Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

Contractor:

Sample Date: 9/1/25

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

Dates Test Represents: 9/2/2025 through 9/8/2025

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"	67.0	100.0	100.0	85.2	14.8	14.8
3/4"	48.3	100.0	100.0	76.8	8.4	23.2
1/2"	17.8	87.8	100.0	61.1	15.7	38.9
3/8"	11.4	71.3	100.0	55.5	5.6	44.5
#4	3.8	16.6	98.8	42.5	13.0	57.5
#8	2.6	5.0	83.3	34.0	8.4	66.0
#16	2.0	1.1	64.3	25.8	8.2	74.2
#30	1.7	1.0	45.7	18.5	7.3	81.5
#50	1.4	0.9	22.6	9.5	9.0	90.5
#100	1.2	0.8	4.4	2.4	7.1	97.6
LBW	1.0	0.5	0.4	0.7	1.7	99.3

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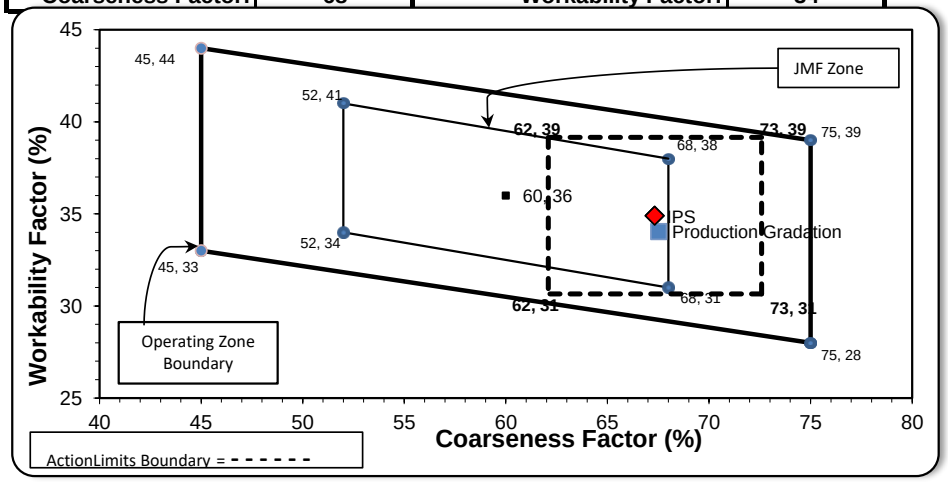
Suite 500
Farmington Hills, MI 48336

*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:	68	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

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Approved BY:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: 12

Contractor:

Sample Date: 9/1/25

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

Dates Test Represents: 9/2/2025 through 9/8/2025

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	63-115	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"	98.2	100.0	100.0	99.4	0.6	0.6
1"	55.3	100.0	100.0	85.9	13.6	14.1
3/4"	16.1	96.2	100.0	72.4	13.5	27.6
1/2"	5.8	64.9	100.0	59.9	12.4	40.1
3/8"	4.8	40.3	100.0	52.4	7.5	47.6
#4	3.2	7.2	97.5	41.2	11.2	58.8
#8	2.6	3.0	83.2	34.2	7.0	65.8
#16	2.4	2.4	65.3	27.0	7.2	73.0
#30	2.2	2.2	47.8	20.0	7.0	80.0
#50	2.1	2.1	23.6	10.5	9.5	89.5
#100	2.0	2.0	5.2	3.3	7.3	96.7
LBW	1.6	1.8	0.8	1.3	1.9	98.7

*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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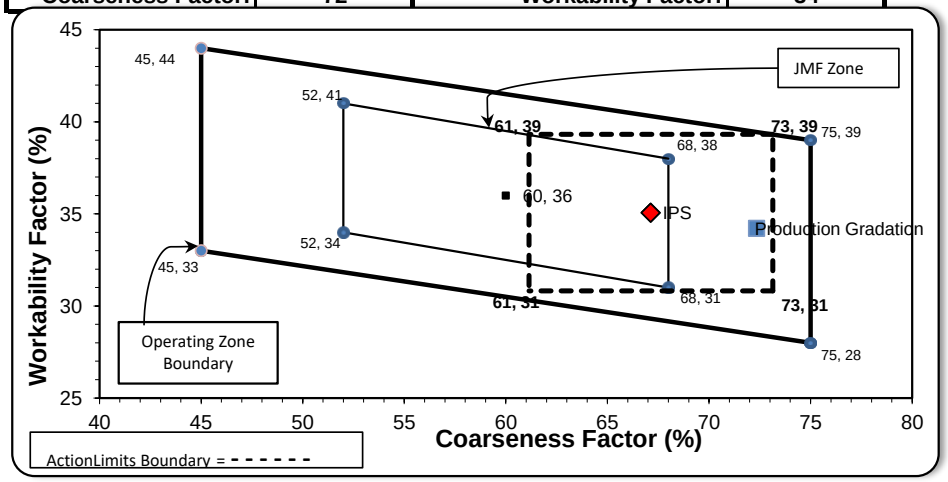
Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	72	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"	99.6	0.4	0.4
1"	83.9	15.7	16.1
3/4"	74.0	9.8	26.0
1/2"	63.7	10.3	36.3
3/8"	56.4	7.3	43.6
#4	43.0	13.4	57.0
#8	35.1	7.9	64.9
#16	29.0	6.1	71.0
#30	20.9	8.0	79.1
#50	8.1	12.8	91.9
#100	1.6	6.5	98.4
LBW	0.9	0.8	99.1

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P11**

Contractor:

Sample Date: 9/1/25

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

Dates Test Represents: 9/2/2025 through 9/8/2025

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"	98.2	100.0	100.0	99.5	0.5	0.5
1"	55.3	100.0	100.0	86.9	12.6	13.1
3/4"	16.1	96.2	100.0	74.2	12.7	25.8
1/2"	5.8	64.9	100.0	61.3	12.9	38.7
3/8"	4.8	40.3	100.0	53.2	8.1	46.8
#4	3.2	7.2	97.5	41.3	11.9	58.7
#8	2.6	3.0	83.2	34.2	7.1	65.8
#16	2.4	2.4	65.3	27.0	7.2	73.0
#30	2.2	2.2	47.8	20.0	7.0	80.0
#50	2.1	2.1	23.6	10.5	9.5	89.5
#100	2.0	2.0	5.2	3.3	7.3	96.7
LBW	1.6	1.8	0.8	1.4	1.9	98.6

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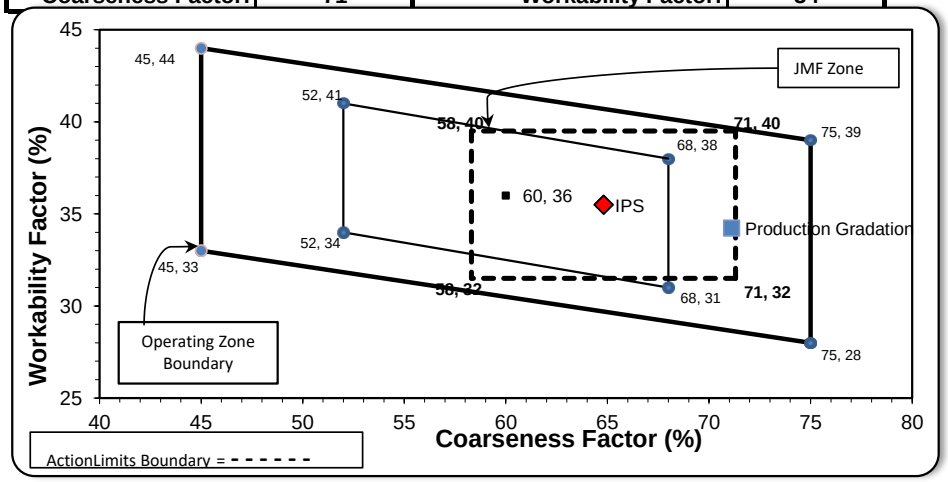
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	71	Workability Factor:	34



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

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-36**

Contractor:

Sample Date: 9/1/25

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

Dates Test Represents: 9/2/2025 through 9/8/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	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	63-92	Grange Hall	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"	98.2	100.0	100.0	99.5	0.5	0.5
1"	55.3	100.0	100.0	86.9	12.6	13.1
3/4"	16.1	96.2	100.0	74.2	12.7	25.8
1/2"	5.8	64.9	100.0	61.3	12.9	38.7
3/8"	4.8	40.3	100.0	53.2	8.1	46.8
#4	3.2	7.2	97.7	41.4	11.8	58.6
#8	2.6	3.0	83.5	34.3	7.1	65.7
#16	2.4	2.4	68.0	28.0	6.3	72.0
#30	2.2	2.2	49.5	20.7	7.4	79.3
#50	2.1	2.1	20.8	9.4	11.3	90.6
#100	2.0	2.0	3.4	2.5	6.9	97.5
LBW	1.6	1.8	0.4	1.2	1.4	98.8

*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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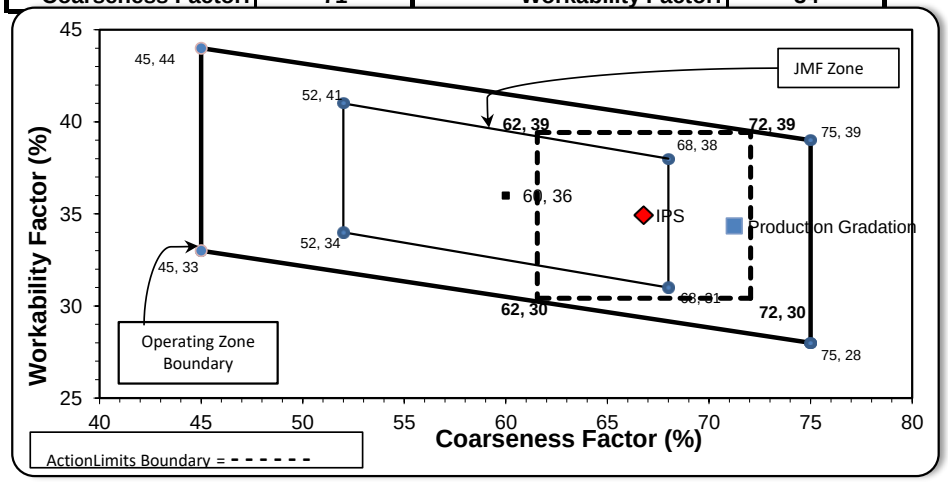
Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	71	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"	85.0	15.0	15.0
3/4"	72.1	12.9	27.9
1/2"	64.5	7.6	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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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-39**

Contractor:

Sample Date: 9/1/25

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

Dates Test Represents: 9/2/2025 through 9/8/2025

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	63-009	Koenig Oxford	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"	98.2	100.0	100.0	99.5	0.5	0.5
1"	55.3	100.0	100.0	86.9	12.6	13.1
3/4"	16.1	96.2	100.0	74.2	12.7	25.8
1/2"	5.8	64.9	100.0	61.3	12.9	38.7
3/8"	4.8	40.3	100.0	53.2	8.1	46.8
#4	3.2	7.2	96.7	41.0	12.2	59.0
#8	2.6	3.0	81.9	33.7	7.3	66.3
#16	2.4	2.4	64.9	26.8	6.9	73.2
#30	2.2	2.2	45.8	19.2	7.6	80.8
#50	2.1	2.1	20.1	9.1	10.1	90.9
#100	2.0	2.0	3.9	2.7	6.4	97.3
LBW	1.6	1.8	0.6	1.3	1.5	98.7

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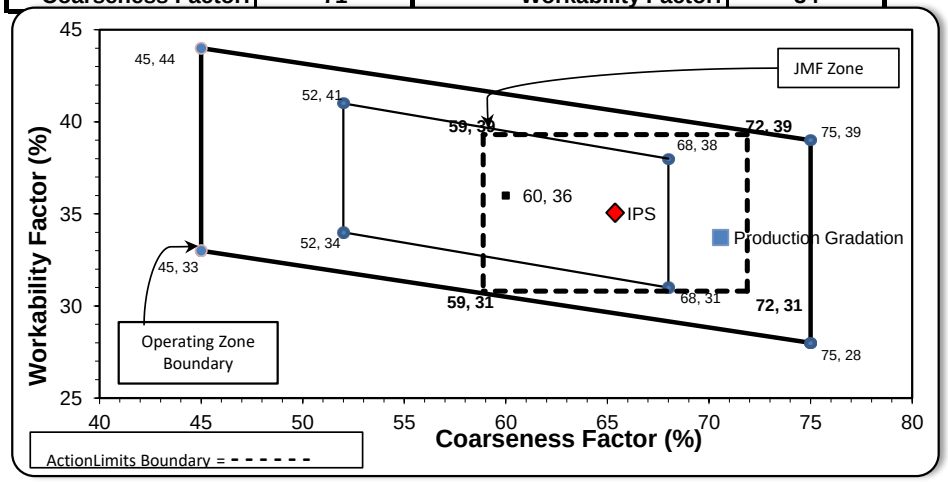
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	71	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

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Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-O2**

Contractor:

Sample Date: 9/1/25

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

Dates Test Represents: 9/2/2025 through 9/8/2025

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"	98.2	100.0	100.0	99.5	0.5	0.5
1"	55.3	100.0	100.0	86.9	12.6	13.1
3/4"	16.1	96.2	100.0	74.2	12.7	25.8
1/2"	5.8	64.9	100.0	61.3	12.9	38.7
3/8"	4.8	40.3	100.0	53.2	8.1	46.8
#4	3.2	7.2	97.5	41.3	11.9	58.7
#8	2.6	3.0	83.2	34.2	7.1	65.8
#16	2.4	2.4	65.3	27.0	7.2	73.0
#30	2.2	2.2	47.8	20.0	7.0	80.0
#50	2.1	2.1	23.6	10.5	9.5	89.5
#100	2.0	2.0	5.2	3.3	7.3	96.7
LBW	1.6	1.8	0.8	1.4	1.9	98.6

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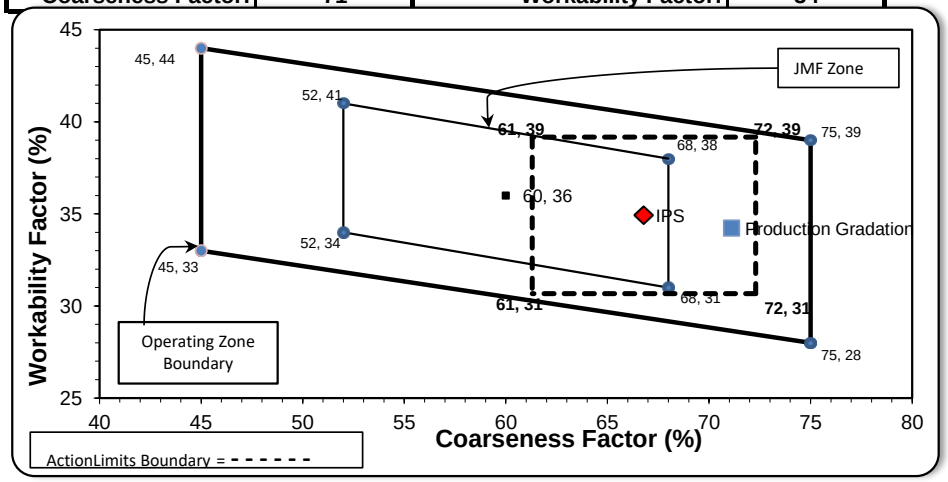
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate SupplierGradations

Coarseness Factor:	71	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"	85.0	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: