Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

Contractor:

Sample Date: 9/8/25

Concrete Grade: **P1M, 3500HP, 4000HP**

Dates Test Represents: 9/9/2025 through 9/15/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1400	8.34	2.69	44.9
IA	58-003	Stoneco	520	3.10	2.69	16.7
2NS	63-114	Highland	1200	7.26	2.65	38.5
		Total Wt	**3120**	**18.70**		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"	65.6	100.0	100.0	84.6	15.4	15.4
3/4"	35.8	100.0	100.0	71.2	13.4	28.8
1/2"	18.3	85.2	100.0	60.9	10.3	39.1
3/8"	11.3	71.8	100.0	55.5	5.4	44.5
#4	2.8	19.7	98.9	42.6	12.9	57.4
#8	1.8	5.2	83.8	33.9	8.7	66.1
#16	1.5	3.1	64.6	26.0	7.9	74.0
#30	1.4	2.1	45.2	18.4	7.7	81.6
#50	1.2	1.8	22.9	9.6	8.7	90.4
#100	1.2	1.6	4.5	2.5	7.1	97.5
LBW	1.2	1.4	0.5	1.0	1.6	99.0

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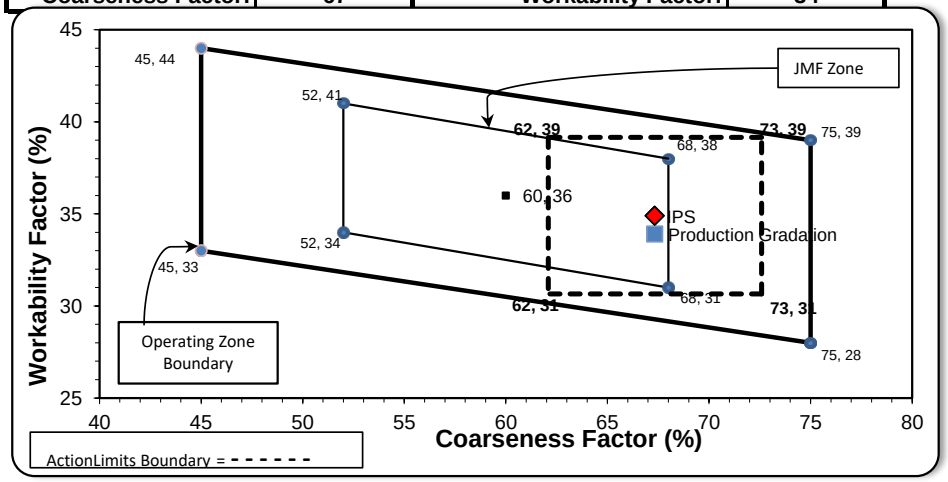
Farmington Hills, MI 48336

*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:	34



Intial Production Sample (IPS)

Coarseness Factor:	67
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"	85.5	14.5	14.5
3/4"	73.4	12.1	26.6
1/2"	61.0	12.4	39.0
3/8"	56.2	4.8	43.8
#4	43.1	13.1	56.9
#8	34.9	8.2	65.1
#16	29.4	5.5	70.6
#30	21.6	7.8	78.4
#50	8.1	13.4	91.9
#100	2.2	5.9	97.8
LBW	1.4	0.8	98.6

PREPARED BY:
SM, LLC Technical Service

Approved BY:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P11**

Contractor:

Sample Date: 9/8/25

Concrete Grade: **P1M, 3500HP, 4000HP**

Dates Test Represents: 9/9/2025 through 9/15/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	970	5.93	2.62	31.6
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		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"	96.5	100.0	100.0	99.0	1.0	1.0
1"	36.9	100.0	100.0	81.5	17.5	18.5
3/4"	12.0	98.3	100.0	73.7	7.8	26.3
1/2"	4.4	76.4	100.0	64.5	9.1	35.5
3/8"	2.8	51.9	100.0	56.3	8.2	43.7
#4	1.8	9.6	97.0	41.5	14.8	58.5
#8	1.7	3.7	80.0	32.9	8.5	67.1
#16	1.6	2.7	61.1	25.2	7.7	74.8
#30	1.6	2.5	44.9	18.8	6.4	81.2
#50	1.5	2.4	24.3	10.7	8.1	89.3
#100	1.4	2.3	6.4	3.6	7.1	96.4
LBW	1.2	2.0	1.1	1.4	2.2	98.6

*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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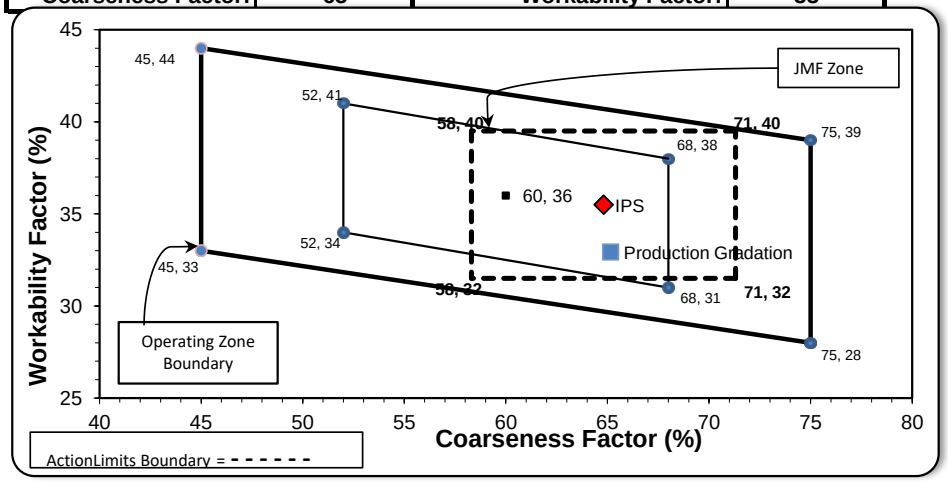
Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	65	Workability Factor:	33



Intial Production Sample (IPS)

Coarseness Factor:	65
Workability Factor:	36

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.0	0.6	0.6
1"	84.0	15.3	16.0
3/4"	73.5	10.5	26.5
1/2"	65.2	8.2	34.8
3/8"	58.2	7.1	41.8
#4	44.1	14.1	55.9
#8	35.5	8.6	64.5
#16	29.1	6.4	70.9
#30	21.9	7.3	78.1
#50	9.6	12.2	90.4
#100	2.6	7.1	97.4
LBW	1.0	1.6	99.0

PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-O2**

Contractor:

Sample Date: 9/8/25

Concrete Grade: **P1M, 3500HP, 4000HP**

Dates Test Represents: 9/9/2025 through 9/15/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	970	5.93	2.62	31.6
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		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"	96.5	100.0	100.0	99.0	1.0	1.0
1"	36.9	100.0	100.0	81.5	17.5	18.5
3/4"	12.0	98.3	100.0	73.7	7.8	26.3
1/2"	4.4	76.4	100.0	64.5	9.1	35.5
3/8"	2.8	51.9	100.0	56.3	8.2	43.7
#4	1.8	9.6	97.0	41.5	14.8	58.5
#8	1.7	3.7	80.0	32.9	8.5	67.1
#16	1.6	2.7	61.1	25.2	7.7	74.8
#30	1.6	2.5	44.9	18.8	6.4	81.2
#50	1.5	2.4	24.3	10.7	8.1	89.3
#100	1.4	2.3	6.4	3.6	7.1	96.4
LBW	1.2	2.0	1.1	1.4	2.2	98.6

*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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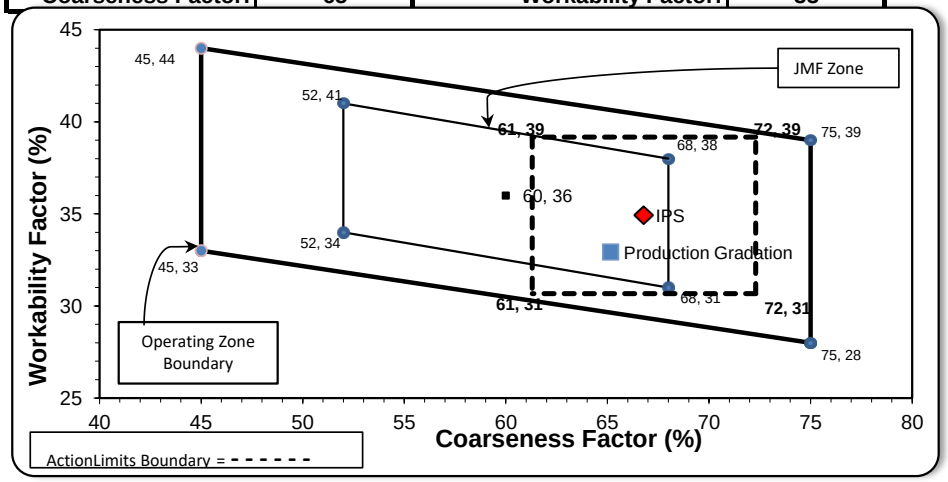

Intial Production Sample (IPS)

Coarseness Factor:	67
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"	85.0	15.0	15.0
3/4"	72.3	12.7	27.7
1/2"	64.5	7.8	35.5
3/8"	56.5	8.0	43.5
#4	42.7	13.8	57.3
#8	34.9	7.8	65.1
#16	29.0	5.9	71.0
#30	21.0	8.0	79.0
#50	8.2	12.8	91.8
#100	1.6	6.5	98.4
LBW	0.7	0.9	99.3

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SM, LLC Technical Service

Approved By: