Aggregate Optimization Chart

Mid-Michigan

Batch Plant Gradations

2NS

Production Gradation

75-051

Production Gradation Report

PLANT #: P-101 Contractor: Sample Date: 7/12/21 DM Concrete Grade:

2.66

39.5

Dates Test Represents: 7/13/2021 7/19/2021 through Specific % ft³ Agg. Class Pit# Weight (SSD) Source Gravity Contribution 6AA 71-47 Presque Isle 1460 8.93 2.62 50.2 26A 71-47 Presque Isle 300 1.83 2.62 10.3

1150

MDOT No.:



Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:

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

=	0010	4= 00	+	100.0		
i otai wt	2910	17.69		100.0	< Verify this n	umber is 100%
6AA	26	6A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
100.0	10	0.0	100.0	100.0	0.0	0.0
100.0	10	0.0	100.0	100.0	0.0	0.0
98.7	10	0.0	100.0	99.3	0.7	0.7
84.7	10	100.0		92.3	7.0	7.7
37.5	96	96.8		68.3	24.0	31.7
17.3	88	88.1		57.3	11.0	42.7
2.9	20	20.5		42.8	14.5	57.2
1.6	5	5.4		34.5	8.3	65.5
1.5	2	2.5		28.2	6.3	71.8
1.4	1.9		53.6	22.1	6.2	77.9
1.3	1.7		27.6	11.7	10.3	88.3
1.3	1	.6	6.5	3.4	8.3	96.6
1.2	1	.4	0.7	1.0	2.4	99.0
	Total Wt 6AA 100.0 100.0 98.7 84.7 37.5 17.3 2.9 1.6 1.5 1.4 1.3 1.3	Total Wt 2910 6AA 26 100.0 10 100.0 10 98.7 10 84.7 10 37.5 96 17.3 88 2.9 20 1.6 5 1.5 2 1.4 1 1.3 1	Total Wt 2910 17.69 6AA 26A 100.0 100.0 100.0 100.0 98.7 100.0 84.7 100.0 37.5 96.8 17.3 88.1 2.9 20.5 1.6 5.4 1.5 2.5 1.4 1.9 1.3 1.7 1.3 1.6	Total Wt 2910 17.69 6AA 26A 2NS 100.0 100.0 100.0 100.0 100.0 100.0 98.7 100.0 100.0 84.7 100.0 100.0 37.5 96.8 100.0 17.3 88.1 100.0 2.9 20.5 99.3 1.6 5.4 83.9 1.5 2.5 68.9 1.4 1.9 53.6 1.3 1.7 27.6 1.3 1.6 6.5	Total Wt 2910 17.69 100.0 6AA 26A 2NS Cumulative % Passing 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 98.7 100.0 100.0 99.3 84.7 100.0 100.0 92.3 37.5 96.8 100.0 68.3 17.3 88.1 100.0 57.3 2.9 20.5 99.3 42.8 1.6 5.4 83.9 34.5 1.5 2.5 68.9 28.2 1.4 1.9 53.6 22.1 1.3 1.7 27.6 11.7 1.3 1.6 6.5 3.4	Total Wt 2910 17.69 100.0 Verify this now with single control of the state of

Aggregate Supplier Gradations

6.93

*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.

Coarseness Factor:	65	Workability Factor: 35	37.0
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 41	JMF Zone 57, 39 68, 38 Production Gradation 575, 31 6768,131	
40 45 ActionLimits Boundary =	50	Coarseness Factor (%)	80

Work	ability 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"	70.5	24.5	29.5
3/8"	60.0	10.5	40.0
#4	44.4	15.6	55.6
#8	35.5	9.0	64.5
#16	28.5	7.0	71.5
#30	21.5	7.0	78.5
#50	10.2	11.3	89.8
#100	3.1	7.1	96.9
LBW	1.3	1.8	98.7

PLANT #: P-102

Sample Date:

7/12/21 DM Concrete Grade: 7/13/2021 7/19/2021

MDOT No.:

Coarseness Factor:

35.6

Contractor:

Dates Test F	Represents:	7/13/2021	through	7/19/2021		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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

SUPER	RIOR

Superior Materials, LLC 30701 W. 10 Mile Rd. Suite 500

Farmington Hills, MI 48336

	i otai wt	2955 17.71		100.0	< Verify this n	umber 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"	83.9	100.0	100.0	91.8	8.2	8.2
1/2"	45.3	99.4	100.0	72.2	19.7	27.8
3/8"	20.5	88.0	100.0	58.4	13.8	41.6
#4	3.2	9.7	99.1	41.2	17.2	58.8
#8	1.3	2.6	82.6	33.1	8.1	66.9 r
#16	1.1	1.8	63.1	25.3	7.8	74.7
#30	0.9	1.5	43.5	17.5	7.8	82.5 r
#50	0.7	1.4	19.8	8.2	9.3	91.8
#100	0.5	1.4	4.9	2.3	5.9	97.7 a
LBW	0.5	1.2	0.4	0.5	1.8	99.5
Production Grad	dation O Batch Plant Gradat	ions	Gradations	Adjusted WF	Intial Production	on Sample (IPS)

*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.

61

*% Retained must be at least 8% for the 1" sieve when

a 2" max. size (nom. Max. 1.5") aggregate is used.

Coarseness Factor	62	Workability Factor:	33	
45 45, 44 45, 44 45, 33 Operating Zon Boundary	52, 34	68, 38 68, 38 60µ86 roduction Gradation		
Boundary 25 40 45 ActionLimits Boundary =	50 55	Coarseness Factor (%)	75, 28 75	80

Work	ability Factor:	36	
Sieve	Cumulative	%	Cumulative
Sieve	% Passing	Retained	% 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

PLANT #: P-20 Contractor:

Sample Date: 7/12/21 DM Concrete Grade:

Dates Test F	Represents:	7/13/2021	through	7/19/2021		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1705	10.43	2.62	58.7
26A	71-47	Presque Isle	100	0.61	2.62	3.4
2NS	63-92	Grange Hall	1100	6.65	2.65	37.9

MDOT No.:

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

35.5

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Superior Materials, LLC 30701 W. 10 Mile Rd. 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.

	Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%
Sieve	6AA	26	6A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	10	0.0	100.0	100.0	0.0	0.0
1.5"	100.0	10	0.0	100.0	100.0	0.0	0.0
1"	96.4	10	0.0	100.0	97.9	2.1	2.1
3/4"	81.4	10	0.0	100.0	89.1	8.8	10.9
1/2"	47.5	96.6		100.0	69.1	20.0	30.9
3/8"	24.9	90.7		100.0	55.6	13.5	44.4
#4	4.1	27	' .9	98.1	40.5	15.1	59.5
#8	1.8	6.6		83.8	33.0	7.5	67.0
#16	1.5	2	.5	67.8	26.6	6.4	73.4
#30	1.4	2	.0	47.6	18.9	7.7	81.1
#50	1.2	1.9		20.2	8.4	10.5	91.6
#100	1.2	1	.8	2.9	1.9	6.6	98.1
LBW	1.0	1	.6	0.7	0.9	1.0	99.1

Aggregate Supplier Gradations

Coarseness Factor:	66	Workability Factor:	33	
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 41	68, 40 68, 38 60, 36 PS Production G	75, 39 radation 75, 28	
25 + 40 45 ActionLimits Boundary =	50	55 Coarseness Factor (%)	75	80

Batch Plant Gradations

Production Gradation

Work	ability 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"	89.2	10.8	10.8
1/2"	68.4	20.8	31.6
3/8"	59.9	8.6	40.1
#4	43.0	16.9	57.0
#8	35.9	7.1	64.1
#16	29.0	6.8	71.0
#30	21.3	7.7	78.7
#50	9.9	11.4	90.1
#100	2.4	7.5	97.6
LBW	1.2	1.2	98.8

Production Gradation Report

PLANT #: P-32 Contractor: 7/12/21 DM Sample Date: Concrete Grade:

Dates Test F	Represents:	7/13/2021	through	7/19/2021		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1450	8.87	2.62	49.9
26A	71-47	Presque Isle	305	1.87	2.62	10.5
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6

MDOT No.:

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

0.0	
0.9	
10.7	
31.4	
41.8	*Maxin
56.8	*Any tv
64.6	nom. ma
69.8	*% Re

mum % Retained must be above the 3/8" sieve.

wo adjacent sieves must equal 10% except max.,

ax., #100 and #200 sieves.

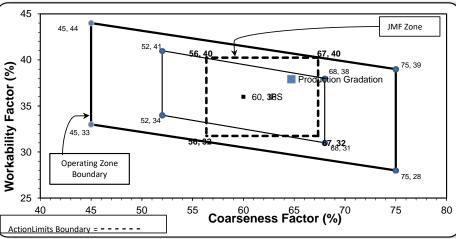
tained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.

*% Retained must be at least 8% for the 1" sieve when

a 2" max. size (nom. Max. 1.5") aggregate is used.

Sieve	6AA	26	6A	0110	Cumulative		0 1
2"				2NS	% Passing	% Retained	Cumulative % Retained
_	100.0	100	0.0	100.0	100.0	0.0	0.0
1.5"	100.0	100	0.0	100.0	100.0	0.0	0.0
1"	98.1	100	0.0	100.0	99.1	0.9	0.9
3/4"	78.6	100	0.0	100.0	89.3	9.7	10.7
1/2"	37.5	97	7.7	100.0	68.6	20.8	31.4
3/8"	18.4	89	0.8	100.0	58.2	10.4	41.8
#4	3.8	29	0.6	96.6	43.2	15.0	56.8
#8	2.5	7.	.9	84.2	35.4	7.8	64.6
#16	2.1	5.	.5	72.2	30.2	5.2	69.8
#30	2.0	4.	.4	48.1	20.5	9.7	79.5
#50	1.9	3.	.7	19.5	9.1	11.4	90.9
#100	1.8	3.	.1	4.5	3.0	6.1	97.0
LBW	1.5	2.	.2	1.8	1.7	1.3	98.3

 Batch Plant Gradations Aggregate Supplier Gradations **Production Gradation** Adjusted WF Intial Production Sample (IPS) **Coarseness Factor: Workability Factor:** 35 37.9 **Coarseness Factor:** 65 Workability Factor:



Workability I actor.		3	
Sieve	Cumulative	%	Cumulative
Sieve	% Passing	Retained	% 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

62

7/12/21

PLANT #: P-35

Sample Date:

Production Gradation

DM Concrete Grade:

Contractor:

MDOT No.:

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

35.8

Dates Test F	Represents:	7/13/2021	through	7/19/2021		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1555	9.26	2.69	52.6
26A	58-003	Stoneco	300	1.79	2.69	10.2
2NS	81-093	Burmeister	1100	6.65	2.65	37.2
		Total Wt	2955	17.70		100.0

ıg. Class	Pit#	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1555	9.26	2.69	52.6
26A	58-003	Stoneco	300	1.79	2.69	10.2
2NS	81-093	Burmeister	1100	6.65	2.65	37.2
		Total Wt	2955	17.70		100.0

r is 100%	SUPERIOR

Superior Materials, LLC

30701 W. 10 Mile Rd. Suite 500

Farmington Hills, MI 48336

	i otai wt	2955	17.70		100.0	< Verify this n	umber is 100%
Sieve	6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	10	0.0	100.0	100.0	0.0	0.0
1.5"	100.0	10	0.0	100.0	100.0	0.0	0.0
1"	100.0	10	0.0	100.0	100.0	0.0	0.0
3/4"	83.9	10	0.0	100.0	91.5	8.5	8.5
1/2"	45.3	99	.4	100.0	71.2	20.4	28.8
3/8"	20.5	88	.0	100.0	56.9	14.2	43.1
#4	3.2	9.	7	98.5	39.3	17.6	60.7
#8	1.3	2	6	87.0	33.3	6.0	66.7
#16	1.1	1.	8	71.5	27.4	6.0	72.6
#30	0.9	1.	5	50.9	19.6	7.8	80.4
#50	0.7	1.	4	17.2	6.9	12.7	93.1
#100	0.5	1.	4	2.6	1.4	5.5	98.6
LBW	0.5	1.	2	0.7	0.6	0.7	99.4

Aggregate Supplier Gradations

*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.

Coarseness Fa	ctor: 65	Workability Factor:	33	
45 45, 44 45, 44 45, 44 Operation Bour	ng Zone	68, 38 ■ 60 ₁ β6 ■ Production Grad 31 67, €9, 31	JMF Zone 75, 39 Pation 75, 28	
25	5 50 5	5 Coarseness Factor (%)	75	80

Batch Plant Gradations

Work	ability Factor:	36	
Sieve	Cumulative	%	Cumulative
Sieve	% Passing	Retained	% 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"	89.1	10.2	10.9
1/2"	70.5	18.6	29.5
3/8"	60.5	10.0	39.5
#4	44.1	16.4	55.9
#8	35.6	8.5	64.4
#16	27.7	7.9	72.3
#30	20.6	7.1	79.4
#50	8.7	11.8	91.3
#100	1.6	7.1	98.4
LBW	1.1	0.6	98.9

Aggregate Optimization Chart

PLANT #: P-36

Sample Date:

Production Gradation

7/12/21 DM Concrete Grade: 7/19/2021

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

37.0

Contractor:

Dates Test F	Represents:	7/13/2021	through	7/19/2021		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1405	8.59	2.62	48.4
26A	71-47	Presque Isle	400	2.45	2.62	13.8
2NS	63-92	Grange Hall	1100	6.65	2.65	37.9
		Total Wt	2005	17.60		100.0

MDOT No.:



Verify this number is 100%

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

	i Otai VVI	2903 17.09		100.0	< verily 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"	99.2	100.0	100.0	99.6	0.4	0.4
3/4"	78.5	100.0	100.0	89.6	10.0	10.4
1/2"	36.5	97.7	100.0	69.0	20.6	31.0
3/8"	18.0	89.8	100.0	58.9	10.0	41.1
#4	5.0	29.6	98.1	43.6	15.3	56.4
#8	3.4	7.9	83.8	34.5	9.2	65.5
#16	2.9	5.5	67.8	27.8	6.6	72.2
#30	2.4	4.4	47.6	19.8	8.0	80.2
#50	2.1	3.7	20.2	9.2	10.6	90.8
#100	1.8	3.1	2.9	2.4	6.8	97.6
LBW	1.4	2.2	0.7	1.2	1.2	98.8

Aggregate Supplier Gradations

*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.

Coarseness Factor:	63	Workability Factor:	34	
45			JMF Zone	$\overline{\mathbb{T}}$
(%) 40	52, 41	58, 39 56, 39 68, 38 Production Gradation	75, 39	
Morkability Factor (%) 35 45, 33 Operating Zone Boundary	52, 34	■ 60, 36 IPS		
		58, 31 688, 31	75, 28	
25 40 45 ActionLimits Boundary =	50 55	Coarseness Factor (%)	75	80

Work	ability 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

Batch Plant Gradations

PLANT #: P-39 Contractor:

7/12/21 Sample Date: DM Concrete Grade: Dates Test Represents: 7/13/2021 7/19/2021 through

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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	44-051	Krake Willis Rd	1100	6.65	2.65	37.9
		Total Wt	2905	17.69		100.0

MDOT No.:

---- Verify this number is 100%

Coarseness Factor:

34.5

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

Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained	ļ
2"	100.0	100.0	100.0	100.0	0.0	0.0	ı
1.5"	100.0	100.0	100.0	100.0	0.0	0.0	ĺ
1"	98.7	100.0	100.0	99.3	0.7	0.7	ı
3/4"	84.7	100.0	100.0	92.1	7.3	7.9	ĺ
1/2"	37.5	96.8	100.0	67.3	24.8	32.7	ĺ
3/8"	17.3	88.1	100.0	55.9	11.4	44.1	*
#4	2.9	20.5	97.3	40.5	15.5	59.5	*
#8	1.6	5.4	80.8	32.0	8.5	68.0	no
#16	1.5	2.5	66.3	26.1	5.8	73.9	4
#30	1.4	1.9	50.6	20.1	6.1	79.9	no
#50	1.3	1.7	25.8	10.6	9.5	89.4	4
#100	1.3	1.6	7.8	3.8	6.8	96.2	а
LBW	1.2	1.4	1.5	1.3	2.5	98.7	l
Production (Gradation O Batch Plant Grad	dations	dations	Adjusted WF	Intial Production	on Sample (IPS	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.

Coarseness Factor:	65	Workability Factor:	32	
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 41	58, 40 68, 40 68, 38 Production Grad	JMF Zone 75, 39 dation 75, 28	
40 45 ActionLimits Boundary =	50 55	Coarseness Factor (%)	75	80

Work	ability 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

63

PLANT #: P-02 Contractor: 7/12/21 Sample Date: DM Concrete Grade:

2.65

0.7

37.9

100.0

1.2

35.4

2.1

Adjusted WF Intial Production Sample (IPS)

Dates Test Represents: 7/13/2021 7/19/2021 through Specific % ft³ Agg. Class Pit# Source Weight (SSD) Gravity Contribution 6AA 71-47 Presque Isle 1450 8.87 2.62 49.9 26A 71-47 Presque Isle 355 2.17 2.62 12.2

1100

2905

MDOT No.:

<---- Verify this number is 100%



Superior Materials, LLC 30701 W. 10 Mile Rd. 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"	99.2	100.0	100.0	99.6	0.4	0.4
3/4"	78.5	100.0	100.0	89.3	10.3	10.7
1/2"	36.5	97.7	100.0	68.0	21.2	32.0
3/8"	18.0	89.8	100.0	57.8	10.2	42.2
#4	5.0	29.6	96.6	42.7	15.1	57.3
#8	3.4	7.9	79.8	32.9	9.8	67.1
#16	2.9	5.5	63.3	26.1	6.8	73.9
#30	2.4	4.4	47.1	19.6	6.5	80.4
#50	2.1	3.7	24.7	10.9	8.7	89.1
#100	1.8	3.1	5.3	3.3	7.6	96.7

2.2

Aggregate SupplierGradations

6.65

17.69

*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.

63

*% Retained must be at least 8% for the 1" sieve when

a 2" max. size (nom. Max. 1.5") aggregate is used.

Coarseness Factor:	63	Workability Factor:	33	
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 41	58, 39 68, 39 68, 38 68, 38 68, 38 68, 38 68, 38 68, 38	JMF Zone 75, 39	
Boundary 25 40 45 ActionLimits Boundary =	50 55	Coarseness Factor (%)	75, 28 75	80

Workability Factor:		35	
Sieve	Cumulative	%	Cumulative
	% Passing	Retained	% 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"	95.1	4.9	4.9
1/2"	74.6	20.5	25.4
3/8"	59.3	15.3	40.7
#4	42.1	17.2	57.9
#8	35.1	7.1	64.9
#16	29.2	5.9	70.8
#30	21.9	7.3	78.1
#50	9.6	12.4	90.4
#100	2.4	7.2	97.6
LBW	0.9	1.5	99.1

98.8

Coarseness Factor:

PREPARED BY: SM, LLC Technical Service

2NS

LBW

Production Gradation

63-115

Ray Rd

1.4

Total Wt

Batch Plant Gradations