Production	Gradation	Report
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PLANT #	H -	P-101					Contractor			Produ	
Sample Date		10/9/23		~	concrete Grade	DM. 4500HP	Contractor:			-	
ample Date		10/10/2023	through	10/16/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution	MDOT NO			-	
6AA	71-47	Presque Isle	1450	8.87	2.62	50.0					
26A	71-47	Presque Isle	300	1.83	2.62	10.3					
2NS	75-051	Mid Michigan	1150	6.93	2.66	39.7				SIIP	FRIOR
		Total Wt	2900	17.63		100.0	< Verify this n	umber is 100%	•	MATE	RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		30701 W. 1	Materials, LLC .0 Mile Rd.
2"	1	00.0	10	0.0	100.0	100.0	0.0	0.0]	Suite 500	
1.5"		00.0		0.0	100.0	100.0	0.0	0.0]	Farmingtor	n Hills, MI 48336
1"		00.0	100		100.0	100.0	0.0	0.0	1		
3/4"		85.7	-	0.0	100.0	92.9	7.2	7.2	4		
1/2"		44.3	95	-	100.0	71.7	21.1	28.3			
3/8" #4		27.4 3.4	86	-	100.0 96.2	62.3 42.2	9.4 20.2	37.7 57.8			above the 3/8" sieve.
#4		1.6	5.		81.5	33.7	8.5	66.3		00 and #200 sieves.	qual 10% except max.
#16		1.4	2.		67.4	27.7	6.0	72.3			for each sieve excep
#30		1.4	1.		52.1	21.5	6.1	78.5		00 and #200 sieves.	-
#50		1.3	1.	-	25.6	11.0	10.6	89.0			for the 3/4" sieve whe
#100		1.3	1.	5	6.6	3.4	7.5	96.6		ze (nom. Max. 1.0") a	
LBW		1.1	1.	3	0.8	1.0	2.4	99.0]		
						T					
	radation	O Batch Plant Grad	ations 💿 Aggr	egate Supplier Grad	ations	Adjusted WF	Initial Producti	ion Sample (IP	S)		
roduction G	radation	Batch Plant Grad 57	© Aggi			Adjusted WF 36.2		ion Sample (IP: eness Factor:	· · · · · · · · · · · · · · · · · · ·	1	
roduction G Coarsene	Taualion	-	© Aggi	ability Factor:		,	Coars		,]	
roduction G	Taualion	-	© Aggi			,	Coars	eness Factor: ability Factor: Cumulative	62	Cumulative % Retained	
Coarsene	ess Factor:	-	© Aggi		34	,	Coars Work	eness Factor: ability Factor:	62 35 %		
45 40 40	ess Factor:	57	© Aggi	67, 39	34	,	Coars Work Sieve	eness Factor: ability Factor: Cumulative % Passing	62 35 % Retained	% Retained	
45 40 40	ess Factor:	57	© Aggi		34	,	Coars Work Sieve 2"	eness Factor: ability Factor: Cumulative % Passing 100.0	62 35 % Retained 0.0	% Retained 0.0	
45 40 40	ess Factor:	57	© Aggi	ability Factor:	34	,	Coarse Works Sieve 2" 1.5" 1" 3/4"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	62 35 % Retained 0.0 0.0 0.0 0.0 5.0	% Retained 0.0 0.0 0.0 5.0	
45 40 40	ess Factor:	52, 41	57, 39	ability Factor:	34	,	Coarse Works Sieve 2" 1.5" 1" 3/4" 1/2"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 70.5	62 35 % Retained 0.0 0.0 0.0 5.0 24.5	% Retained 0.0 0.0 0.0 5.0 29.5	
45 40 40	45, 44	57	57, 39	ability Factor:	34	,	Coarse Works Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 70.5 60.0	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5	% Retained 0.0 0.0 0.0 29.5 40.0	
roduction G Coarsene	ess Factor:	52, 41	57, 39	67, 39 68, 38 Badation	34 JMF Zone 75, 39	,	Coarse Works Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 95.0 70.5 60.0 44.4	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5 15.6	% Retained 0.0 0.0 0.0 29.5 40.0 55.6	
roduction G Coarsene	45, 44	52, 41	57, 39	ability Factor:	34 JMF Zone 75, 39	,	Coarse Work: Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 95.0 70.5 60.0 44.4 35.5	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5 15.6 9.0	% Retained 0.0 0.0 0.0 29.5 40.0 55.6 64.5	
45 40 40	45, 44 45, 33 Operating Zone	52, 41	57, 39	67, 39 68, 38 Badation	34 JMF Zone 75, 39	,	Coarse Work: Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 95.0 70.5 60.0 44.4 35.5 28.5	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5 15.6 9.0 7.0	% Retained 0.0 0.0 0.0 0.0 5.0 29.5 40.0 55.6 64.5 71.5	
Workability Factor (%)	45, 44 45, 33	52, 41	57, 39	67, 39 68, 38 Badation	34 JMF Zone 75, 39	,	Coarse Work: Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 95.0 70.5 60.0 44.4 35.5 28.5 28.5 21.5	62 35 % Retained 0.0 0.0 5.0 24.5 10.5 15.6 9.0 7.0 7.0	% Retained 0.0 0.0 0.0 0.0 5.0 29.5 40.0 55.6 64.5 71.5 78.5	
Production G Coarsene	45, 44 45, 33 Operating Zone	57	57, 39 Produeti@0,3	67, 39 68, 38 Badation	34 JMF Zone 75, 39	,	Coarse Work: Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 95.0 70.5 60.0 44.4 35.5 28.5	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5 15.6 9.0 7.0	% Retained 0.0 0.0 0.0 0.0 5.0 29.5 40.0 55.6 64.5 71.5	



PLANT	#:	P-102					Contractor:				
Sample Date):	10/9/23		C	Concrete Grade:	DM, 4500HP					
Dates Test F	Represents:	10/10/2023	through	10/16/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1400	8.34	2.69	47.5					
26A	58-003	Stoneco	400	2.38	2.69	13.6					
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SUP	ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	1		RIALS
Sieve	(6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
2"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	100		100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		00.0	100	0.0	100.0	100.0	0.0	0.0			
3/4"		80.4	100	0.0	100.0	90.7	9.3	9.3			
1/2"	:	35.6	99	.4	100.0	69.4	21.3	30.6			
3/8"		12.1	87	.6	100.0	56.6	12.8	43.4	*Maximum %	Retained must be	above the 3/8" sieve
#4		2.0	7.	5	98.8	40.5	16.1	59.5	*Any two adja	icent sieves must e	equal 10% except ma
#8		1.5	2.	5	85.6	34.4	6.1	65.6	nom. max., #1	00 and #200 sieve	6.
#16		1.5	2.	2	66.6	27.0	7.4	73.0	*% Retained	must be at least 4%	6 for each sieve exce
#30		1.4	2.		45.5	18.7	8.3	81.3	nom. max., #1	00 and #200 sieve	6.
#50		1.3	1.	9	20.9	9.0	9.7	91.0	*% Retained	must be at least 4%	6 for the 3/4" sieve wi
#100		1.2	1.		3.4	2.1	6.9	97.9	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
LBW		0.9	1.	7	0.5	0.9	1.3	99.1			
Production G	Gradation	O Batch Plant Grad	lations Aggre 	egate Supplier Grad	lations	Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarsene	ess Factor:	66	Work	ability Factor:	34	36.9	Coars	eness Factor:	61		
45							Work	ability Factor:	36		
-	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
1							Sleve	% Passing	Retained	% Retained	
10		52, 41 	40	67.40			2"	100.0	0.0	0.0	
इ ⁴⁰]				68, 38	75, 39		1.5"	100.0	0.0	0.0	
- (°			i	1			1"	99.3	0.7	0.7	
e l			∎ 60 β§	Production	n Gradation		3/4"	89.2	10.1	10.8	
B 35			i	!			1/2"	70.7	18.5	29.3	
2		52, 34	+	i			3/8"	60.7	10.0	39.3	
ili j	45, 33	56,					#4	44.4	16.3	55.6	
			52	67, 32 , 31			#8	35.9	8.5	64.1	
Workability Factor (%)	Operating Zone						#16	27.3	8.6	72.7	
Ň	Boundary				75, 28		#30	19.1	8.2	80.9	
·							#50	74	11 7	92.6	

75

80

#50

#100

LBW

7.4

1.9

0.7

11.7

5.6

1.2

92.6

98.1

99.3



sieve. ept max., e except max., ieve when ised.

PREPARED BY: SM, LLC Technical Service

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ActionLimits Boundary = - - - - -

60 **Coarseness Factor (%)**

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PLANT :	#:	P-103					Contractor:			-	
Sample Date):	10/9/23		C	concrete Grade	DM, 4500HP					
Dates Test R	Represents:	10/10/2023	through	10/16/2023			MDOT No.:			_	
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1400	8.34	2.69	47.5					
26A	58-003	Stoneco	400	2.38	2.69	13.6					
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SUP	ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	1	MATE	RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
2"		100.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		100.0	100		100.0	100.0	0.0	0.0]	Farmingto	n Hills, MI 48336
1"		100.0	100		100.0	100.0	0.0	0.0			
3/4"		80.4	100		100.0	90.7	9.3	9.3			
1/2"		35.6	99		100.0	69.4	21.3	30.6			
3/8"		12.1	87	-	100.0	56.6	12.8	43.4	*Maximum %	Retained must be	above the 3/8" sieve.
#4		2.0	7.		98.8	40.5	16.1	59.5			equal 10% except max
#8		1.5	2.	-	85.6	34.4	6.1	65.6	· · · ·	00 and #200 sieve	
#16		1.5	2.		66.6	27.0	7.4	73.0			% for each sieve excep
#30		1.4	2.		45.5	18.7	8.3	81.3	· · · · ·	00 and #200 sieve	
#50		1.3	1.	9	20.9	9.0	9.7	91.0	*% Retained	must be at least 4%	% for the 3/4" sieve whe
		1.0	1	0	0.4	0.4	<u> </u>	07.0			
#100		1.2	1.		3.4	2.1	<u>6.9</u>	97.9 99.1	a 1.5" max. siz		aggregate is used.
#100 LBW		0.9	1.		0.5	0.9	1.3	99.1	J		aggregate is used.
#100 LBW Production G		0.9 O Batch Plant Grad	1. ations	7 egate Supplier Grad	0.5 ations	0.9 Adjusted WF	1.3 Intial Production	99.1 on Sample (IPS	5)		aggregate is used.
#100 LBW Production G Coarsene	Gradation Cass Factor:	0.9	1. ations	7	0.5	0.9	1.3 Intial Productio Coars	99.1 on Sample (IPS eness Factor:	61		aggregate is used.
#100 LBW Production G Coarsene	ess Factor:	0.9 O Batch Plant Grad	1. ations	7 egate Supplier Grad	0.5 ations 34	0.9 Adjusted WF	1.3 Intial Productio Coars	99.1 on Sample (IPS eness Factor: ability Factor:	5) 61 36	ze (nom. Max. 1.0")	aggregate is used.
#100 LBW Production G Coarsene		0.9 O Batch Plant Grad	1. ations	7 egate Supplier Grad	0.5 ations	0.9 Adjusted WF	1.3 Intial Productio Coars	99.1 on Sample (IPS eness Factor: ability Factor: Cumulative	61 36 %	ze (nom. Max. 1.0") Cumulative	aggregate is used.
#100 LBW Production G Coarsene	ess Factor:	0.9 O Batch Plant Grad	1. ations	7 egate Supplier Grad	0.5 ations 34	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve	99.1 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing	61 61 36 % Retained	ce (nom. Max. 1.0") Cumulative % Retained	aggregate is used.
#100 LBW roduction G Coarsene	ess Factor:	0.9 O Batch Plant Grad 66	1. ations	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve 2"	99.1 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0	61 36 % Retained 0.0	ce (nom. Max. 1.0") Cumulative % Retained 0.0	aggregate is used.
#100 LBW Production G Coarsene	ess Factor:	0.9 O Batch Plant Grad 66	1. ations	7 egate Supplier Grad	0.5 ations 34	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve	99.1 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	61 61 36 % Retained	ce (nom. Max. 1.0") Cumulative % Retained	aggregate is used.
#100 LBW Production G Coarsene	ess Factor:	0.9 O Batch Plant Grad 66	1. ations Aggre Work	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone 75, 39	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve 2" 1.5"	99.1 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0	61 36 % Retained 0.0 0.0	c (nom. Max. 1.0") Cumulative % Retained 0.0 0.0	aggregate is used.
#100 LBW Production G Coarsene	ess Factor:	0.9 O Batch Plant Grad 66	1. ations	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone 75, 39	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve 2" 1.5" 1"	99.1 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3	5) 61 36 % Retained 0.0 0.0 0.0 0.7	c (nom. Max. 1.0") Cumulative % Retained 0.0 0.0 0.0 0.7	aggregate is used.
#100 LBW Production G Coarsene 45 40 40 40 40 40 40 40	ess Factor:	0.9 O Batch Plant Grad 66	1. ations Aggre Work	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone 75, 39	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4"	99.1 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2	61 36 % Retained 0.0 0.0 0.0 0.7 10.1	cumulative % Retained 0.0 0.0 0.7 10.8	aggregate is used.
H100 LBW Coarsene 45 40 40 35	ess Factor:	0.9 O Batch Plant Grad 66 52, 41 52, 41 56 52, 34	1. ations Aggre Work 40 • 60µ38	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone 75, 39	0.9 Adjusted WF	1.3Intial ProductionCoarseWorketSieve2"1.5"1"3/4"1/2"	99.1 on Sample (IPS eness Factor: ability Factor: % Passing 100.0 100.0 99.3 89.2 70.7	61 36 % Retained 0.0 0.0 0.7 10.1 18.5	cumulative % Retained 0.0 0.0 0.7 10.8 29.3	aggregate is used.
H100 LBW Coarsene 45 40 40 35	45, 44	0.9 O Batch Plant Grad 66 52, 41 52, 41 56	1. ations Aggre Work 40 • 60µ38	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone 75, 39	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	99.1 on Sample (IPS eness Factor: ability Factor: % Passing 100.0 100.0 99.3 89.2 70.7 60.7	61 36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0	Cumulative % Retained 0.0 0.7 10.8 29.3 39.3	aggregate is used.
#100 LBW Production G Coarsene 45 40 40 40 40 40 40 40	45, 44 45, 33	0.9 O Batch Plant Grad 66 52, 41 52, 34 52, 34 55, 41 55, 41 55, 41 55, 41 55, 41 55, 41 55, 56, 56	1. ations Aggre Work 40 • 60µ38	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone 75, 39	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	99.1 on Sample (IPS eness Factor: ability Factor: % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4	61 36 % Retained 0.0 0.7 10.1 18.5 10.0 16.3	Cumulative % Retained 0.0 0.7 10.8 29.3 39.3 55.6	aggregate is used.
#100 LBW Production G Coarsene 45 40 40 40 40 40 40 40	45, 44	0.9 O Batch Plant Grad 66 52, 41 52, 34 52, 34 55, 41 55, 41 55, 41 55, 41 55, 41 55, 41 55, 56, 56	1. ations Aggre Work 40 • 60µ38	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone 75, 39	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	99.1 on Sample (IPS eness Factor: ability Factor: % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4 35.9	61 36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5	cumulative % Retained 0.0 0.7 10.8 29.3 39.3 55.6 64.1	aggregate is used.
Morkability Factor (%)	45, 44 45, 33 Operating Zone	0.9 O Batch Plant Grad 66 52, 41 52, 34 52, 34 55, 41 55, 41 55, 41 55, 41 55, 41 55, 41 55, 56, 56	1. ations Aggre Work 40 • 60µ38	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone 75, 39 o Gradation	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30 #50	99.1 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4 35.9 27.3 19.1 7.4	61 36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5 8.6 8.2 11.7	e (nom. Max. 1.0") Cumulative % Retained 0.0 0.0 0.7 10.8 29.3 39.3 55.6 64.1 72.7 80.9 92.6	aggregate is used.
H100 LBW Coarsene 45 40 40 40 35	45, 44 45, 33 Operating Zone	0.9 O Batch Plant Grad 66 52, 41 52, 34 52, 34 55, 41 55, 41 55, 41 55, 41 55, 41 55, 41 55, 56, 56	1. ations Aggre Work 40 • 60µ38	7 egate Supplier Grad ability Factor:	0.5 ations 34 JMF Zone 75, 39 o Gradation	0.9 Adjusted WF	1.3 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	99.1 on Sample (IPS eness Factor: ability Factor: % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4 35.9 27.3 19.1	61 36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5 8.6 8.2	e (nom. Max. 1.0") Cumulative % Retained 0.0 0.0 0.7 10.8 29.3 39.3 55.6 64.1 72.7 80.9	aggregate is used.

Approved BY: May 1. Ball

PLANT	#:	14	_				Contractor:				
Sample Date	e:	10/9/23		С	oncrete Grade	DM, 4500HP					
Dates Test F	Represents:	10/10/2023	through	10/16/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution				5	
6AA	58-003	Stoneco	1400	8.34	2.69	47.3					
26A	58-003	Stoneco	460	2.74	2.69	15.5				Ш	
2NS	19-04	Schlegel	1100	6.60	2.67	37.2				Bui	lders'
		Total Wt	2960	17.68		100.0	< Verify this n	umber is 100%		Finish Fi	st With Builders'
Sieve	(6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Builders I</u> 30701 W.	
2"	1	00.0	10	0.0	100.0	100.0	0.0	0.0	1	Suite 500	
1.5"		00.0	10		100.0	100.0	0.0	0.0	1	Farmingto	n Hills, MI 48336
1"	1	00.0	10	0.0	100.0	100.0	0.0	0.0	1		
3/4"	8	30.4	10	0.0	100.0	90.7	9.3	9.3	1		
1/2"		35.6	99	.4	100.0	69.4	21.3	30.6]		
3/8"		12.1	87	.6	100.0	56.5	12.9	43.5	*Maximum %	Retained must be	above the 3/8" sieve.
#4		2.0	7.	5	100.0	39.3	17.2	60.7	*Any two adja	icent sieves must e	equal 10% except max.
#8		1.5	2		86.3	33.2	6.1	66.8	nom. max., #1	00 and #200 sieve	6.
#16		1.5	2		68.6	26.5	6.6	73.5	*% Retained	must be at least 4%	6 for each sieve except
#30		1.4	2		50.6	19.8	6.8	80.2	nom. max., #1	00 and #200 sieve	3.
#50		1.3	1.		15.7	6.7	13.0	93.3	*% Retained	must be at least 4%	6 for the 3/4" sieve whe
#100		1.2	1.	-	3.2	2.0	4.7	98.0	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
LBW		0.9	1.		0.8	1.0	1.0	99.0	J		
roduction G		O Batch Plant Gra	- 55	egate Supplier Grada				on Sample (IPS	1		
Coarsen	ess Factor:	65	Work	ability Factor:	33	35.7	Coars	eness Factor:	63		
45							Work	ability Factor:	36		
	45, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	
-		52, 41	57,40	68, 40			2"	100.0	0.0	0.0	
ू ⁴⁰]					75, 39		1.5"	100.0	0.0	0.0	
<u>ک</u>				68, 38	Ĭ		1"	99.3	0.7	0.7	
ן ק			I ■ 60.36				3/4"	89.0	10.3	11.0	
Factor (%)			- 00, 30	PS Production G	radation		1/2"	70.3	18.7	29.7	
	\rightarrow	52, 34					3/8"	59.9	10.4	40.1	
iti i	45, 33						#4	41.9	18.0	58.1	
			51, 62	68, 32			#8	35.9	6.0	64.1	
apil 30		7					#16	27.8	8.2	72.2	
orkabil	Operating Zone						#30	18.9	8.8	81.1	
Norkabil	Operating Zone Boundary				75, 28						
Nork					75, 28		#50	6.3	12.6	93.7	
25 40		50 55	5 60	⁶⁵ Factor (%)	75, 28 75	80	#50 #100 LBW	6.3 1.7 1.0	12.6 4.6 0.7	93.7 98.3 99.0	

Approved By: Marthe Ball

PLANT a	#:	12	-				Contractor:				
Sample Date):	10/9/23	_	(Concrete Grade	DM, 4500HP					
Dates Test R	Represents:	10/10/2023	through	10/16/2023			MDOT No.:				
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	63-115	Ray Rd	1150	6.95	2.65	39.6				SUD	FRIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	1	MATE	RIALS
Sieve	(6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior N</u> 30701 W. 1	Materials, LLC .0 Mile Rd.
2"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"	1	00.0	100		100.0	100.0	0.0	0.0		Farmingtor	n Hills, MI 48336
1"		96.1	100		100.0	98.1	1.9	1.9			
3/4"		72.5	100		100.0	86.3	11.8	13.7			
1/2"		30.7	93		100.0	64.7	21.6	35.3	1		
3/8"		16.4	81		100.0	56.3	8.3	43.7			above the 3/8" sieve.
#4		3.1	19		96.4	41.7	14.6	58.3	, ,		equal 10% except max.
#8		2.2	4.		81.7	33.9	7.8	66.1	-	00 and #200 sieves	
#16 #30		1.9 1.8	2.		66.4 49.7	27.5 20.8	6.4 6.7	72.5 79.2			6 for each sieve except
#30 #50		1.8	1.		24.5	10.8	10.0	79.2 89.2		00 and #200 sieves	3. 6 for the 3/4" sieve whe
#100		1.7	1.		5.7	3.3	7.5	96.7			aggregate is used.
LBW		1.2	1.		0.6	1.0	2.3	99.0			aggrogato lo acoa.
Production G	Gradation	Batch Plant Grace	lations Aggregation 	egate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	3)		
Coarsene	ess Factor:	66	Work	ability Factor	34	36.4	Coars	eness Factor:	63		
45				•			Work	ability Factor:	36		
- 4	45, 44	50.44			JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	
40		52, 41	57, 40	68, 40			2"	100.0	0.0	0.0	
≈				68, 38	75, 39		1.5"	100.0	0.0	0.0	
Factor (%)							1"	99.3	0.7	0.7	
35 J			■ 60, 36	PS Productio	n Gradatior		3/4"	89.0	10.3	11.0	
E 30 -				i			1/2"	70.3	18.7	29.7	
ity	45, 33	52, 34	1				3/8"	59.9	10.4	40.1	
pil .			57, 22	68, 32 68, 31			#4	41.9	18.0	58.1	
0° i i	ļ	_		00, 31			#8	35.9	6.0	64.1	
Workability	Operating Zone				75, 28		#16	27.8	8.2	72.2	
	Boundary				70,20		#30 #50	18.9 6.3	8.8 12.6	81.1 93.7	
25	AE						#50 #100	0.3 1.7	4.6	93.7	
40	45	50 55	Coarseness	Factor (%)	75	80	LBW	1.7	4.6	98.3	
								1.0	0.7	00.0	

Approved By:

Mart P. Ball

	#:	p11					Contractor:				
Sample Date	e:	10/9/23		C	Concrete Grade	DM, 4500HP					
Dates Test R	Represents:	10/10/2023	through	10/16/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1355	8.29	2.62	46.6					
26A	71-47	Presque Isle	400	2.45	2.62	13.8					
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6				SUP	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%			RIALS
Sieve	(6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		30701 W. 1	Materials, LLC 10 Mile Rd.
2"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	100		100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		97.8	100		100.0	99.0	1.0	1.0			
3/4"		73.9	100		100.0	87.8	11.1	12.2			
1/2"		27.8	93		100.0	65.4	22.5	34.6			
3/8"		13.7	81		100.0	57.2	8.2	42.8			above the 3/8" sieve.
#4 #8		2.7	4.	0.2	96.9 86.2	42.3 35.7	14.9 6.5	57.7 64.3			qual 10% except max.
#o #16		2.0	4.		71.5	29.6	6.2	70.4		00 and #200 sieves	
#10		1.9	1.		52.6	29.0	7.6	78.0		10 and #200 sieves	6 for each sieve except
#50 #50		1.8	1.		24.4	10.7	11.2	89.3			». 6 for the 3/4" sieve whe
#100		1.7	1.		7.0	3.8	6.9	96.2			aggregate is used.
LBW											55 5
		1.3	1.	.5	1.3	1.3	2.5	98.7			
	Gradation	1.3 Batch Plant Grac		5 egate Supplier Grad	-	-		98.7 on Sample (IPS	6)		
Production G	Gradation		lations Aggreen 		-	-	Intial Production		5) 62		
Production G Coarsene	laualion	O Batch Plant Grac	lations Aggreen 	egate Supplier Grad	ations	Adjusted WF	Intial Productio Coars	on Sample (IPS eness Factor:	/		
Production G Coarsene	laualion	Batch Plant Grac 67	lations Aggreen 	egate Supplier Grad	ations	Adjusted WF	Intial Productio Coars	on Sample (IPS	62	Cumulative % Retained	
Coarsene	ess Factor:	O Batch Plant Grac	lations Aggreen 	egate Supplier Grad	ations 36 JMF Zone	Adjusted WF	Intial Productio Coars Work	on Sample (IPS eness Factor: ability Factor: Cumulative	62 36 %		
45 40	ess Factor:	Batch Plant Grac 67	lations Aggreen 	egate Supplier Grad cability Factor: 67, 40	36 JMF Zone	Adjusted WF	Intial Productio Coars Work Sieve	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing	62 36 % Retained	% Retained	
Coarsene	ess Factor:	Batch Plant Grac 67	lations Aggreen 	egate Supplier Grad cability Factor: 67, 40	ations 36 JMF Zone	Adjusted WF	Intial Productio Coars Work Sieve 2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0	62 36 % Retained 0.0 0.0 0.0	% Retained	
45 40	ess Factor:	Batch Plant Grac 67	lations Aggreen 	egate Supplier Grad cability Factor: 67, 40 Front Content 67, 40	36 JMF Zone	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1" 3/4"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0	62 36 % Retained 0.0 0.0 0.0 0.0 5.0	% Retained 0.0 0.0 0.0 5.0	
Lactor G Coarsene 45 40 40 35 35	ess Factor:	Batch Plant Grac 67 52, 41 52, 41 54	ations Aggre Work	egate Supplier Grad cability Factor: 67, 40 Front Content 67, 40	36 JMF Zone	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1.5" 1" 3/4" 1/2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3	62 36 % Retained 0.0 0.0 0.0 5.0 22.8	% Retained 0.0 0.0 0.0 5.0 27.7	
Lactor (%) 45 40 40 40 40 40 40 40 40 40 40 40	ess Factor:	Batch Plant Grac 67	ations Aggre Work	egate Supplier Grad cability Factor: 67, 40 Front Content 67, 40	36 JMF Zone	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3 60.4	62 36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8	% Retained 0.0 0.0 0.0 5.0 27.7 39.6	
Lactor (%) 45 40 40 40 40 40 40 40 40 40 40 40	45, 44	Batch Plant Grac 67 52, 41 52, 41 54	ations Aggre Work	egate Supplier Grad cability Factor: 67, 40 67, 40 Fro ⁶⁸ u ²⁸ S	36 JMF Zone	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6	62 36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8 17.8	% Retained 0.0 0.0 5.0 27.7 39.6 57.4	
Lactor (%) 45 40 40 40 40 40 40 40 40 40 40 40	45, 44	Batch Plant Grac 67 52, 4 52, 34	ations Aggre Work	egate Supplier Grad cability Factor: 67, 40 Front Content 67, 40	36 JMF Zone	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	on Sample (IPS eness Factor: ability Factor: % Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0	62 36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8 17.8 6.6	% Retained 0.0 0.0 5.0 27.7 39.6 57.4 64.0	
Hactor (%) 45 45 40 40 40 40 40 40 40 40 40 40 40 40	45, 44 45, 44 45, 33 Operating Zone	Batch Plant Grac 67 52, 4 52, 34	ations Aggre Work	egate Supplier Grad cability Factor: 67, 40 67, 40 Fro ⁶⁸ u ²⁸ S	36 JMF Zone	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	on Sample (IPS eness Factor: ability Factor: % Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5	62 36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8 17.8 6.6 6.5	% Retained 0.0 0.0 0.0 27.7 39.6 57.4 64.0 70.5	
Morkability Factor (%)	45, 44	Batch Plant Grac 67 52, 4 52, 34	ations Aggre Work	egate Supplier Grad cability Factor: 67, 40 67, 40 Fro ⁶⁸ u ²⁸ S	JMF Zone 75, 39 on Gradation	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	on Sample (IPS eness Factor: ability Factor: % Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5 20.3	62 36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8 17.8 6.6 6.5 9.2	% Retained 0.0 0.0 0.0 0.0 5.0 27.7 39.6 57.4 64.0 70.5 79.7	
Hactor (%) 45 45 40 40 40 40 40 40 40 40 40 40 40 40 40	45, 44 45, 44 45, 33 Operating Zone	Batch Plant Grac 67 52, 4 52, 34	lations	egate Supplier Grad cability Factor: 67, 40 67, 40 Fro ⁶⁸ u ²⁸ S	JMF Zone 75, 39 on Gradation	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	on Sample (IPS eness Factor: ability Factor: % Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5	62 36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8 17.8 6.6 6.5	% Retained 0.0 0.0 0.0 27.7 39.6 57.4 64.0 70.5	

