

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-101**

Sample Date: 4/17/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 4/17/2017 to 4/23/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1350	8.26	2.62	43.4
26A	71-47	Presque Isle	400	2.45	2.62	12.9
2NS	63-115	Ray Road	1360	8.22	2.65	43.7
Total Wt			3110	18.93		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"	86.6	100.0	100.0	94.2	5.8	5.8
1/2"	32.7	95.1	100.0	70.2	24.0	29.8
3/8"	12.8	80.0	100.0	59.6	10.6	40.4
#4	2.2	7.9	97.0	44.4	15.2	55.6
#8	1.4	1.9	77.9	34.9	9.5	65.1
#16	1.3	1.2	60.8	27.3	7.6	72.7
#30	1.2	1.0	44.3	20.0	7.3	80.0
#50	1.2	1.0	21.7	10.1	9.9	89.9
#100	1.2	0.9	4.4	2.6	7.6	97.4
LBW	1.1	0.8	0.4	0.8	1.8	99.2

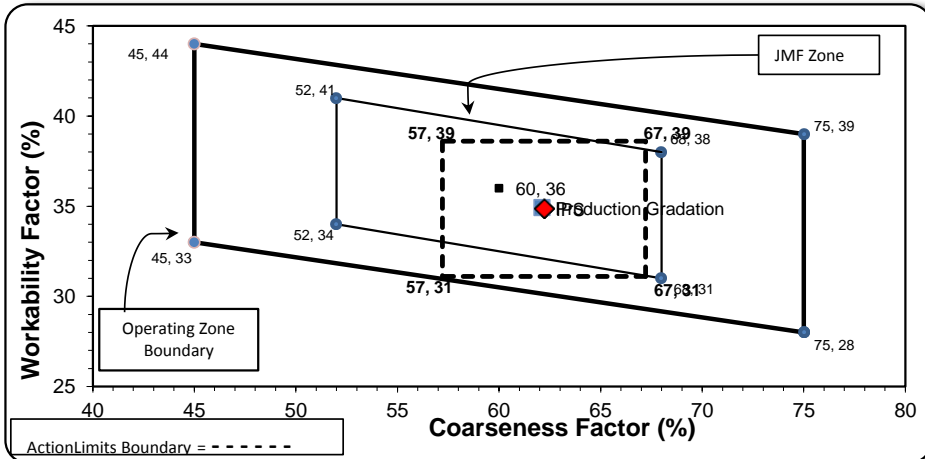


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 30701 W. 10 Mile Rd.
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*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for 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"	71.1	23.9	28.9
3/8"	59.5	11.7	40.5
#4	44.0	15.5	56.0
#8	34.9	9.1	65.1
#16	27.6	7.2	72.4
#30	20.2	7.4	79.8
#50	8.9	11.3	91.1
#100	2.7	6.2	97.3
LBW	1.4	1.2	98.6

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-103**

Sample Date: 4/17/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 4/17/2017 to 4/23/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1650	9.83	2.69	52.3
26A	58-003	Stoneco	215	1.28	2.69	6.8
2NS	81-93	Burmeister	1290	7.83	2.64	40.9
Total Wt			3155	18.94		100.0

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



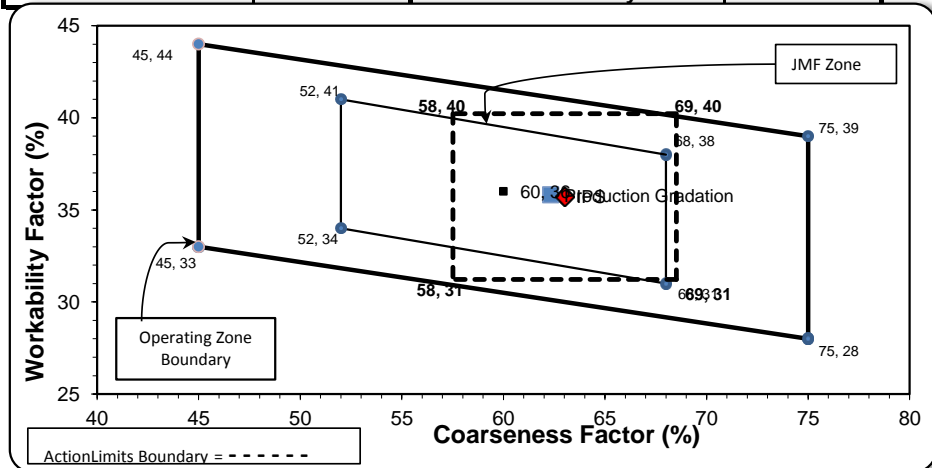
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	85.1	100.0	100.0	92.2	7.7	7.8
1/2"	46.0	99.9	100.0	71.8	20.5	28.2
3/8"	25.2	87.0	100.0	60.0	11.8	40.0
#4	4.6	22.8	99.1	44.5	15.5	55.5
#8	1.7	4.3	84.7	35.8	8.7	64.2
#16	2.3	2.2	67.6	29.0	6.8	71.0
#30	2.0	1.8	46.9	20.3	8.6	79.7
#50	1.7	1.5	16.8	7.9	12.5	92.1
#100	1.6	1.4	2.6	2.0	5.9	98.0
LBW	0.9	1.3	1.1	1.0	1.0	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	62	Workability Factor:	36
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Initial Production Sample (IPS)

