Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-32

Contractor: _____

Sample Date: 8/3/20

Concrete Grade: DM

Dates Test Represents: 8/4/2020 through 8/10/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1605	9.82	2.62	55.2
26A	71-47	Presque Isle	150	0.92	2.62	5.2
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6
		Total Wt	**2905**	**17.69**		100.0

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

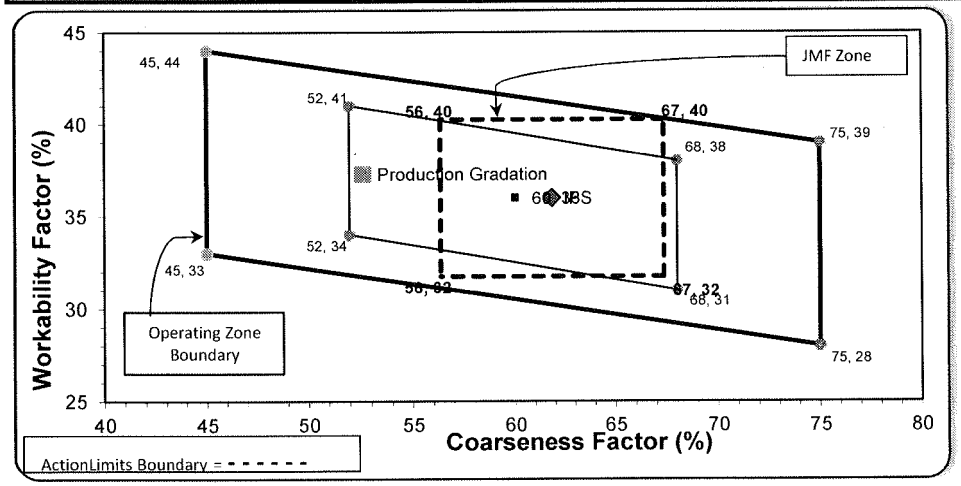
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	99.0	100.0	100.0	99.4	0.6	0.6
1/2"	80.0	97.8	100.0	88.8	10.6	11.2
3/8"	40.0	77.4	100.0	65.7	23.2	34.3
#4	22.0	18.8	97.0	51.5	14.2	48.5
#8	2.2	6.3	84.0	34.8	16.7	65.2
#16	2.0	4.1	69.0	28.6	6.2	71.4
#30	1.9	3.5	47.0	19.8	8.8	80.2
#50	1.9	3.2	21.5	9.7	10.1	90.3
#100	1.7	3.0	6.1	3.5	6.2	96.5
LBW	1.3	2.6	2.3	1.8	1.7	98.2

*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.

Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	53	Workability Factor:	35	Adjusted WF 37.3



Intial Production Sample (IPS)

Coarseness Factor:	62
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"	100.0	0.0	0.0
3/4"	95.0	5.0	5.0
1/2"	72.3	22.8	27.7
3/8"	60.4	11.8	39.6
#4	42.6	17.8	57.4
#8	36.0	6.6	64.0
#16	29.5	6.5	70.5
#30	20.3	9.2	79.7
#50	9.5	10.8	90.5
#100	3.4	6.1	96.6
LBW	1.3	2.1	98.7

PREPARED BY:
SM, LLC Technical Service

Approved By:

Edw. C. Levy Co.
Basic Quality Statistical Summary Report

Plant 958-JMT
Product 1054-6AA LS PI
Specification 6AA LS PI Spec
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			100-100
1" (25mm)	1	99.4			95-100
3/4" (19mm)	1	80.2			
1/2" (12.5mm)	1	40.2			30-60
3/8" (9.5mm)	1	22.2			
#4 (4.75mm)	1	3.9			0-8
#8 (2.36mm)	1	2.2			
#16 (1.18mm)	1	2.0			
#30 (.6mm)	1	1.9			
#50 (.3mm)	1	1.9			
#100 (.15mm)	1	1.7			
#200 (75µm)	1	1.4			
Pan	1	0.0			
Wash Loss (#200/75um)	1	1.3			0-2
Total Moisture	1	2.3			

Edw. C. Levy Co.

Basic Quality Statistical Summary Report

Plant 958-JMT
Product 1067-26A Mod LS
Specification 26A Mod LS Spec
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			
1" (25mm)	1	100.0			
3/4" (19mm)	1	100.0			100-100
1/2" (12.5mm)	1	97.8			95-100
3/8" (9.5mm)	1	77.4			60-95
#4 (4.75mm)	1	18.8			5-30
#8 (2.36mm)	1	6.3			0-12
#16 (1.18mm)	1	4.1			
#30 (.6mm)	1	3.5			
#50 (.3mm)	1	3.2			
#100 (.15mm)	1	3.0			
#200 (75µm)	1	2.7			
Pan	1	0.0			
Wash Loss (#200/75um)	1	2.6			0-3
Total Moisture	1	3.3			

Edw. C. Levy Co.

Basic Quality Statistical Summary Report

Plant 958-JMT
Product 1022-2NS GR - Smelter Bay
Specification 2NS GR Spec
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
3/8" (9.5mm)	1	100.0			100-100
#4 (4.75mm)	1	97.0			95-100
#8 (2.36mm)	1	84.2			65-95
#16 (1.18mm)	1	69.0			35-75
#30 (.6mm)	1	47.3			20-55
#50 (.3mm)	1	21.5		18-28	10-30
#100 (.15mm)	1	6.1			0-10
#200 (75µm)	1	2.3			
Pan	1	0.0			
FM	1	2.75		2.7-2.9	2.6-3
Wash Loss (#200/75um)	1	2.3			0-3
Total Moisture	1	5.3			

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-36

Sample Date: 8/3/20

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 8/4/2020 through 8/10/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1505	9.21	2.62	51.8
26A	71-47	Presque Isle	300	1.83	2.62	10.3
2NS	63-92	Grange Hall	1100	6.65	2.65	37.9
		Total Wt	**2905**	**17.69**		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"	98.0	100.0	100.0	99.0	1.0	1.0
1/2"	76.0	95.0	100.0	87.0	11.9	13.0
3/8"	36.0	80.0	100.0	64.8	22.3	35.2
#4	22.0	19.5	98.0	50.5	14.3	49.5
#8	4.4	6.8	85.0	35.2	15.4	64.8
#16	2.4	3.9	70.0	28.2	7.0	71.8
#30	2.0	3.3	48.0	19.6	8.6	80.4
#50	1.8	3.0	19.0	8.4	11.1	91.6
#100	1.7	2.8	3.6	2.5	5.9	97.5
LBW	1.3	2.2	1.7	1.5	1.0	98.5

*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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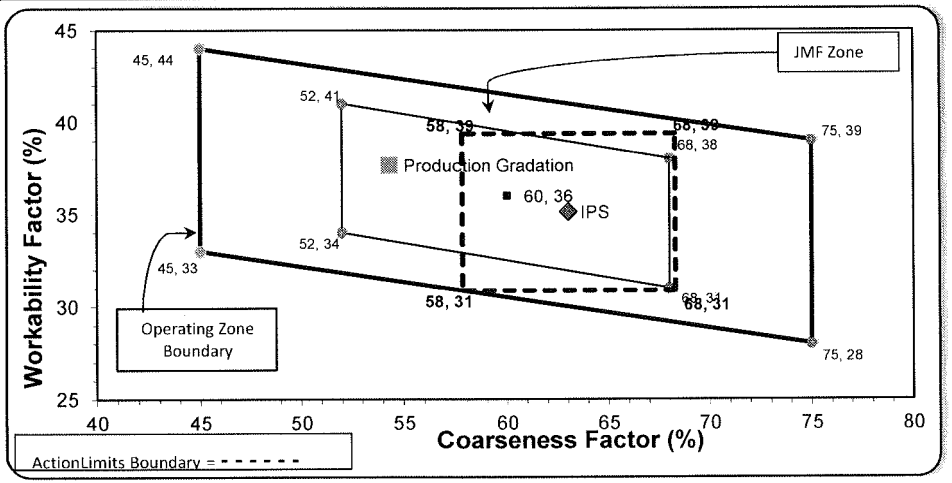
Suite 500
Farmington Hills, MI 48336

Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	54	Workability Factor:	35	Adjusted WF: 37.7



Intial 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"	99.1	0.9	0.9
3/4"	90.3	8.8	9.7
1/2"	69.2	21.1	30.8
3/8"	59.1	10.1	40.9
#4	41.8	17.3	58.2
#8	35.1	6.6	64.9
#16	28.5	6.6	71.5
#30	21.2	7.3	78.8
#50	8.7	12.5	91.3
#100	1.8	7.0	98.2
LBW	0.7	1.0	99.3

