Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-101 Contractor:

Sample Date: 7/4/22 Concrete Grade: DM, 4500HP

Dates Test Represents: 7/5/2022 through 7/11/2022 MDOT No.:

	1					
Agg. Class	Pit#	Source	Weight (SSD)	ft ³	Specific 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
2NS	75-051	Mid Michigan	1150	6.93	2.66	39.5
		Total Wt	2910	17.69		100.0

DOT No.:

<---- Verify this number is 100%

Coarseness Factor:

SUPERIOR MATERIALS

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

	Total We	2010 17.00		100.0	Verify this hamber 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"	98.6	100.0	100.0	99.3	0.7	0.7	
3/4"	81.6	100.0	100.0	90.8	8.5	9.2	
1/2"	37.2	98.4	100.0	68.3	22.4	31.7	
3/8"	18.5	89.0	100.0	58.0	10.4	42.0	
#4	3.8	21.4	99.0	43.2	14.7	56.8	
#8	2.1	5.3	83.6	34.6	8.6	65.4	
#16	1.9	3.1	68.3	28.3	6.4	71.7	
#30	1.7	2.7	52.6	21.9	6.3	78.1	
#50	1.6	2.4	27.5	11.9	10.0	88.1	
#100	1.5	2.2	7.5	3.9	8.0	96.1	
LBW	1.4	1.9	0.9	1.3	2.7	98.7	
Production Grad	dation O Batch Plant Gradat	ions Aggregate Suppl	lier Gradations	Adjusted WF	Initial Producti	on Sample (IP	

*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:	35	37.1
45 45, 44 45, 33 45, 33 Operating Zone Boundary	52, 41	57, 39 68, 38 Production Grada 60, 3βS	75, 28	
40 45 ActionLimits Boundary =	50	Coarseness Factor (%)	75	80

Work	ability Factor:	35	
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"	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

Approved By:

Sample Date:

LBW

Production Gradation

Concrete Grade: DM, 4500HP 7/4/22 7/11/2022

1.1

36.4

Dates Test F	Represents:	7/5/2022	through	7/11/2022		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	54.2
26A	58-003	Stoneco	200	1.19	2.69	6.8
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0
Total Wt			2950	17.68		100.0

MDOT No.:

---- Verify this number is 100%

Contractor:

2.4

Adjusted WF Intial Production Sample (IPS)

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	ĺ
1.5"	100.0	100.0	100.0	100.0	0.0	0.0	ĺ
1"	100.0	100.0	100.0	100.0	0.0	0.0	ĺ
3/4"	87.7	100.0	100.0	93.3	6.7	6.7	ĺ
1/2"	53.6	99.7	100.0	74.8	18.5	25.2	i
3/8"	28.6	87.6	100.0	60.4	14.4	39.6	ı
#4	5.1	20.8	98.8	42.7	17.7	57.3	ı
#8	1.6	6.0	83.8	33.9	8.7	66.1	n
#16	1.0	3.2	66.2	26.6	7.4	73.4	ı
#30	0.9	2.5	48.5	19.6	7.0	80.4	n
#50	0.8	2.5	24.4	10.1	9.4	89.9	1
#100	0.8	2.2	7.4	3.5	6.6	96.5	а

1.9

Aggregate Supplier Gradations

1.3

*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.

Coar	seness Factor:	60	Workability Factor:	34	
45	45, 44	52, 41	40 67 40	JMF Zone	
Workability Factor (%)		52, 34	Proflygtion Grapation	75, 39	
Workability 30	Operating Zone Boundary	56	67/3 _{28,31}	75, 28	
	40 45	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"	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

98.9

Coarseness Factor:

PREPARED BY: SM, LLC Technical Service

0.8

Batch Plant Gradations

Agg. Class 6AA 26A 2NS

#100

LBW

Production Gradation

Concrete Grade: DM, 4500HP

Sample Date: 7/4/22 Dates Test Represents: 7/11/2022 7/5/2022 through

сергезеніз.	1/3/2022	unougn	7/11/2022		
Pit#	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
58-003	Stoneco	1600	9.53	2.69	54.2
58-003	Stoneco	200	1.19	2.69	6.8
81-019	Pleasant Lake	1150	6.95	2.65	39.0
	Total Wt	2950	17.68		100.0

2.2

1.9

Contractor:

Cumulative

96.5

98.9

Coarseness Factor:

MDOT No.:

6.6

2.4

Adjusted WF Intial Production Sample (IPS)

Cumulative

3.5

36.4

---- Verify this number is 100%

	UPER	LOP
M	ATERI	ALS

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

Sieve	6AA	26A	2NS	% Passing	% Retained	% Retained	
2"	100.0	100.0	100.0	100.0	0.0	0.0	l
1.5"	100.0	100.0	100.0	100.0	0.0	0.0	ı
1"	100.0	100.0	100.0	100.0	0.0	0.0	ı
3/4"	87.7	100.0	100.0	93.3	6.7	6.7	ı
1/2"	53.6	99.7	100.0	74.8	18.5	25.2	ı
3/8"	28.6	87.6	100.0	60.4	14.4	39.6	ı
#4	5.1	20.8	98.8	42.7	17.7	57.3	ı
#8	1.6	6.0	83.8	33.9	8.7	66.1	n
#16	1.0	3.2	66.2	26.6	7.4	73.4	ı
#30	0.9	2.5	48.5	19.6	7.0	80.4	n
#50	0.8	2.5	24.4	10.1	9.4	89.9	ı

Aggregate Supplier Gradations

7.4

*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.

Coars	seness Factor:	60	Workability Factor:	34	
45 -	45, 44			JMF Zone	
%) J		52, 41 56	40 67 40	75, 39	
ty Facto	45, 33	52, 34	Perofits tion Graduation		
Workability Factor (%)	Operating Zone Boundary	_	32 67-3 _{68, 31}	75, 28	
25	0 45	<u>50</u> 55	Coarseness Factor (%)		80
ActionLir	mits Boundary =		Coarseness Factor (%)		_

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

PREPARED BY: SM, LLC Technical Service

0.8

0.8

O Batch Plant Gradations

Approved BY:

Source

Presque Isle

Presque Isle

Ray Rd

Total Wt

Weight (SSD)

1605

150

1150

2905

PLANT #: P-12

Pit#

71-47

71-47

63-115

Sample Date:

Agg. Class

6AA

26A

2NS

Dates Test Represents:

7/4/22 Concrete Grade: DM, 4500HP

ft³

9.82

0.92

6.95

17.69

7/5/2022 7/11/2022 through

Specific

Gravity

2.62

2.62

2.65

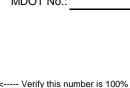
	M
%	
Contribution	
55.2	
5.2	

39.6

100.0

Contractor:

IDOT No.:



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	ı
1.5"	100.0	100.0	100.0	100.0	0.0	0.0	ı
1"	98.6	100.0	100.0	99.2	0.8	8.0	ı
3/4"	85.5	100.0	100.0	92.0	7.2	8.0	l
1/2"	51.9	95.8	100.0	73.2	18.8	26.8	ı
3/8"	30.9	82.3	100.0	60.9	12.3	39.1	ı
#4	4.9	29.1	96.8	42.5	18.4	57.5	ı
#8	2.3	11.0	78.9	33.1	9.5	66.9	n
#16	2.0	4.9	61.3	25.6	7.4	74.4	1
#30	1.9	3.5	44.8	19.0	6.7	81.0	n
#50	1.9	3.1	24.5	10.9	8.1	89.1	ı
#100	1.8	2.9	4.8	3.0	7.9	97.0	а
LBW	1.5	2.5	0.6	1.2	1.8	98.8	ı

*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 O	Batch Plant Gradation	ons		Adjusted WF	Intial Production	on Sample (IPS)
Coarseness Factor:	58	Workability Factor:	33	35.6	Coars	eness Factor:
7 45				$\neg \top$	Work	ability Factor:
45, 44			JMF Zone	7	Sieve	Cumulative
	52, 41			-	Sieve	% Passing
_ 40]	57,	40 68, 40			2"	100.0
(%)		68, 38	75, 39		1.5"	100.0
		!			1"	99.3
£ _		Production Gradation		- 11	3/4"	89.0
Factor 35					1/2"	70.3
	52, 34	!		- 11	3/8"	59.9
Operating Zone Boundary	57.	68 32			#4	41.9
30 -	,	68,32			#8	35.9
Operating Zone			<u>ا</u>	- 11	#16	27.8
Boundary			75, 28		#30	18.9
25				_	#50	6.3
_	50 55	60 65 70	75	80	#100	1.7
	· (Coarseness Factor (%) ⁷⁰	. =		LBW	1.0
ActionLimits Boundary =						

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"	89.0	10.3	11.0
1/2"	70.3	18.7	29.7
3/8"	59.9	10.4	40.1
#4	41.9	18.0	58.1
#8	35.9	6.0	64.1
#16	27.8	8.2	72.2
#30	18.9	8.8	81.1
#50	6.3	12.6	93.7
#100	1.7	4.6	98.3
LBW	1.0	0.7	99.0

63

Sample Date:

Production Gradation

Concrete Grade: DM, 4500HP 7/4/22

Dates Test Represents: 7/5/2022 7/11/2022 through

MDOT	No.:
------	------

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

38.0

Contractor:

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	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%

SUPERI	OR A L S

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

	i Otai Wt	2903 17.09		100.0	< verily trils if	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"	98.5	100.0	100.0	99.2	0.8	8.0
3/4"	91.0	100.0	100.0	95.0	4.1	5.0
1/2"	56.1	95.8	100.0	75.5	19.5	24.5
3/8"	32.5	82.3	100.0	61.8	13.7	38.2
#4	6.4	29.1	96.2	43.1	18.7	56.9
#8	3.0	11.0	84.1	35.5	7.6	64.5
#16	2.6	4.9	69.6	29.2	6.3	70.8
#30	2.4	3.5	51.2	21.8	7.5	78.2
#50	2.3	3.1	26.6	12.0	9.8	88.0
#100	2.2	2.9	8.7	4.8	7.2	95.2
LBW	1.9	2.5	1.6	1.8	3.0	98.2
Production Gradat	tion O Batch Plant Grada	itions	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.

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

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

Coars	seness Factor:	59	Workability Factor: 36		
45	45, 44			JMF Zone	$\overline{\mathbb{T}}$
(%) Jo		52, 41	68, 38 Production Gradation 68, 38	75, 39	
Workability Factor (%)	45, 33	52, 34	60, 388S		
Morka	Operating Zone Boundary			75, 28	
	10 45 mits Boundary =	50 55	Coarseness Factor (%) ⁷⁰	75	80

Workability Factor:		36	
Sieve	Sieve Cumulative % Passing		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

Production Gradation

Sample Date: 7/4/22 Concrete Grade: DM, 4500HP Dates Test Represents: 7/5/2022 7/11/2022 through

MDOT	Ν

Contractor:

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

36.4

24100 10011	topioconitoi		o a.g	.,,====		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	54.2
26A	58-003	Stoneco	200	1.19	2.69	6.8
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0
	<u> </u>	Total Wt	2950	17.68		100.0

--- Verify this number is 100%

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

	i Otai Wt	2930 17.00		100.0	< verily trils ii	uniber 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"	87.7	100.0	100.0	93.3	6.7	6.7
1/2"	53.6	99.7	100.0	74.8	18.5	25.2
3/8"	28.6	87.6	100.0	60.4	14.4	39.6
#4	5.1	20.8	98.8	42.7	17.7	57.3
#8	1.6	6.0	83.8	33.9	8.7	66.1
#16	1.0	3.2	66.2	26.6	7.4	73.4
#30	0.9	2.5	48.5	19.6	7.0	80.4
#50	0.8	2.5	24.4	10.1	9.4	89.9
#100	0.8	2.2	7.4	3.5	6.6	96.5
LBW	0.8	1.9	1.3	1.1	2.4	98.9

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.

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:	60	Workability Factor:	34	
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 41 56, 52, 34	68, 38	JMF Zone 75, 39	
Boundary 25 40 45 ActionLimits Boundary =	50 55	Coarseness Factor (%)	75, 28	80

Batch Plant Gradations

Workability Factor:		36	
Sieve	Sieve Cumulative % Passing		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

Sample Date:

Production Gradation

7/4/22 Concrete Grade: DM, 4500HP 7/11/2022

Dates Test F	Represents:	7/5/2022	through	7/11/2022		
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.:

Contractor:

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

36.6

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

	Total Wt	2905 17.69		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"	98.6	100.0	100.0	99.2	0.8	0.8
3/4"	85.5	100.0	100.0	92.0	7.2	8.0
1/2"	51.9	95.8	100.0	73.1	18.9	26.9
3/8"	30.9	82.3	100.0	60.6	12.5	39.4
#4	4.9	29.1	98.0	41.8	18.8	58.2
#8	2.3	11.0	84.6	34.1	7.8	65.9
#16	2.0	4.9	70.5	28.1	5.9	71.9
#30	1.9	3.5	52.1	21.0	7.1	79.0
#50	1.9	3.1	22.8	9.9	11.1	90.1
#100	1.8	2.9	3.6	2.6	7.3	97.4
LBW	1.5	2.5	0.4	1.2	1.4	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 Facto	or: 60	Workability Factor:	34	
45 45, 44 45, 44 45, 33 Operating Z Boundary		58, 39 Production Gradation IPS 68, 38 688, 38	75, 39	
25 + 40 45 ActionLimits Boundary = -	50 5	Coarseness Factor (%)	75	80

Batch Plant Gradations

Workability Factor:		35	
Sieve	ieve Cumulative % Passing		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

63

Sample Date:

Production Gradation

7/4/22 Concrete Grade: DM, 4500HP

-	MDOT	No.:

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

35.0

Contractor:

Dates Test F	Represents:	7/5/2022	through	7/11/2022		
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
		Total Wt	2905	17.69		100.0

--- 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"	98.6	100.0	100.0	99.2	0.8	8.0
3/4"	81.6	100.0	100.0	89.8	9.4	10.2
1/2"	37.2	98.4	100.0	65.2	24.6	34.8
3/8"	18.5	89.0	100.0	54.2	11.0	45.8
#4	3.8	21.4	96.6	40.2	14.1	59.8
#8	2.1	5.3	81.9	32.5	7.6	67.5
#16	1.9	3.1	68.5	27.2	5.3	72.8
#30	1.7	2.7	53.4	21.3	5.9	78.7
#50	1.6	2.4	28.6	11.9	9.5	88.1
#100	1.5	2.2	9.1	4.4	7.5	95.6
LBW	1.4	1.9	1.6	1.5	2.9	98.5

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:	68	Workability Factor:	33	
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 41	58, 40 68, 38 68, 38 Production of the state	JMF Zone 75, 39 etion Gradation	
25 40 45 ActionLimits Boundary =	50 55	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"	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

7/4/22

PLANT #: P-O2

Sample Date:

Production Gradation

Concrete Grade: DM, 4500HP

Contractor:

Dates Test Represents: 7/5/2022

5/2022 through 7/11/2022

		-			
N/	חו	OT	·N	\sim	•

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

35.6

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	150	0.92	2.62	5.2
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
		Total Wt	2905	17.69		100.0

<---- Verify this number is 100%

SUPERIO	

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					Tomy and the	
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"	98.6	100.0	100.0	99.2	0.8	0.8
3/4"	85.5	100.0	100.0	92.0	7.2	8.0
1/2"	51.9	95.8	100.0	73.2	18.8	26.8
3/8"	30.9	82.3	100.0	60.9	12.3	39.1
#4	4.9	29.1	96.8	42.5	18.4	57.5
#8	2.3	11.0	78.9	33.1	9.5	66.9
#16	2.0	4.9	61.3	25.6	7.4	74.4
#30	1.9	3.5	44.8	19.0	6.7	81.0
#50	1.9	3.1	24.5	10.9	8.1	89.1
#100	1.8	2.9	4.8	3.0	7.9	97.0
LBW	1.5	2.5	0.6	1.2	1.8	98.8

Aggregate SupplierGradations

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

*Any two adjacent sieves must equal 10% except max.,

nom. max., #100 and #200 sieves.

 $^{\star}\%$ 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:	58	Workability Factor:	33	
45 45, 44			JMF Zone	
40 (%)	52, 41	58, 3968, 3968, 3868,	75, 39	
45, 33 Operating Zone	52, 34	58, 31 669, 331		
25	<u> </u>		75, 28	
40 45 ActionLimits Boundary =	50 5	5 Coarseness Factor (%) ⁷⁰	75	80

Batch Plant Gradations

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"	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

PREPARED BY: SM, LLC Technical Service Approved By