Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-101 Contractor:

Sample Date: 9/27/21 DM Concrete Grade: Dates Test Represents: 9/28/2021 10/4/2021 through

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1560	9.54	2.62	53.6
26A	71-47	Presque Isle	200	1.22	2.62	6.9
2NS	75-051	Mid-Michigan	1150	6.93	2.66	39.5
		Total Wt	2910	17.69		100.0

MDOT No.:

---- Verify this number is 100%

Coarseness Factor:

SUPERIOR	

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

		_
		S
		F

*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.

Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained	
2"	100.0	100.0	100.0	100.0	0.0	0.0	1
1.5"	100.0	100.0	100.0	100.0	0.0	0.0	1
1"	98.4	100.0	100.0	99.1	0.9	0.9	1
3/4"	82.7	100.0	100.0	90.7	8.4	9.3	1
1/2"	43.9	97.0	100.0	69.7	21.0	30.3	1
3/8"	25.0	86.7	100.0	58.9	10.8	41.1	*
#4	5.2	20.5	99.0	43.3	15.6	56.7	*
#8	2.5	6.2	81.2	33.9	9.5	66.1	nc
#16	2.0	3.4	62.6	26.0	7.8	74.0	*
#30	1.9	2.7	47.2	19.9	6.2	80.1	nc
#50	1.9	2.4	25.2	11.1	8.7	88.9	*
#100	1.8	2.2	7.3	4.0	7.1	96.0	a :
LBW	1.7	2.1	1.1	1.5	2.5	98.5	1
Production Gr	radation O Batch Plant Gradat	ions Aggregate Supplier Gra	dations	Adjusted WF	Initial Producti	on Sample (IP:	S)

Production Gradation	0	7 riggi egate supplier Gradutt	5115	Aujusteu
Coarseness Factor:	62	Workability Factor:	34	36.4
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 34	57, 38 68, 38 60, 3 Production Gradation 67, 31	75, 28	

Coarseness Factor (%) 70

80

Work	ability 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"	95.0	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

PREPARED BY: SM, LLC Technical Service

ActionLimits Boundary = - - - - -

PLANT #: P-102

Sample Date:

Production Gradation

9/27/21 Concrete Grade: **DM**

Contractor:
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Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

36.0

Dates Test F	Represents:	9/28/2021	through	10/4/2021		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1550	9.23	2.69	52.5
26A	58-003	Stoneco	255	1.52	2.69	8.6
2NS	63-114	Highland	1150	6.95	2.65	38.9
		Total Wt	2955	17 71		100.0

MDOT No.: _

<---- Verify this number is 100%

SUPERIOR MATERIALS	

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"	99.8	100.0	100.0	99.9	0.1	0.1
3/4"	82.0	100.0	100.0	90.6	9.3	9.4
1/2"	42.5	99.5	100.0	69.8	20.8	30.2
3/8"	22.1	87.7	100.0	58.1	11.7	41.9
#4	4.4	8.0	98.9	41.5	16.6	58.5
#8	1.5	2.4	83.6	33.5	8.0	66.5 r
#16	0.8	1.7	66.1	26.3	7.2	73.7
#30	0.7	1.5	47.2	18.9	7.4	81.1 r
#50	0.6	1.4	21.3	8.7	10.1	91.3
#100	0.6	1.4	4.6	2.2	6.5	97.8 a
LBW	0.6	1.3	0.9	0.8	1.4	99.2

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 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 34	68, 38 60108 Production Gradation		
Boundary 25 40 45 ActionLimits Boundary =	50 55	Coarseness Factor (%)	75, 28 75	80

Batch Plant Gradations

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"	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

Aggregate Optimization Chart

PLANT #: P-20

Sample Date:

Production Gradation

9/27/21 Concrete Grade: 9/28/2021

Coarseness Factor:

DM

35.7

Contractor:

Dates Test Represents:		9/28/2021	through	10/4/2021		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1605	9.82	2.62	55.2
26A	71-47	Presque Isle	200	1.22	2.62	6.9
2NS	63-92	Grange Hall	1100	6.65	2.65	37.9
		Total Wt	2905	17.69		100.0

MDOT No.:

--- Verify this number is 100%

SUPER	IOR

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"	98.4	100.0	100.0	99.1	0.9	0.9
3/4"	85.0	100.0	100.0	91.7	7.4	8.3
1/2"	41.6	97.7	100.0	67.6	24.1	32.4
3/8"	24.0	85.7	100.0	57.0	10.6	43.0
#4	3.4	17.9	97.6	40.1	17.0	59.9
#8	1.9	5.5	84.0	33.2	6.8	66.8
#16	1.7	3.1	67.7	26.8	6.4	73.2
#30	1.6	2.5	48.6	19.5	7.3	80.5
#50	1.5	2.3	20.4	8.7	10.7	91.3
#100	1.4	2.1	5.9	3.2	5.6	96.8
LBW	1.3	2.0	0.5	1.0	2.1	99.0
Production G	radation O Batch Plant Gradat	tions	dations	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.

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

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

Coarseness Factor:	64	Workability Factor:	33	
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 41	57, 40 68, 40 68, 38 68, 38 • 60, 36IPS Production Gradation 51, 32 68, 31	75, 28	
25 40 45 ActionLimits Boundary =	50 5	5 Coarseness Factor (%) ⁷⁰	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"	89.2	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

PLANT #: P-32 Contractor: 9/27/21 DM Sample Date: Concrete Grade:

Dates Test Represents:		9/28/2021	through	10/4/2021		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1600	9.79	2.62	55.1
26A	71-47	Presque Isle	155	0.95	2.62	5.3
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6

MDOT No.:

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

SUPERIOR MATERIALS

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.

62

*% 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	6 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"	96.3	10	0.0	100.0	98.0	2.0	2.0
3/4"	73.5	10	0.0	100.0	85.4	12.6	14.6
1/2"	37.2	96	6.0	100.0	65.2	20.2	34.8
3/8"	23.1	82	2.5	100.0	56.7	8.5	43.3
#4	4.4	28	3.5	95.3	41.7	15.0	58.3
#8	1.7	8	.4	83.2	34.3	7.3	65.7
#16	1.3	4	.0	67.9	27.8	6.5	72.2
#30	1.2	2	.7	49.8	20.5	7.3	79.5
#50	1.2	2	.2	25.3	10.8	9.7	89.2
#100	1.1	2	.0	8.4	4.0	6.8	96.0
LBW	0.8	1	.7	1.7	1.2	2.8	98.8

Aggregate Supplier Gradations

Coarseness Factor: Workability Factor: 34 36.8 66 45 JMF Zone 45, 44 Workability Factor (%) duction Gradation ■ 60.3MBS 45, 33 Operating Zone Boundary 75, 28 25 Coarseness Factor (%) 70 75 80 ActionLimits Boundary = - - - - -

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"	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

PLANT #: P-35 Contractor: 9/27/21 DM Sample Date: Concrete Grade:

17.70

Dates Test Represents: 9/28/2021 through 10/4/2021 Specific % ft³ Pit# Agg. Class Source Weight (SSD) Gravity Contribution 6AA 58-003 Stoneco 1555 9.26 2.69 52.6 26A 58-003 300 1.79 2.69 10.2 Stoneco 2NS 81-093 Burmeister 1100 6.65 2.65 37.2

1.5

1.4

1.4

1.3

2955

Total Wt

6AA

100.0

100.0 99.8

82.0

42.5

22.1

4.4

1.5

0.8

0.7

0.6

0.6

0.6

Sieve

2"

1.5"

3/4"

1/2'

3/8'

#4

#8

#16

#30

#50

#100

LBW

MDOT No.:

80.0

92.6

98.5

99.2



<---- Verify this number is 100%

7.0

12.6

6.0

0.6

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26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained	
100.0	100.0	100.0	0.0	0.0	İ
100.0	100.0	100.0	0.0	0.0	İ
100.0	100.0	99.9	0.1	0.1	
100.0	100.0	90.5	9.4	9.5	l
99.5	100.0	69.7	20.8	30.3	İ
87.7	100.0	57.8	11.9	42.2	*Ma
8.0	99.2	40.1	17.7	59.9	*An
2.4	86.8	33.3	6.7	66.7	nom.
1.7	70.9	27.0	6.4	73.0	*%

20.0

7.4

1.5

0.8

52.4

18.7

2.7

100.0

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

ny two adjacent sieves must equal 10% except max.,

n. 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.

Production Gradation	Batch Plant Grad	dations	ns	Adjusted WF	Intial Producti	on Sample (IPS	i)
Coarseness Factor:	63	Workability Factor:	33	35.8	Coars	seness Factor:	
45					Work	ability Factor:	
45, 44			JMF Zone	7] [Sieve	Cumulative	Г
1 1 1					Oleve -	% Passing	
	52, 41	40			2"	100.0	
(a) 40 1	56,	10000	75, 39		1.5"	100.0	
💍		68, 38 ■ 60 ₁ 3 Production Gradation	I		1"	99.3	
6					3/4"	89.1	Г
Factor (%)					1/2"	70.5	Г
\(\mathbb{L}\) \(\frac{1}{2}\)	52, 34			- 11	3/8"	60.5	Г
45, 33					#4	44.1	Г
30 1	56,	31 67, 88 , 31		- 11	#8	35.6	Г
Atjiiiq 30 Operating Zong Boundary					#16	27.7	Г
Boundary			75, 28	- 11	#30	20.6	Г
Š			,		#50	8.7	Г
25 +				!	#100	1.6	Г
40 45	5055	Coarseness Factor (%)	75	80	LBW	1.1	Γ
ActionLimits Boundary =		Courseiness ractor (70))			

Work	Workability Factor:		
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"	89.1	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

PLANT #: P-36

Sample Date:

9/27/21 DM Concrete Grade: 9/28/2021 10/4/2021 through

MDOT No.:

Coarseness Factor:

36.5

Dates Test F	Represents:	9/28/2021	through	10/4/2021		
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	63-92	Grange Hall	1100	6.65	2.65	37.9
		Total Wt	2905	17 69		100.0

g. Class	Pit#	Source	Weight (SSD)	ft ³	Gravity	76 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
						Cumulativa

SUPE	RIOR

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

Farmington Hills, MI 48336

	i otai wt	2905 17.69	1	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"	98.8	100.0	100.0	99.4	0.6	0.6	
3/4"	89.6	100.0	100.0	94.6	4.8	5.4	
1/2"	52.0	96.0	100.0	74.7	19.9	25.3	
3/8"	28.2	82.5	100.0	61.0	13.7	39.0	*
#4	4.8	28.5	97.6	42.4	18.6	57.6	*
#8	2.6	8.4	84.0	34.0	8.4	66.0	no
#16	2.2	4.0	67.7	27.2	6.8	72.8	*
#30	1.8	2.7	48.6	19.6	7.6	80.4	no
#50	1.7	2.2	20.4	8.8	10.8	91.2	*
#100	1.6	2.0	5.9	3.3	5.6	96.7	a 2
LBW	1.2	1.7	0.5	1.0	2.3	99.0	
Production Grad	dation O Batch Plant Grad	ations	er 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.

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:	59	Workability Factor:	34	
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 44	58, 39 68, 38 Production Gradation IPS 68,31	75, 39 75, 28	
40 45 ActionLimits Boundary =	50	Coarseness Factor (%)	75	80

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

PLANT #: P-39 Contractor:

Sample Date: 9/27/21 DM Concrete Grade: Dates Test Represents: 9/28/2021 10/4/2021 through

Agg. Class	Pit#	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1605	9.82	2.62	55.2
26A	71-47	Presque Isle	200	1.22	2.62	6.9
2NS	44-051	Krake Willis Rd	1100	6.65	2.65	37.9
	· ·	T-4-1 \A/4	200E	47.00		400.0

MDOT No.:

Coarseness Factor:

SUPER	IOR

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.