PREPARED BY:
SM, LLC Technical Service

Approved By:

Basic Quality Statistical Summary Report

Plant S36-Superior Auburn Hills
Product 1051-6AA LS
Specification 6AA LS
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			100-100
1" (25mm)	1	97.6			95-100
3/4" (19mm)	1	75.8			
1/2" (12.5mm)	1	36.0			30-60
3/8" (9.5mm)	1	21.5			
#4 (4.75mm)	1	4.4			0-8
#8 (2.36mm)	1	2.4			
#16 (1.18mm)	1	2.0			
#30 (.6mm)	1	1.8			
#50 (.3mm)	1	1.7			
#100 (.15mm)	1	1.6			
#200 (75µm)	1	1.4			
Pan	1	0.0			
Wash Loss (#200/75um)	1	1.3			0-2
Total Moisture	1	3.31			

Basic Quality Statistical Summary Report

Plant S36-Superior Auburn Hills
Product 1067-26A Mod LS
Specification 26A LS Spec
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			
1" (25mm)	1	100.0			
3/4" (19mm)	1	100.0			100-100
1/2" (12.5mm)	1	95.4			95-100
3/8" (9.5mm)	1	80.1			60-95
#4 (4.75mm)	1	19.5			5-30
#8 (2.36mm)	1	6.8			0-12
#16 (1.18mm)	1	3.9			
#30 (.6mm)	1	3.3			
#50 (.3mm)	1	3.0			
#100 (.15mm)	1	2.8			
#200 (75µm)	1	2.5			
Pan	1	0.0			
Wash Loss (#200/75um)	1	2.2			0-3
Total Moisture	1	3.60			

Basic Quality Statistical Summary Report

Plant S36-Superior Auburn Hills
Product 1022-2NS GR
Specification 2NS GR Spec
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
3/8" (9.5mm)	1	100.0			100-100
#4 (4.75mm)	1	98.0			95-100
#8 (2.36mm)	1	84.6			65-95
#16 (1.18mm)	1	69.8			35-75
#30 (.6mm)	1	48.3		40-50	20-55
#50 (.3mm)	1	19.3			10-30
#100 (.15mm)	1	3.6			0-10
#200 (75µm)	1	1.7			
Pan	1	0.0			
FM	1	2.76		2.7-2.9	2.6-3
Wash Loss (#200/75um)	1	1.7			0-3
Total Moisture	1	3.74			

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-39

Sample Date: 8/3/20

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 8/4/2020 through 8/10/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1605	9.82	2.62	55.2
26A	71-47	Presque Isle	150	0.92	2.62	5.2
2NS	44-051	Krake Willis Rd	1150	6.95	2.65	39.6
		Total Wt	**2905**	**17.69**		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"	99.6	100.0	100.0	99.8	0.2	0.2
3/4"	79.0	100.0	100.0	88.4	11.4	11.6
1/2"	45.0	99.0	100.0	69.6	18.8	30.4
3/8"	25.0	86.0	100.0	57.8	11.7	42.2
#4	4.8	28.0	96.0	42.1	15.7	57.9
#8	2.5	9.0	78.0	32.7	9.4	67.3
#16	2.2	4.7	62.0	26.0	6.7	74.0
#30	2.1	3.7	47.0	20.0	6.0	80.0
#50	2.0	3.4	22.0	10.0	10.0	90.0
#100	1.9	3.1	6.7	3.9	6.1	96.1
LBW	1.5	2.6	2.5	2.0	1.9	98.0

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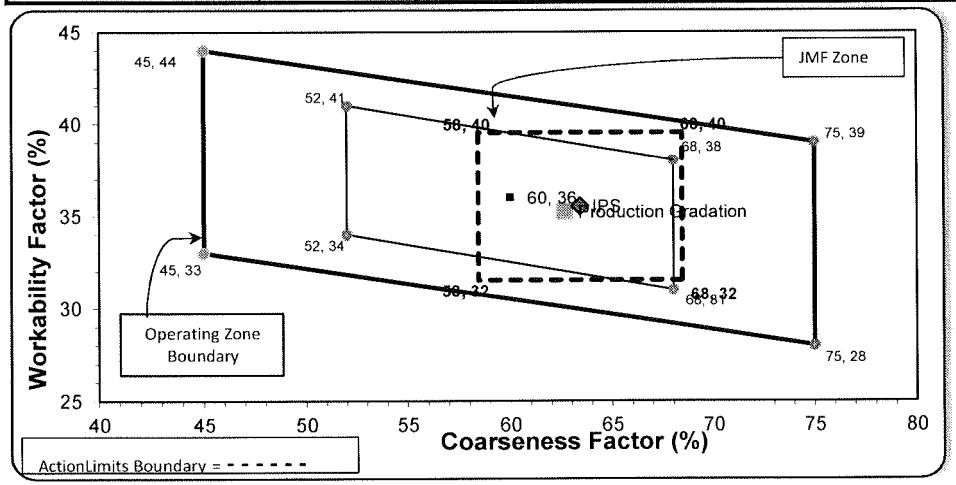
Farmington Hills, MI 48336

*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:	63	Workability Factor:	33	Adjusted WF: 35.2



Intial 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"	100.0	0.0	0.0
3/4"	89.7	10.3	10.3
1/2"	70.3	19.4	29.7
3/8"	59.1	11.2	40.9
#4	42.8	16.3	57.2
#8	35.5	7.3	64.5
#16	29.0	6.5	71.0
#30	21.2	7.7	78.8
#50	9.8	11.5	90.2
#100	3.7	6.1	96.3
LBW	1.2	2.5	98.8

PREPARED BY:
SM, LLC Technical Service

Approved By:

Basic Quality Statistical Summary Report

Plant S39-Superior Sterling Heights
Product 1051-6AA LS
Specification 6AA LS
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			100-100
1" (25mm)	1	99.6			95-100
3/4" (19mm)	1	78.6			
1/2" (12.5mm)	1	44.5			30-60
3/8" (9.5mm)	1	25.1			
#4 (4.75mm)	1	4.8			0-8
#8 (2.36mm)	1	2.5			
#16 (1.18mm)	1	2.2			
#30 (.6mm)	1	2.1			
#50 (.3mm)	1	2.0			
#100 (.15mm)	1	1.9			
#200 (75µm)	1	1.57			
Pan	1	0.00			
Wash Loss (#200/75um)	1	1.5			0-2
Total Moisture	1	3.33			

Basic Quality Statistical Summary Report

Plant S39-Superior Sterling Heights
Product 1067-26A Mod LS
Specification 26A LS Spec
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			
1" (25mm)	1	100.0			
3/4" (19mm)	1	100.0			100-100
1/2" (12.5mm)	1	99.0			95-100
3/8" (9.5mm)	1	86.4			60-95
#4 (4.75mm)	1	27.9			5-30
#8 (2.36mm)	1	9.0			0-12
#16 (1.18mm)	1	4.7			
#30 (.6mm)	1	3.7			
#50 (.3mm)	1	3.4			
#100 (.15mm)	1	3.1			
#200 (75µm)	1	2.8			
Pan	1	0.0			
Wash Loss (#200/75um)	1	2.6			0-3
Total Moisture	1	3.87			

Basic Quality Statistical Summary Report

Plant S39-Superior Sterling Heights
Product 1022-2NS GR
Specification 2NS GR Spec
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
3/8" (9.5mm)	1	100.0			100-100
#4 (4.75mm)	1	96.2			95-100
#8 (2.36mm)	1	77.8			65-95
#16 (1.18mm)	1	62.1			35-75
#30 (.6mm)	1	46.9		40-50	20-55
#50 (.3mm)	1	22.4			10-30
#100 (.15mm)	1	6.7			0-10
#200 (75µm)	1	2.5			
Pan	1	0.0			
FM	1	2.88		2.7-2.9	2.6-3
Wash Loss (#200/75um)	1	2.5			0-3
Total Moisture	1	4.36			

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-102

Sample Date: 8/3/20

Concrete Grade: DM

Dates Test Represents: 8/4/2020 through 8/10/2020

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	50.8
26A	58-003	Stoneco	305	1.82	2.69	10.3
2NS	63-114	Highland	1150	6.95	2.65	38.9
		Total Wt	**2955**	**17.71**		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"	99.0	100.0	100.0	99.5	0.5	0.5
3/4"	81.0	100.0	100.0	90.4	9.1	9.6
1/2"	31.0	99.5	100.0	64.9	25.4	35.1
3/8"	11.0	86.0	100.0	53.4	11.5	46.6
#4	2.8	19.0	99.0	41.9	11.5	58.1
#8	1.6	5.6	81.0	32.9	9.0	67.1
#16	1.3	3.0	62.0	25.1	7.8	74.9
#30	1.2	2.4	43.5	17.8	7.3	82.2
#50	1.1	2.2	20.6	8.8	9.0	91.2
#100	1.0	2.1	5.9	3.0	5.8	97.0
LBW	0.8	1.9	2.6	1.6	1.4	98.4

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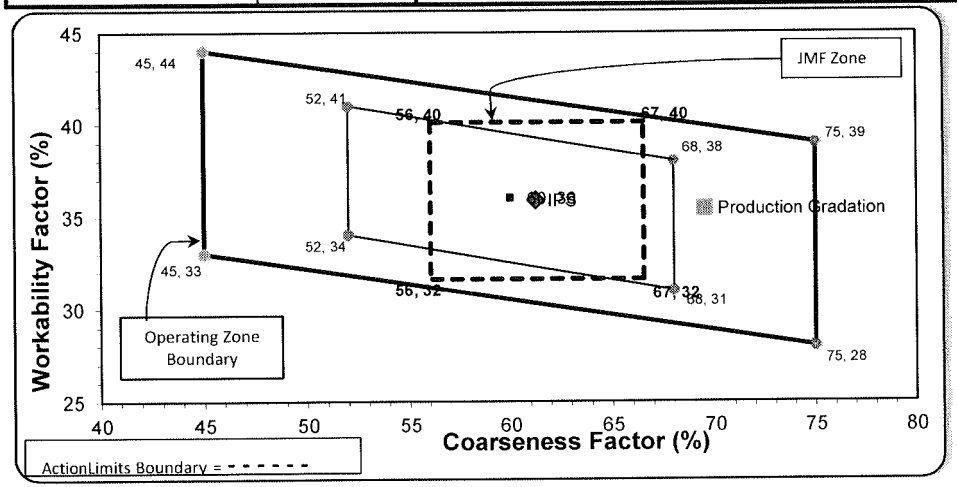
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	69	Workability Factor:	33	Adjusted WF 35.4



Intial 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

Approved By:

Basic Quality Statistical Summary Report

Plant S102-Superior Novi
Product 1051-6AA LS
Specification 6AA LS
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			100-100
1" (25mm)	1	99.3			95-100
3/4" (19mm)	1	81.2			
1/2" (12.5mm)	1	31.2			30-60
3/8" (9.5mm)	1	11.3			
#4 (4.75mm)	1	2.8			0-8
#8 (2.36mm)	1	1.6			
#16 (1.18mm)	1	1.3			
#30 (.6mm)	1	1.2			
#50 (.3mm)	1	1.1			
#100 (.15mm)	1	1.0			
#200 (75µm)	1	0.87			
Pan	1	0.00			
Wash Loss (#200/75um)	1	0.8			0-2
Total Moisture	1	3.05			

Basic Quality Statistical Summary Report

Plant S102-Superior Novi
Product 1067-26A Mod LS
Specification 26A Mod LS Spec
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			
1" (25mm)	1	100.0			
3/4" (19mm)	1	100.0			100-100
1/2" (12.5mm)	1	99.5			95-100
3/8" (9.5mm)	1	86.1			60-95
#4 (4.75mm)	1	19.4			5-30
#8 (2.36mm)	1	5.6			0-12
#16 (1.18mm)	1	3.0			
#30 (.6mm)	1	2.4			
#50 (.3mm)	1	2.2			
#100 (.15mm)	1	2.1			
#200 (75µm)	1	2.0			
Pan	1	0.0			
Wash Loss (#200/75um)	1	1.9			0-3
Total Moisture	1	3.43			

Basic Quality Statistical Summary Report

Plant S102-Superior Novi
Product 1022-2NS GR
Specification 2NS GR Spec
Period 08/02/2020 - 08/07/2020

Sieve/Test	Tests	Average	St Dev	Target	Specification
3/8" (9.5mm)	1	100.0			100-100
#4 (4.75mm)	1	99.2			95-100
#8 (2.36mm)	1	81.3			65-95
#16 (1.18mm)	1	62.2			35-75
#30 (.6mm)	1	43.5		40-50	20-55
#50 (.3mm)	1	20.6			10-30
#100 (.15mm)	1	5.9			0-10
#200 (75µm)	1	2.6			
Pan	1	0.0			
FM	1	2.87		2.7-2.9	2.6-3
Wash Loss (#200/75um)	1	2.6			0-3
Total Moisture	1	4.00			