Approved By: Mart P. Ball

PLANT :	#:	P-32					Contractor:				
Sample Date	e:	10/9/23	-	С	oncrete Grade	: DM, 4500HP					
Dates Test F	Represents:	10/10/2023	through	10/16/2023			MDOT No.:			_	
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1355	8.29	2.62	46.6					
26A	71-47	Presque Isle	400	2.45	2.62	13.8					
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6				SUD	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		MATE	RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			<u>Materials, LLC</u> 10 Mile Rd.
2"	1	00.0	100).0	100.0	100.0	0.0	0.0		Suite 500	
1.5"	1	00.0	100).0	100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		97.8	100).0	100.0	99.0	1.0	1.0			
3/4"		73.9	100).0	100.0	87.8	11.1	12.2			
1/2"		27.8	93	.0	100.0	65.4	22.5	34.6			
3/8"		13.7	81	.5	100.0	57.2	8.2	42.8	*Maximum %	Retained must be	above the 3/8" sieve.
#4		2.7	19		96.9	42.3	14.9	57.7	*Any two adja	acent sieves must e	equal 10% except max.
#8		2.1	4.		86.2	35.7	6.5	64.3	nom. max., #1	00 and #200 sieves	3.
#16		2.0	2.		71.5	29.6	6.2	70.4	*% Retained	must be at least 4%	6 for each sieve except
#30		1.9	1.		52.6	22.0	7.6	78.0		00 and #200 sieves	
#50		1.8	1.		24.4	10.7	11.2	89.3			6 for the 3/4" sieve whe
#100 LBW		<u>1.7</u> 1.3	1.		7.0	3.8	6.9 2.5	96.2 98.7	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
roduction G	radation	 Batch Plant Grad 		egate Supplier Grada				on Sample (IPS	2)		
		67		ability Factor:	36	38.2		eness Factor:	62	l	
Coarsene		07	Work			JO.Z					
	.331 40101.	07	Work		••	30.2	Work	ability Factor:	36		
45	45, 44	07	Work		JMF Zone		Work: Sieve	ability Factor: Cumulative % Passing	%	Cumulative % Retained	
45		52, 41	Work				Sieve	Cumulative % Passing	% Retained	% Retained	
45			Work	67, 40	JMF Zone			Cumulative % Passing 100.0	% Retained 0.0	% Retained 0.0	
45			Work	67, 40	JMF Zone		Sieve 2"	Cumulative % Passing	% Retained	% Retained	
45			6.40 <u> </u>	67, 40	JMF Zone		Sieve 2" 1.5"	Cumulative % Passing 100.0 100.0	% Retained 0.0 0.0	% Retained 0.0 0.0	
45			• 60, 38	67, 40	JMF Zone		Sieve 2" 1.5" 1"	Cumulative % Passing 100.0 100.0 100.0	% Retained 0.0 0.0 0.0	% Retained 0.0 0.0 0.0	
45			6.40 <u> </u>	67, 40	JMF Zone		Sieve 2" 1.5" 1" 3/4"	Cumulative % Passing 100.0 100.0 100.0 95.0	% Retained 0.0 0.0 0.0 5.0	% Retained 0.0 0.0 0.0 5.0	
45		52, 41 5	6.40 <u> </u>	67, 40 Βιρόθυζετο S	JMF Zone		Sieve 2" 1.5" 1" 3/4" 1/2"	Cumulative % Passing 100.0 100.0 100.0 95.0 72.3	% Retained 0.0 0.0 0.0 5.0 22.8	% Retained 0.0 0.0 0.0 5.0 27.7	
45	45, 44	52, 41 5	6.40 <u> </u>	67, 40	JMF Zone		Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	Cumulative % Passing 100.0 100.0 100.0 95.0 72.3 60.4	% Retained 0.0 0.0 0.0 5.0 22.8 11.8	% Retained 0.0 0.0 0.0 5.0 27.7 39.6	
45	45, 44	52, 41 5	6.40 <u> </u>	67, 40 Βιρόθυζετο S	JMF Zone		Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	Cumulative % Passing 100.0 100.0 95.0 72.3 60.4 42.6	% Retained 0.0 0.0 5.0 22.8 11.8 17.8	% Retained 0.0 0.0 5.0 27.7 39.6 57.4	
45	45, 44	52, 41 5	6.40 <u> </u>	67, 40 Βιρόθυζετο S	JMF Zone		Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	Cumulative % Passing 100.0 100.0 95.0 72.3 60.4 42.6 36.0	% Retained 0.0 0.0 5.0 22.8 11.8 17.8 6.6	% Retained 0.0 0.0 5.0 27.7 39.6 57.4 64.0	
Workability Factor (%)	45, 44 45, 33 Operating Zone	52, 41 5	6.40 <u> </u>	67, 40 Βιρόθυζετο S	75, 39 n Gradatidn		Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30 #50	Cumulative % Passing 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5 20.3 9.5	% Retained 0.0 0.0 0.0 22.8 11.8 17.8 6.6 6.5 9.2 10.8	% Retained 0.0 0.0 0.0 5.0 27.7 39.6 57.4 64.0 70.5 79.7 90.5	
(ability Factor (%)	45, 44 45, 33 Operating Zone	52, 41 5	6. 40 60, 383 5, 92	67, 40 Βιρόθυζετο S	75, 39 n Gradatidn	80	Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	Cumulative % Passing 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5 20.3	% Retained 0.0 0.0 0.0 22.8 11.8 17.8 6.6 6.5 9.2	% Retained 0.0 0.0 0.0 0.0 5.0 27.7 39.6 57.4 64.0 70.5 79.7	

Approved By: Mart P. Ball

PLANT a	#:	P-35					Contractor:			-	
Sample Date	:	10/9/23		C	Concrete Grade:	DM, 4500HP					
Dates Test R	epresents:	10/10/2023	through	10/16/2023			MDOT No.:			_	
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1400	8.34	2.69	47.5					
26A	58-003	Stoneco	400	2.38	2.69	13.6					
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SUP	ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	•	MATE	RIALS
Sieve	1	6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		30701 W.	Materials, LLC 10 Mile Rd.
2"		00.0	100		100.0	100.0	0.0	0.0		Suite 500	- UIL- NAL 4000C
1.5"		00.0	100		100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		00.0	100	-	100.0	100.0	0.0	0.0			
3/4"		80.4	100		100.0	90.7	9.3	9.3			
1/2"		35.6	99		100.0	69.4	21.3	30.6			
3/8"		12.1	87		100.0	56.6	12.8	43.4	*Maximum %	Retained must be	above the 3/8" sieve.
#4		2.0	7.		98.8	40.5	16.1	59.5	*Any two adja	acent sieves must e	equal 10% except max.,
#8		1.5	2.	-	85.6	34.4	6.1	65.6	nom. max., #1	00 and #200 sieve	S.
#16		1.5	2.		66.6	27.0	7.4	73.0			% for each sieve except
#30		1.4	2.		45.5	18.7	8.3	81.3		00 and #200 sieve	
#50		1.3	1.	-	20.9	9.0	9.7	91.0			% for the 3/4" sieve when
#100		1.2	1.		3.4	2.1	6.9	97.9	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
LBW		0.9	1.	-	0.5	0.9	1.3	99.1	J		
Production G	radation	O Batch Plant Grad	lations Aggre 	gate Supplier Grad	ations	Adjusted WF	Intial Producti	on Sample (IPS	S)	_	
Coarsene	ess Factor:	66	Work	ability Factor:	34	36.9	Coars	eness Factor:	61		
							Work	ability Factor:	36		
45					JMF Zone		<u>.</u>	Cumulative	%	Cumulative	
	45, 44				JIVII ZOILE		Sieve	% Passing	Retained	% Retained	
-		52, 41					2"	100.0	0.0	0.0	
उ ⁴⁰		56,			75, 39		1.5"	100.0	0.0	0.0	
٤				68, 38	ľ		1"	99.3	0.7	0.7	
Ď			60.26	Production	n Gradation		3/4"	89.1	10.2	10.9	
Factor (%)			■ 60, ₁ 36				1/2"	70.5	18.6	29.5	
		52, 34	+				3/8"	60.5	10.0	39.5	
lit	45, 33		!				#4	44.1	16.4	55.9	
ap 30		56,	31	67, 88 , 31			#8	35.6	8.5	64.4	
¥ iii	I Operating Zone						#16	27.7	7.9	72.3	
₽ II	Boundary				75, 28		#30	20.6	7.1	79.4	
- 1							#50	8.7	11.8	91.3	

75

80

#50

#100

LBW

8.7

1.6

1.1

11.8

7.1

0.6

91.3

98.4

98.9

PREPARED BY: SM, LLC Technical Service

45

ActionLimits Boundary = - - - - -

50

60 **Coarseness Factor (%)**

55

25

40

Approved By: Mart P. Ball

PLANT :		P-36					Contractor:				
Sample Date	:	10/9/23		C	concrete Grade:	DM, 4500HP					
Dates Test R	Represents:	10/10/2023	through	10/16/2023			MDOT No.:				
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	63-92	Grange Hall	1150	6.95	2.65	39.6				SUP	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%			FIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			<u>Materials, LLC</u> 10 Mile Rd.
2"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	100		100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		96.1	100).0	100.0	98.1	1.9	1.9			
3/4"		72.5	100	0.0	100.0	86.3	11.8	13.7			
1/2"		30.7	93	.0	100.0	64.7	21.6	35.3			
3/8"		16.4	81	.5	100.0	56.3	8.3	43.7	*Maximum %	Retained must be	above the 3/8" sieve.
#4		3.1	19	.2	97.6	42.2	14.1	57.8	*Any two adja	acent sieves must e	equal 10% except max.
#8		2.2	4.	6	84.0	34.8	7.4	65.2	nom. max., #1	00 and #200 sieve	s.
#16		1.9	2.	4	69.4	28.7	6.2	71.3	*% Retained	must be at least 49	% for each sieve except
#30		1.8	1.		50.7	21.2	7.5	78.8	nom. max., #1	00 and #200 sieve	s.
#50		1.8	1.	-	20.4	9.2	12.0	90.8	*% Retained	must be at least 4%	% for the 3/4" sieve when
#100		1.7	1.		2.9	2.2	7.0	97.8	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
LBW		1.2	1.	-	0.7	1.0	1.1	99.0			
Production G	aualion	O Batch Plant Grac	- 55	egate Supplier Grad		,		on Sample (IPS	<u> </u>		
Coarsene	ess Factor:	67	Work	ability Factor:	35	37.3	Coars	eness Factor:	63		
45							Work	ability Factor:	35		
	45, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	
		52, 41	+				2"	100.0	0.0	0.0	
२ ⁴⁰ ।			58, 39	68, 38	75, 39		1.5"	100.0	0.0	0.0	
ల -			ļ		on Gradation		1"	99.1	0.9	0.9	
ē			∎ 60, 36		on Grauaton		3/4"	90.3	8.8	9.7	
8 35 -				IPS			1/2"	69.2	21.1	30.8	
<u>ь</u>	\rightarrow	52, 34		i			3/8"	59.1	10.1	40.9	
Workability Factor (%)	45, 33						#4	41.8	17.3	58.2	
a 30			58, 31	68 , ³ 31			#8	35.1	6.6	64.9	
ž	Operating Zone						#16	28.5	6.6	71.5	
	Boundary				75, 28		#30	21.2	7.3	78.8	
š L							#50	8.7	12.5	91.3	
	45	50 55	60	65 Factor (%)	75	80	#100 LBW	1.8 0.7	7.0 1.0	98.2 99.3	

Approved By: Mart 1. Ball

PLANT	#:	P-38					Contractor:			_	
Sample Date	e:	10/9/23		C	oncrete Grade	: DM, 4500HP				-	
Dates Test F	Represents:	10/10/2023	through	10/16/2023			MDOT No.:			_	
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1400	8.34	2.69	47.5					
26A	58-003	Stoneco	400	2.38	2.69	13.6					
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SUP	ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	1	MATE	RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
2"		100.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		100.0	100	0.0	100.0	100.0	0.0	0.0	1	Farmingto	n Hills, MI 48336
1"		100.0	100		100.0	100.0	0.0	0.0]		
3/4"		80.4	100	-	100.0	90.7	9.3	9.3			
1/2"		35.6	99		100.0	69.4	21.3	30.6			
3/8"		12.1	87		100.0	56.6	12.8	43.4			above the 3/8" sieve.
#4		2.0	7.		98.8	40.5	16.1	59.5	· ·		equal 10% except max.
#8 #16		1.5 1.5	2.	-	85.6 66.6	34.4 27.0	6.1 7.4	65.6 73.0	· · · · ·	00 and #200 sieve	
#10		1.4	2.		45.5	18.7	8.3	81.3		00 and #200 sieve	6 for each sieve except
#50 #50		1.3	1.		20.9	9.0	9.7	91.0			s. 6 for the 3/4" sieve whe
#100		1.2	1.	-	3.4	2.1	6.9	97.9			aggregate is used.
LBW		0.9	1.		0.5	0.9	1.3	99.1		,	
Production C	Gradation	O Batch Plant Grac	lations Aggregation 	egate Supplier Grad	lations	Adjusted WF	Intial Production	on Sample (IPS	6)		
Coarsene	ess Factor:	66	Work	ability Factor:	34	36.9	Coars	eness Factor:	61		
		•					Work	ability Factor:	36		
45	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
		52, 41					2"	% Passing	Retained	% Retained	
40		56,	40	67, 40			2" 1.5"	100.0 100.0	0.0	0.0 0.0	
8				68, 38	75, 39		1.5	99.3	0.0	0.0	
i i				Production	Gradation		3/4"	89.1	10.2	10.9	
			■ 60, ₁ 36	<u> </u>			1/2"	70.5	18.6	29.5	
		<u> </u>		i			3/8"	60.5	10.0	39.5	
Factor (%)	\rightarrow	52, 34					#4	44.1	16.4	55.9	
	45, 33	52, 34							T		
	45, 33	52, 34 56 ,	31	67, 68 , 31			#8	35.6	8.5	64.4	
	45, 33 Operating Zone	56,	31	67 , 69, 31			#16	27.7	7.9	72.3	
		56,	31	67, 89 , 31	75, 28		#16 #30	27.7 20.6	7.9 7.1	72.3 79.4	
Workability	Operating Zone	56,	31	67, 68, 31	75, 28		#16 #30 #50	27.7 20.6 8.7	7.9 7.1 11.8	72.3 79.4 91.3	
	Operating Zone	56,		65 70	75, 28		#16 #30	27.7 20.6	7.9 7.1	72.3 79.4	

Approved By: Mart 1. Ball

PLANT :	#:	P-39					Contractor:				
Sample Date):	10/9/23		C	Concrete Grade	DM, 4500HP					
Dates Test R	Represents:	10/10/2023	through	10/16/2023			MDOT No.:				
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				SUP	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%			RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
2"		100.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		100.0	10	0.0	100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		100.0	10	0.0	100.0	100.0	0.0	0.0			
3/4"		85.7	10	0.0	100.0	92.6	7.4	7.4			
1/2"		44.3	95	.8	100.0	70.7	21.9	29.3			
3/8"		27.4	86	5.8	100.0	61.0	9.7	39.0	*Maximum %	Retained must be	above the 3/8" sieve.
#4		3.4	22		98.9	41.5	19.5	58.5	*Any two adja	acent sieves must e	equal 10% except max.,
#8		1.6	5	2	84.6	33.4	8.1	66.6	nom. max., #1	00 and #200 sieves	5.
#16		1.4	2		68.9	27.1	6.3	72.9	*% Retained	must be at least 4%	6 for each sieve except
#30		1.4	1		49.7	19.7	7.3	80.3	nom. max., #1	00 and #200 sieves	3.
#50		1.3	1		23.8	9.9	9.9	90.1	*% Retained	must be at least 4%	6 for the 3/4" sieve wher
#100		1.3	1		6.5	3.3	6.6	96.7	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
LBW		1.1	1	-	1.6	1.3	2.0	98.7			
roduction G	Gradation	O Batch Plant Grad	lations Aggr 	egate Supplier Grad	ations	Adjusted WF	Intial Production	on Sample (IPS	3)		
Coarsene	ess Factor:	59	Worl	ability Factor:	33	35.9	Coars	eness Factor:	63		
45					-		Work	ability Factor:	36		
45					JMF Zone		0.	Cumulative	%	Cumulative	
	45, 44				Jivii Zone		Sieve	% Passing	Retained	% Retained	
-		52, 41					2"	100.0	0.0	0.0	
ू ⁴⁰]			58,40	08,40	75, 39		1.5"	100.0	0.0	0.0	
<u>ව</u>				68, 38	I		1"	100.0	0.0	0.0	
= -			Production	Gradation			3/4"	89.7	10.3	10.3	
2							1/2"	70.3	19.4	29.7	
35 acto		52, 34					3/8"	59.1	11.2	40.9	
y Facto	\rightarrow	02, 04					#4	42.8	16.3	57.2	
ility Facto	45, 33	02, 04	!	: صحو صيا				35.5	7.3	045	
ability Facto	45, 33	02, 04	1 50, 22		2		#8			64.5	
orkability Facto	45, 33 Operating Zone		!	68 ⁸ 8 ³²	2		#16	29.0	6.5	71.0	
Workability Facto			 58, 2 2	68 ⁸ 8 ³²	2		#16 #30	29.0 21.2	6.5 7.7	71.0 78.8	
	Operating Zone		1 58, 22	<u>و</u> ووی کو			#16 #30 #50	29.0 21.2 9.8	6.5 7.7 11.5	71.0 78.8 90.2	
²⁰	Operating Zone		1	65 Factor (%)			#16 #30	29.0 21.2	6.5 7.7	71.0 78.8	

Approved By: Mary 1. Ball

PLANT	#:	P-O2	-				Contractor:					
Sample Date:		10/9/23	-	C	Concrete Grade:	DM, 4500HP	_					
Dates Test F	Represents:	10/10/2023	through	10/16/2023			MDOT No.:					
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	63-115 Ray Rd		1150 6.95 2905 17.69		2.65	39.6				SUPERIOR		
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		MATE	RIALS	
Sieve	6AA		26A		2NS	Cumulative % Passing				Materials, LLC 10 Mile Rd.		
2"	1	00.0	100	0.0	100.0	100.0	0.0	0.0	Suite 500			
1.5"		00.0	100.0		100.0	100.0	0.0	0.0	Farmington Hills, MI 48336			
1"		96.1	100	0.0	100.0	98.1	1.9	1.9				
3/4"		72.5	100	0.0	100.0	86.3	11.8	13.7]			
1/2"		30.7	93	.0	100.0	64.7	21.6	35.3				
3/8"		16.4	81		100.0	56.3	8.3	43.7	*Maximum % Retained must be above the 3/8" sieve.			
#4	3.1		19.2		96.4	41.7	14.6	58.3	*Any two adjacent sieves must equal 10% except max.,			
#8	2.2		4.6		81.7	33.9	7.8	66.1	nom. max., #100 and #200 sieves.			
#16	1.9		2.4 1.9		66.4	27.5	6.4	72.5	*% Retained must be at least 4% for each sieve except			
#30		1.8		-	49.7 24.5	20.8	6.7	79.2	nom. max., #100 and #200 sieves.			
#50 #100		1.8 1.7		1.8 1.7		10.8 3.3	10.0 7.5	89.2 96.7	*% Retained must be at least 4% for the 3/4" sieve wh a 1.5" max. size (nom. Max. 1.0") aggregate is used.			
LBW		1.7	1.		5.7 0.6	3.3 1.0	2.3	96.7	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.	
Production G	Gradation	Batch Plant Grac		egate SupplierGrada		-	-	on Sample (IPS	6)			
Coarseness Factor: 6		66	Workability Factor:		34	36.4	Coarseness Factor:		63			
							Workability Factor:		35			
45	• -						Cumulative		%	Cumulative		
-	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained		
		52, 41					2"	100.0	0.0	0.0		
्र ⁴⁰			58, 39	68, 39 68, 38	75, 39		1.5"	100.0	0.0	0.0		
٤.			1	68, 38	T I		1"	100.0	0.0	0.0		
ţ			■ 60, 36	Production	n Gradatior		3/4"	95.1	4.9	4.9		
8 35 -				IPS			1/2"	74.6	20.5	25.4		
<u>х</u>	\rightarrow	52, 34		i			3/8"	59.3	15.3	40.7		
liit	45, 33			<u> </u>			#4	42.1	17.2	57.9		
		_	58, 31	6 6 8,331			#8	35.1	7.1	64.9		
G 30 -	Operating Zone						#16	29.2	5.9	70.8		
		1			75, 28		#30 #50	21.9 9.6	7.3 12.4	78.1 90.4		
Workability Factor (%)	Boundary						7750	Чh	174			
25 40		 	5 60	65 Factor (%)	75	80	#30 #100 LBW	2.4 0.9	7.2	90.4 97.6 99.1		

Approved By: Mary P. Ball