Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

Contractor:

Sample Date: 6/2/25

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

Dates Test Represents: 6/3/2025 through 6/9/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1450	8.64	2.69	46.5
IA	58-003	Stoneco	470	2.80	2.69	15.1
2NS	63-114	Highland	1200	7.26	2.65	38.5
		Total Wt	**3120**	**18.70**		100.0

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

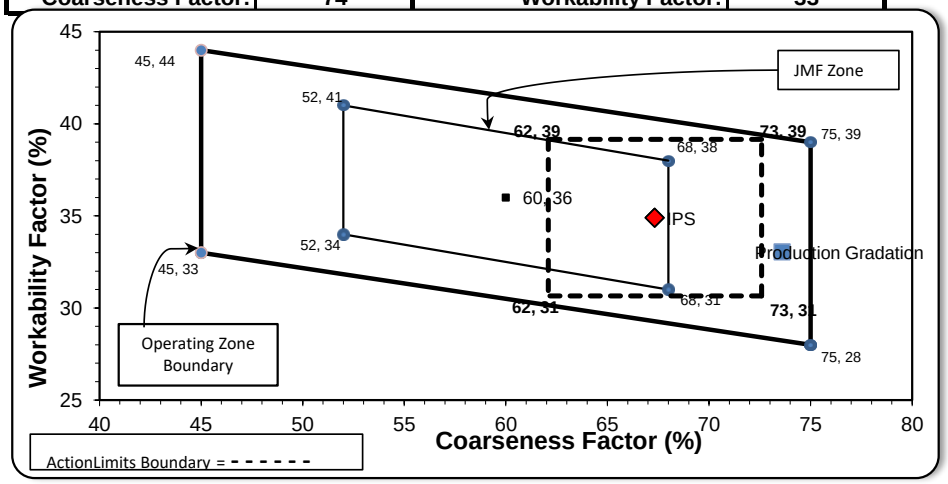
Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	63.4	100.0	100.0	83.0	17.0	17.0
3/4"	28.3	100.0	100.0	66.7	16.3	33.3
1/2"	12.5	88.8	100.0	57.6	9.0	42.4
3/8"	6.3	62.0	100.0	50.7	6.9	49.3
#4	1.6	7.7	99.1	40.0	10.7	60.0
#8	1.4	3.7	82.8	33.1	7.0	66.9
#16	1.3	2.9	65.2	26.1	6.9	73.9
#30	1.2	2.5	45.9	18.6	7.5	81.4
#50	1.1	2.3	20.8	8.9	9.7	91.1
#100	1.1	2.1	3.4	2.1	6.7	97.9
LBW	0.9	1.9	0.4	0.9	1.3	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:	74	Workability Factor:	33



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:

Daily Summary Report

Date Tuesday, June 3, 2025

Sample Id	-674966806	-1989633822	-674932360	-674978068	-674945295
Plant	S103 Superior Brighton	S103 Superior Brighton	S103 Superior Brighton	S103 Superior Brighton	S103 Superior Brighton
Product	7919 COARSE AGG P1M LS	1051 6AA LS	1067 26A Mod LS	1022 2NS GR	7920 INTERMED AGG P1M LS
Specification	Coarse Agg P1M LS Target	6AA LS	26A Mod LS Spec	2NS GR Spec	Intermed Agg P1M LS Target
Sample Type	QA	QA	QA	QA	QA
2" (50mm)	100.0	100.0	100.0		100.0
1 1/2" (37.5mm)	100.0	100.0	100.0		100.0
1" (25mm)	63.4	99.2	100.0		100.0
3/4" (19mm)	28.3	82.1	100.0		100.0
1/2" (12.5mm)	12.5	36.6	99.1		88.8
3/8" (9.5mm)	6.3	20.1	84.7	100.0	62.0
#4 (4.75mm)	1.6	4.0	11.8	99.1	7.7
#8 (2.36mm)	1.4	2.4	2.9	82.8	3.7
#16 (1.18mm)	1.3	2.0	1.4	65.2	2.9
#30 (.6mm)	1.2	1.7	1.0	45.9	2.5
#50 (.3mm)	1.1	1.6	0.9	20.8	2.3
#100 (.15mm)	1.1	1.5	0.8	3.4	2.1
#200 (75µm)	1.0	1.39	0.7	0.6	1.9
Pan	0.0	0.00	0.0	0.0	0.0
FM				2.83	
Wash Loss (#200/75um)	0.9	1.3	0.7	0.4	1.9
Total Moisture	0.05	0.84	1.03	1.61	0.66

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-39**

Contractor:

Sample Date: 6/2/25

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

Dates Test Represents: 6/3/2025 through 6/9/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	970	5.93	2.62	31.6
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	63-009	Koenig Oxford	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		100.0

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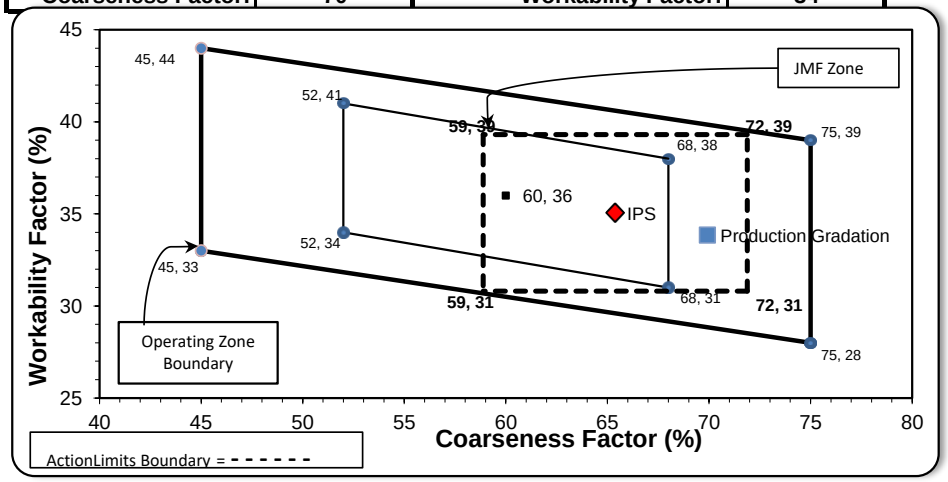
Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	95.0	100.0	100.0	98.4	1.6	1.6
1"	38.1	100.0	100.0	80.4	18.0	19.6
3/4"	8.8	100.0	100.0	71.2	9.3	28.8
1/2"	5.0	75.7	100.0	62.9	8.3	37.1
3/8"	4.2	45.5	100.0	53.8	9.1	46.2
#4	2.5	10.8	96.1	41.5	12.2	58.5
#8	1.8	5.8	80.8	33.9	7.7	66.1
#16	1.6	4.5	65.9	27.6	6.3	72.4
#30	1.5	3.8	48.8	20.7	6.9	79.3
#50	1.4	2.9	21.6	9.7	10.9	90.3
#100	1.3	2.2	3.9	2.6	7.2	97.4
LBW	1.1	1.8	0.6	1.1	1.5	98.9

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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:	70	Workability Factor:	34



Intial Production Sample (IPS)

Coarseness Factor:	65
Workability Factor:	35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.6	0.4	0.4
1"	83.9	15.7	16.1
3/4"	74.1	9.8	25.9
1/2"	64.3	9.7	35.7
3/8"	57.5	6.8	42.5
#4	44.5	13.1	55.5
#8	35.1	9.4	64.9
#16	27.9	7.2	72.1
#30	21.7	6.2	78.3
#50	12.6	9.1	87.4
#100	3.5	9.1	96.5
LBW	1.2	2.4	98.8

PREPARED BY:
SM, LLC Technical Service

Approved By:

Daily Summary Report

Date	Wednesday, June 4, 2025		
Sample Id	-674976532	-1989652299	-1989646372
Plant	S39 Superior Sterling Heights	S39 Superior Sterling Heights	S39 Superior Sterling Heights
Product	7919 COARSE AGG P1M LS	1022 2NS GR	7920 INTERMED AGG P1M LS
Specification	Coarse Agg P1M LS Target	2NS GR Spec	Intermed Agg P1M LS Target
Sample Type	QA	QA	QA
2" (50mm)	100.0		100.0
1 1/2" (37.5mm)	95.0		100.0
1" (25mm)	38.1		100.0
3/4" (19mm)	8.8		100.0
1/2" (12.5mm)	5.0		75.7
3/8" (9.5mm)	4.2	100.0	45.5
#4 (4.75mm)	2.5	96.1	10.8
#8 (2.36mm)	1.8	80.8	5.8
#16 (1.18mm)	1.6	65.9	4.5
#30 (.6mm)	1.5	48.8	3.8
#50 (.3mm)	1.4	21.6	2.9
#100 (.15mm)	1.3	3.9	2.2
#200 (75µm)	1.2	0.8	1.9
Pan	0.0	0.0	0.0
FM		2.83	
Wash Loss (#200/75um)	1.1	0.6	1.8
Total Moisture	2.29	3.60	1.98

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-O2**

Contractor:

Sample Date: 6/2/25

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

Dates Test Represents: 6/3/2025 through 6/9/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	800	4.89	2.62	26.1
IA	71-47	Presque Isle	1070	6.54	2.62	34.9
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		100.0

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

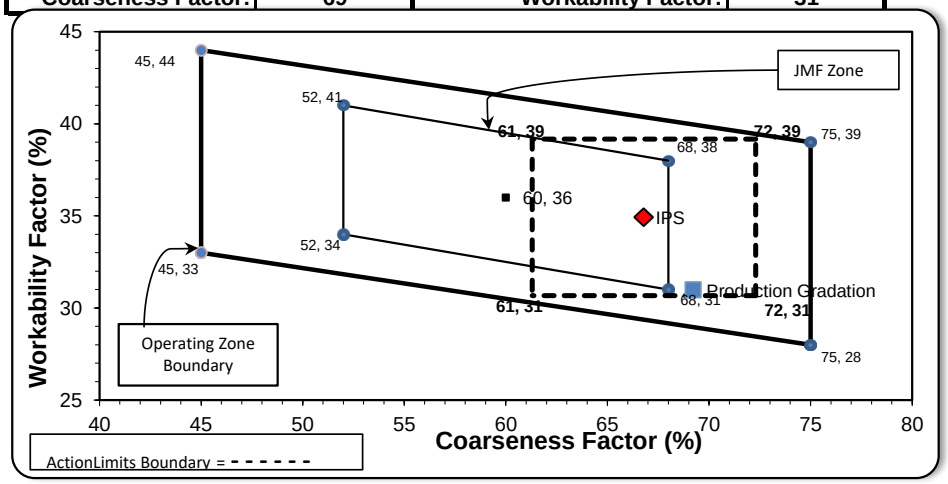
Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.5	100.0	100.0	98.6	1.4	1.4
1"	32.4	100.0	100.0	82.4	16.2	17.6
3/4"	5.6	97.6	100.0	74.6	7.8	25.4
1/2"	2.1	68.7	100.0	63.6	11.0	36.4
3/8"	2.0	36.2	100.0	52.2	11.4	47.8
#4	1.8	3.3	95.2	38.8	13.4	61.2
#8	1.7	1.5	76.8	31.0	7.8	69.0
#16	1.7	1.1	60.5	24.5	6.5	75.5
#30	1.6	1.0	45.8	18.7	5.8	81.3
#50	1.5	0.9	25.7	10.8	7.9	89.2
#100	1.3	0.9	6.9	3.3	7.4	96.7
LBW	1.1	0.8	1.1	1.0	2.4	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.

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Production Gradation (●) Batch Plant Gradations ( ) Aggregate SupplierGradations

Coarseness Factor:	69	Workability Factor:	31



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

PREPARED BY:
SM, LLC Technical Service

Approved By:

Daily Summary Report

Date	Friday, June 6, 2025		
Sample Id	-881356144	-674912189	-674947222
Plant	Superior Hoover	Superior Hoover	Superior Hoover
Product	7919 COARSE AGG P1M LS	7920 INTERMED AGG P1M LS	1022 2NS GR
Specification	Coarse Agg P1M LS Target	Intermed Agg P1M LS Target	2NS GR Spec
Sample Type	QA	QA	QA
2" (50mm)	100.0	100.0	
1 1/2" (37.5mm)	94.5	100.0	
1" (25mm)	32.4	100.0	
3/4" (19mm)	5.6	97.6	
1/2" (12.5mm)	2.1	68.7	
3/8" (9.5mm)	2.0	36.2	100.0
#4 (4.75mm)	1.8	3.3	95.2
#8 (2.36mm)	1.7	1.5	76.8
#16 (1.18mm)	1.7	1.1	60.5
#30 (.6mm)	1.6	1.0	45.8
#50 (.3mm)	1.5	0.9	25.7
#100 (.15mm)	1.3	0.9	6.9
#200 (75µm)	1.2	0.8	1.2
Pan	0.0	0.0	0.0
FM			2.89
Wash Loss (#200/75um)	1.1	0.8	1.1
Total Moisture	1.53	2.25	4.96