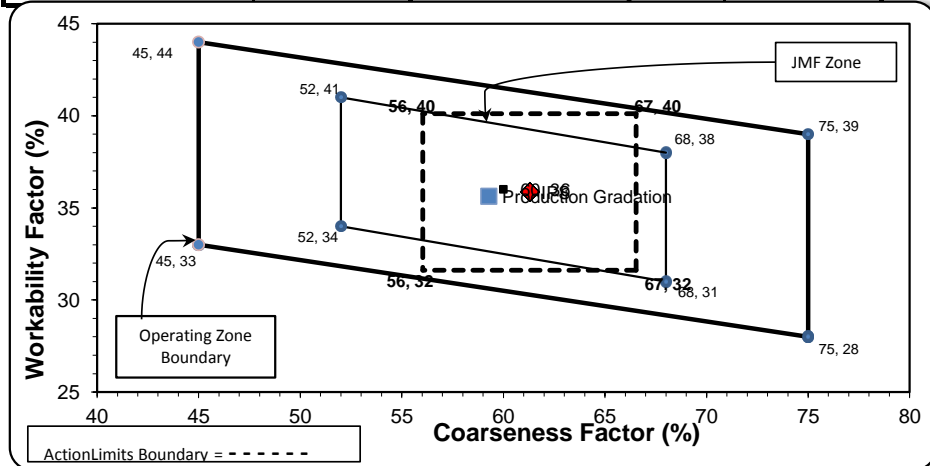
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.5	100.0	100.0	99.7	0.3	0.3
3/4"	80.6	100.0	100.0	90.1	9.6	9.9
1/2"	44.6	99.9	100.0	71.8	18.3	28.2
3/8"	27.1	86.8	100.0	61.8	10.0	38.2
#4	3.7	20.6	99.0	44.0	17.8	56.0
#8	1.0	5.2	85.0	35.6	8.4	64.4
#16	0.7	2.3	68.3	28.4	7.2	71.6
#30	0.6	1.7	46.9	19.6	8.8	80.4
#50	0.6	1.4	16.7	7.2	12.3	92.8
#100	0.5	1.3	2.9	1.5	5.7	98.5
LBW	0.4	1.0	1.1	0.7	0.8	99.3

*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 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:	59	Workability Factor:	36
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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"	89.2	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

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Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-36**

Sample Date: 5/1/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 5/1/2017 to 5/7/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1560	9.29	2.69	52.2
26A	71-47	Presque Isle	200	1.22	2.62	6.7
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"	99.5	100.0	100.0	99.7	0.3	0.3
3/4"	80.6	100.0	100.0	89.9	9.9	10.1
1/2"	44.6	97.6	100.0	70.9	18.9	29.1
3/8"	27.1	84.1	100.0	60.9	10.0	39.1
#4	3.7	11.4	97.5	42.8	18.1	57.2
#8	1.0	2.8	84.1	35.3	7.5	64.7
#16	0.7	1.7	67.4	28.2	7.1	71.8
#30	0.6	1.5	47.6	20.0	8.2	80.0
#50	0.6	1.4	19.6	8.5	11.5	91.5
#100	0.5	1.4	2.5	1.4	7.1	98.6
LBW	0.4	1.3	0.2	0.4	1.0	99.6

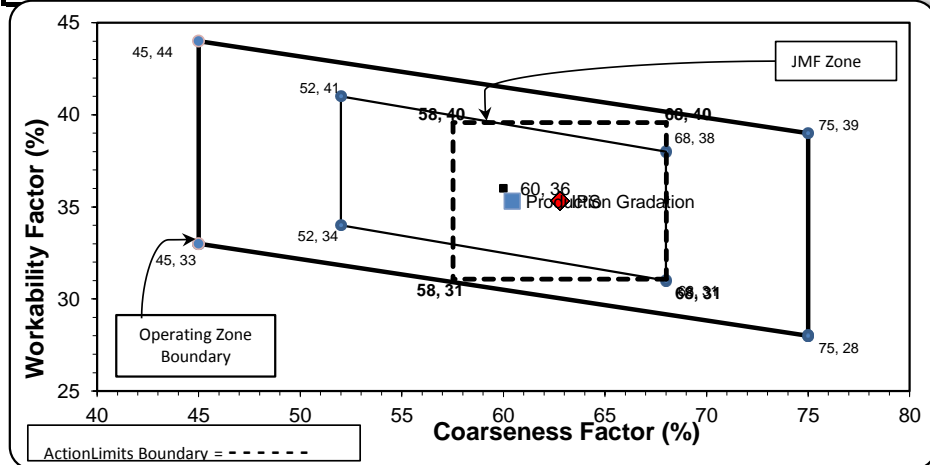


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 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

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



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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Approved By:

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-38**

Sample Date: 5/1/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 5/1/2017 to 5/7/2017

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"	99.5	100.0	100.0	99.7	0.3	0.3
3/4"	80.6	100.0	100.0	90.1	9.6	9.9
1/2"	44.6	99.9	100.0	71.8	18.3	28.2
3/8"	27.1	86.8	100.0	61.8	10.0	38.2
#4	3.7	20.6	99.0	44.0	17.8	56.0
#8	1.0	5.2	85.0	35.6	8.4	64.4
#16	0.7	2.3	68.3	28.4	7.2	71.6
#30	0.6	1.7	46.9	19.6	8.8	80.4
#50	0.6	1.4	16.7	7.2	12.3	92.8
#100	0.5	1.3	2.9	1.5	5.7	98.5
LBW	0.4	1.0	1.1	0.7	0.8	99.3

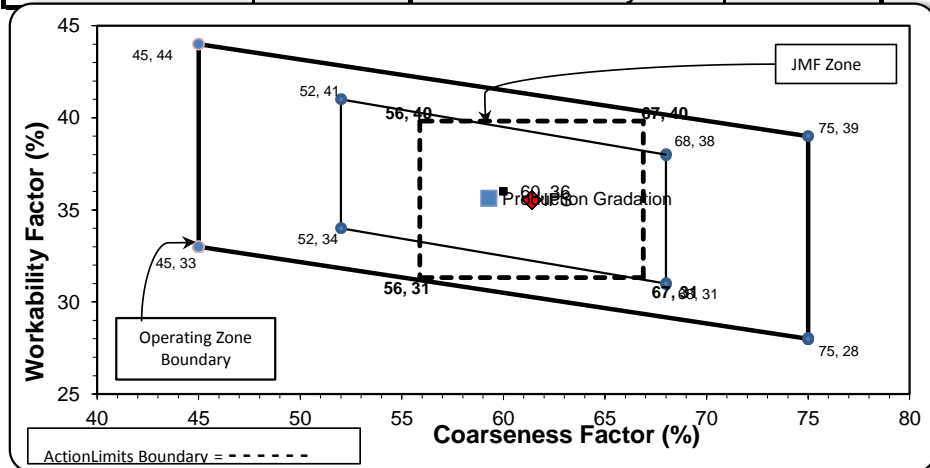


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 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 59 **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
#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:
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Approved By:

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-39**

Sample Date: 5/1/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 5/1/2017 to 5/7/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1400	8.56	2.62	47.5
26A	71-47	Presque Isle	270	1.65	2.62	9.2
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"	86.1	100.0	100.0	93.4	6.6	6.6
1/2"	37.8	97.6	100.0	70.3	23.1	29.7
3/8"	18.1	84.1	100.0	59.7	10.6	40.3
#4	2.7	11.4	97.3	44.5	15.1	55.5
#8	1.7	2.8	78.7	35.2	9.3	64.8
#16	1.5	1.7	60.8	27.2	8.0	72.8
#30	1.4	1.5	43.9	19.8	7.4	80.2
#50	1.3	1.4	20.7	9.7	10.1	90.3
#100	1.3	1.4	3.8	2.4	7.3	97.6
LBW	1.1	1.3	0.5	0.9	1.5	99.1

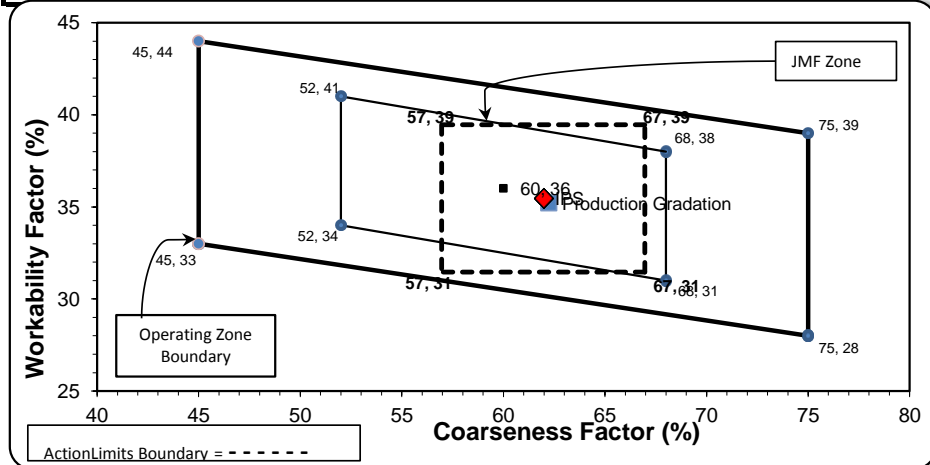


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 *% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 62 **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

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