63

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

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

Sieve 6AA 26A 2NS % Passing % Retained % 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" 98.4 100.0 100.0 99.1 0.9 0.9 3/4" 82.7 100.0 100.0 90.4 8.7 9.6 1/2" 43.9 97.0 100.0 68.8 21.6 31.2 3/8" 25.0 86.7 100.0 57.6 11.2 42.4 #4 5.2 20.5 97.4 41.2 16.5 58.8 #8 2.5 6.2 82.2 32.9 8.2 67.1		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%
1.5" 100.0 100.0 100.0 0.0 0.0 1" 98.4 100.0 100.0 99.1 0.9 0.9 3/4" 82.7 100.0 100.0 90.4 8.7 9.6 1/2" 43.9 97.0 100.0 68.8 21.6 31.2 3/8" 25.0 86.7 100.0 57.6 11.2 42.4 #4 5.2 20.5 97.4 41.2 16.5 58.8 #8 2.5 6.2 82.2 32.9 8.2 67.1	Sieve	6AA	26	A	2NS		% Retained	Cumulative % Retained
1" 98.4 100.0 100.0 99.1 0.9 0.9 3/4" 82.7 100.0 100.0 90.4 8.7 9.6 1/2" 43.9 97.0 100.0 68.8 21.6 31.2 3/8" 25.0 86.7 100.0 57.6 11.2 42.4 #4 5.2 20.5 97.4 41.2 16.5 58.8 #8 2.5 6.2 82.2 32.9 8.2 67.1	2"	100.0	100	0.0	100.0	100.0	0.0	0.0
3/4" 82.7 100.0 100.0 90.4 8.7 9.6 1/2" 43.9 97.0 100.0 68.8 21.6 31.2 3/8" 25.0 86.7 100.0 57.6 11.2 42.4 #4 5.2 20.5 97.4 41.2 16.5 58.8 #8 2.5 6.2 82.2 32.9 8.2 67.1	1.5"	100.0	100	0.0	100.0	100.0	0.0	0.0
1/2" 43.9 97.0 100.0 68.8 21.6 31.2 3/8" 25.0 86.7 100.0 57.6 11.2 42.4 #4 5.2 20.5 97.4 41.2 16.5 58.8 #8 2.5 6.2 82.2 32.9 8.2 67.1	1"	98.4	100	0.0	100.0	99.1	0.9	0.9
3/8" 25.0 86.7 100.0 57.6 11.2 42.4 #4 5.2 20.5 97.4 41.2 16.5 58.8 #8 2.5 6.2 82.2 32.9 8.2 67.1	3/4"	82.7	100	0.0	100.0	90.4	8.7	9.6
#4 5.2 20.5 97.4 41.2 16.5 58.8 #8 2.5 6.2 82.2 32.9 8.2 67.1	1/2"	43.9	97	.0	100.0	68.8	21.6	31.2
#8 2.5 6.2 82.2 32.9 8.2 67.1	3/8"	25.0	86	.7	100.0	57.6	11.2	42.4
	#4	5.2	20	.5	97.4	41.2	16.5	58.8
"40 00 00 00 00 00 00 00 00 00 00 00 00 0	#8	2.5	6.	2	82.2	32.9	8.2	67.1
#16 2.0 3.4 66.3 26.4 <mark>6.5 </mark> 73.6	#16	2.0	3.	4	66.3	26.4	6.5	73.6
#30 1.9 2.7 48.4 19.6 6.9 80.4	#30	1.9	2.	7	48.4	19.6	6.9	80.4
#50 1.9 2.4 24.2 10.4 9.2 89.6	#50	1.9	2.	4	24.2	10.4	9.2	89.6
#100 1.8 2.2 7.4 3.9 6.4 96.1	#100	1.8	2.	2	7.4	3.9	6.4	96.1
LBW 1.7 2.1 0.9 1.4 2.5 98.6	LBW	1.7	2.	1	0.9	1.4	2.5	98.6

Gradation

75, 28

80

75

Aggregate Supplier Gradations Batch Plant Gradations **Production Gradation** Adjusted WF Intial Production Sample (IPS) **Coarseness Factor:** 63 **Workability Factor:** 33 35.4 45 JMF Zone 45, 44 52, 41 Workability Factor (%)

Coarseness Factor (%)⁷⁰

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

Operating Zone Boundary

45

ActionLimits Boundary = - - -

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52, 34

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PLANT #: P-02 Contractor:

Sample Date: 9/27/21 DM Concrete Grade: Dates Test Represents: 9/28/2021 10/4/2021 through

· · · · · · · · · · · · · · · · · · ·						
Agg. Class	Pit#	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1555	9.51	2.62	53.5
26A	71-47	Presque Isle	250	1.53	2.62	8.6
2NS	63-115	Ray Rd	1100	6.65	2.65	37.9
Total Wt			2905	17.69		100.0

MDOT No.:

Coarseness Factor:

SUPERIOR

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.

63

*% 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"	98.8	10	0.0	100.0	99.4	0.6	0.6
3/4"	89.6	10	0.0	100.0	94.4	4.9	5.6
1/2"	52.0	96	6.0	100.0	74.0	20.5	26.0
3/8"	28.2	82	2.5	100.0	60.1	13.9	39.9
#4	4.8	28	3.5	96.4	41.5	18.5	58.5
#8	2.6	8.	.4	80.9	32.7	8.8	67.3
#16	2.2	4.	.0	66.3	26.6	6.1	73.4
#30	1.8	2	.7	50.5	20.3	6.3	79.7
#50	1.7	2	.2	26.4	11.1	9.2	88.9
#100	1.6	2	.0	6.2	3.4	7.7	96.6
LBW	1.2	1.	.7	0.9	1.1	2.2	98.9

 Batch Plant Gradations Aggregate SupplierGradations **Production Gradation** Adjusted WF Intial Production Sample (IPS) **Coarseness Factor:** 59 **Workability Factor:** 33 35.2 45 JMF Zone 45, 44 52, 41 Workability Factor (%) ■ 60, 36 ■ Producti**p**eGradati 52, 34 Operating Zone Boundary 75, 28 25

Coarseness Factor (%)⁷⁰

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"	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

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ActionLimits Boundary = - - -