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"	99.9	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.5	11.8	40.5
#4	43.8	15.7	56.2
#8	35.7	8.1	64.3
#16	27.0	8.7	73.0
#30	18.6	8.4	81.4
#50	6.8	11.8	93.2
#100	1.4	5.4	98.6
LBW	0.6	0.8	99.4

PREPARED BY:
 SM, LLC Technical Service

Approved BY:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-36**

Sample Date: 4/17/17

Dates Test Represents: 4/17/2017 to 4/23/2017

Concrete Grade: **S2M (SPECIAL, 5000 PSI)**

Contractor: _____

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	200	1.22	2.62	6.7
2NS	63-92	AA Grange Hall	1260	7.62	2.65	42.1
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"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	85.1	100.0	100.0	92.4	7.6	7.6
1/2"	46.0	95.1	100.0	72.0	20.3	28.0
3/8"	25.2	80.0	100.0	60.4	11.7	39.6
#4	4.6	7.9	98.2	44.3	16.1	55.7
#8	1.7	1.9	86.1	37.3	7.0	62.7
#16	2.3	1.2	69.0	30.3	6.9	69.7
#30	2.0	1.0	48.1	21.4	9.0	78.6
#50	1.7	1.0	19.1	9.0	12.4	91.0
#100	1.6	0.9	2.5	1.9	7.1	98.1
LBW	0.9	0.8	0.3	0.6	1.3	99.4

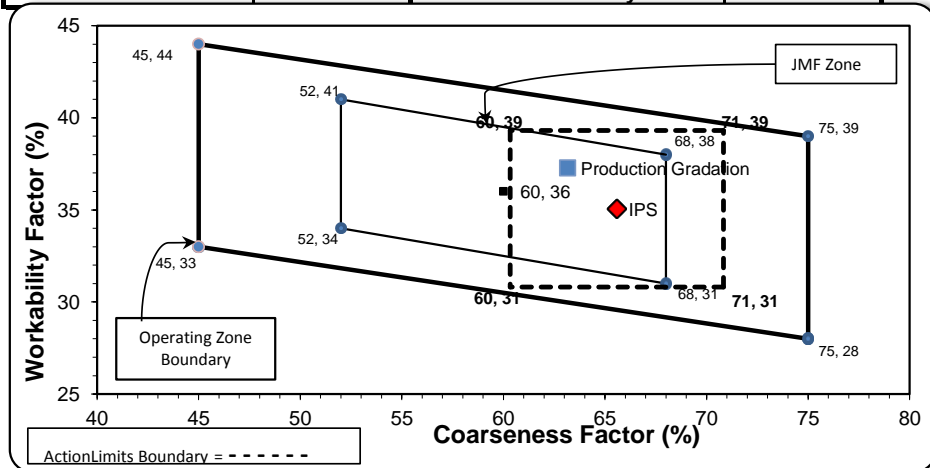
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	63	Workability Factor:	37
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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"	100.0	0.0	0.0
1"	100.0	0.0	0.0
3/4"	91.7	8.3	8.3
1/2"	66.8	24.8	33.2
3/8"	57.4	9.4	42.6
#4	43.0	14.4	57.0
#8	35.1	7.9	64.9
#16	28.0	7.1	72.0
#30	19.5	8.5	80.5
#50	8.1	11.4	91.9
#100	2.0	6.1	98.0
LBW	0.7	1.3	99.3

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-38**

Sample Date: 4/17/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 4/17/2017 to 4/23/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1650	9.83	2.69	52.3
26A	58-003	Stoneco	215	1.28	2.69	6.8
2NS	81-93	Burmeister	1290	7.83	2.64	40.9
Total Wt			3155	18.94		100.0

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



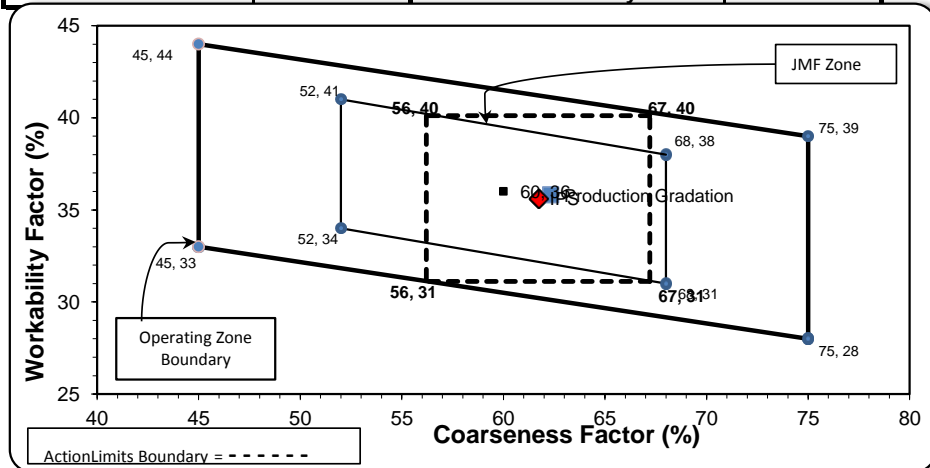
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	85.1	100.0	100.0	92.2	7.7	7.8
1/2"	46.0	99.9	100.0	71.8	20.5	28.2
3/8"	25.2	87.0	100.0	60.0	11.8	40.0
#4	4.6	22.8	99.1	44.5	15.5	55.5
#8	1.7	4.3	84.7	35.8	8.7	64.2
#16	2.3	2.2	67.6	29.0	6.8	71.0
#30	2.0	1.8	46.9	20.3	8.6	79.7
#50	1.7	1.5	16.8	7.9	12.5	92.1
#100	1.6	1.4	2.6	2.0	5.9	98.0
LBW	0.9	1.3	1.1	1.0	1.0	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	62	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"	99.1	0.8	0.8
3/4"	91.1	8.1	8.9
1/2"	72.0	19.1	28.0
3/8"	60.3	11.7	39.7
#4	43.4	16.9	56.6
#8	35.6	7.8	64.4
#16	28.4	7.2	71.6
#30	21.8	6.7	78.2
#50	9.1	12.6	90.9
#100	1.7	7.4	98.3
LBW	1.1	0.6	98.9

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-39**

Sample Date: 4/17/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 4/17/2017 to 4/23/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1350	8.26	2.62	43.4
26A	71-47	Presque Isle	400	2.45	2.62	12.9
2NS	63-115	Ray Road	1360	8.22	2.65	43.7
Total Wt			3110	18.93		100.0

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



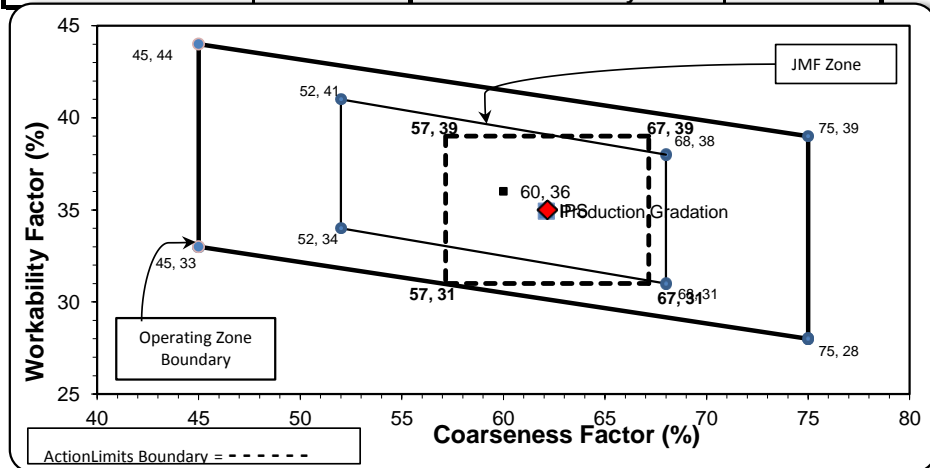
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 Suite 500
 Farmington Hills, MI 48336

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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	86.6	100.0	100.0	94.2	5.8	5.8
1/2"	32.7	95.1	100.0	70.2	24.0	29.8
3/8"	12.8	80.0	100.0	59.6	10.6	40.4
#4	2.2	7.9	97.0	44.4	15.2	55.6
#8	1.4	1.9	77.9	34.9	9.5	65.1
#16	1.3	1.2	60.8	27.3	7.6	72.7
#30	1.2	1.0	44.3	20.0	7.3	80.0
#50	1.2	1.0	21.7	10.1	9.9	89.9
#100	1.2	0.9	4.4	2.6	7.6	97.4
LBW	1.1	0.8	0.4	0.8	1.8	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	62	Workability Factor:	35
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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"	100.0	0.0	0.0
3/4"	95.0	5.0	5.0
1/2"	71.2	23.8	28.8
3/8"	59.6	11.6	40.4
#4	44.1	15.5	55.9
#8	35.0	9.1	65.0
#16	27.7	7.3	72.3
#30	20.3	7.4	79.7
#50	8.9	11.4	91.1
#100	2.7	6.3	97.3
LBW	1.4	1.2	98.6

PREPARED BY:
 SM, LLC Technical Service

Approved By: