Production	Gradation	Report
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PLANT #		P-101 8/22/22		C	oncrete Grade:		Contractor:			
Sample Date Dates Test R		8/23/2022	through	8/29/2022	Oncrete Graue.	Ditti, 4300111	MDOT No.:			
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				SU
		Total Wt	2910	17.69		100.0	< Verify this n	umber is 100%		MA
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superi</u> 30701
2"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Suite 5
1.5"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Farmin
1"	9	98.5	100	0.0	100.0	99.2	0.8	0.8		
3/4"		34.0	100		100.0	92.0	7.3	8.0		
1/2"	4	41.3	98	.6	100.0	70.4	21.6	29.6		
3/8"		20.9	88		100.0	59.1	11.3	40.9	*Maximum %	Retained mus
#4		2.7	23		98.8	42.9	16.2	57.1	*Any two adja	cent sieves m
#8		1.7	5.		82.3	34.0	8.9	66.0	nom. max., #10	00 and #200 si
#16		1.5	3.		65.3	26.9	7.1	73.1	*% Retained r	nust be at leas
#30		1.3	2.		49.0	20.3	6.6	79.7	nom. max., #100 and #200	
#50		1.3	2.		24.2	10.5	9.8	89.5	*% Retained r	nust be at lea
#100		1.2	2.		6.4	3.4	7.1	96.6	a 2" max. size ((nom. Max. 1.
LBW			2.		1.0	1.2	2.2	98.8		
Production G		Batch Plant Gra	0.33	regate Supplier Grad		· · · ·		on Sample (IPS	,	1
Coarsene	ss Factor:	62	Work	ability Factor:	34	36.5		eness Factor:	62	
(⁴⁵ T						_)	Work	ability Factor:	35	Ourselati
-	45, 44				JMF Zone		Sieve	Cumulative	% Detained	Cumulati
		52, 41					2"	% Passing 100.0	Retained 0.0	% Retain 0.0
4 0 -			57, 39	67, 39	75, 39		<u> </u>	100.0	0.0	0.0
8				68, 38	10,00		1.0	100.0	0.0	0.0
5				Production Gradation	n		3/4"	95.0	5.0	5.0
5 35			■ 60 , 3	Ps			1/2"	70.5	24.5	29.5
Еа	\rightarrow	52, 34		!			3/8"	60.0	10.5	40.0
<u>ح</u>	45, 33						#4	44.4	15.6	55.6
iii 30			57, 31	67 ₆ 8,1 ₃₁			#8	35.5	9.0	64.5
	Operating Zana	7					#16	28.5	7.0	71.5
Workability Factor (%)	Operating Zone Boundary				75, 28		#30	21.5	7.0	78.5
≥ ₂₅ ∟							#50	10.2	11.3	89.8
1 20 1							#100		7.1	

75

80

 $\textbf{Coarseness Factor (\%)}^{60}$

LBW

1.3

1.8

98.7



ior Materials, LLC W. 10 Mile Rd. 500 gton Hills, MI 48336

t be above the 3/8" sieve. ust equal 10% except max., eves. st 4% for each sieve except max., ieves. st 8% for the 1" sieve when 5") aggregate is used.

Approved By: Marthe Ball

PREPARED BY: SM, LLC Technical Service

45

ActionLimits Boundary = - - - - -

50

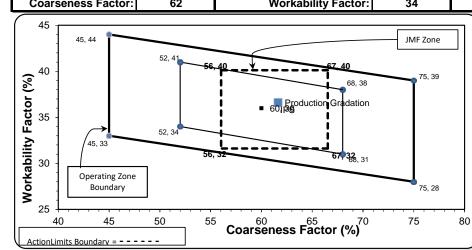
55

40

PLANT #	#:	P-102					Contractor:				
Sample Date	:	8/22/22			Concrete Grade	DM, 4500HP					
Dates Test R	epresents:	8/23/2022	through	8/29/2022			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				SUD	ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	-	MATE	
Sieve		6AA	26	6A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior I</u> 30701 W. 1	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	100	0.0	100.0	100.0	0.0	0.0		Farmingtor	n Hills, MI 48336
1"		99.4	10	0.0	100.0	99.7	0.3	0.3			
3/4"		76.0	10	0.0	100.0	88.6	11.1	11.4			
1/2"		36.2	99	9.9	100.0	69.7	18.9	30.3			
3/8"		18.2	86	5.8	100.0	59.4	10.3	40.6	*Maximum %	Retained must be a	above the 3/8" sieve
#4		1.7	22	2.4	99.2	42.5	16.9	57.5	*Any two adja	icent sieves must ea	qual 10% except ma
#8		1.1	6.	.5	83.9	34.1	8.4	65.9	nom. max., #10	00 and #200 sieves.	
#16		0.9	3.	.5	66.5	26.8	7.3	73.2	*% Retained	must be at least 4%	for each sieve exce
#30		0.8	2.	.6	48.2	19.5	7.3	80.5	nom. max., #10	00 and #200 sieves.	•
#50		0.7	2.	.4	23.4	9.8	9.7	90.2	*% Retained	must be at least 8%	for the 1" sieve whe
#100		0.7	2.		6.4	3.1	6.6	96.9	a 2" max. size	(nom. Max. 1.5") ag	gregate is used.
LBW		0.6	2.	.0	1.0	0.9	2.2	99.1			
Production G	radation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gr	adations	Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarsene	ss Factor:	62	Work	ability Factor	: 34	36.6	Coars	eness Factor:	61		
45							Work	ability Factor:	36		
1 1	15, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	



above the 3/8" sieve. equal 10% except max., s. % for each sieve except max., s % for the 1" sieve when aggregate is used.



Coars	eness Factor:	61	
Work	ability Factor:	36	
Sieve	Cumulative	%	Cumulative
Sleve	% 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

Approved By: Mary P. Ball

PLANT #	#:	P-103					Contractor:			-	
Sample Date	:	8/22/22		C	Concrete Grade	: DM, 4500HP					
Dates Test R	epresents:	8/23/2022	through	8/29/2022			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		<u>Superior N</u> 30701 W. 1	<u>Materials, LLC</u> .0 Mile Rd.
2"	1	00.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	10		100.0	100.0	0.0	0.0		Farmingtor	1 Hills, MI 48336
1"		99.4	10	0.0	100.0	99.7	0.3	0.3			
3/4"		76.0	10	0.0	100.0	88.6	11.1	11.4			
1/2"		36.2	99	.9	100.0	69.7	18.9	30.3			
3/8"		18.2	86	-	100.0	59.4	10.3	40.6	*Maximum %	Retained must be a	bove the 3/8" sieve.
#4		1.7	22		99.2	42.5	16.9	57.5	*Any two adja	acent sieves must eo	ual 10% except max.,
#8		1.1	6.		83.9	34.1	8.4	65.9	nom. max., #10	00 and #200 sieves.	
#16		0.9	3.	-	66.5	26.8	7.3	73.2			for each sieve except
#30		0.8	2.		48.2	19.5	7.3	80.5	,	00 and #200 sieves.	
#50		0.7	2.		23.4	9.8	9.7	90.2			for the 1" sieve when
#100 LBW		0.7	2.	-	6.4 1.0	3.1 0.9	6.6 2.2	96.9 99.1	a 2" max. size	(nom. Max. 1.5") ag	gregate is used.
		0.0	Ζ.	0	_	0.9	2.2	99.1			
			dationa 🕥 Agg	rogato Supplier Gra	dations						
Production G	radation	Batch Plant Gra		regate Supplier Gra	-			on Sample (IPS			
Production G				regate Supplier Gra ability Factor:	-	Adjusted WF 36.6		on Sample (IPS eness Factor:	61]	
Production G Coarsene	radation	Batch Plant Gra		5 11	-		Coars		61 36		
Production G Coarsene	radation ess Factor:	Batch Plant Gra		5 11	-		Coars Work	eness Factor: ability Factor: Cumulative	61 36 %	Cumulative	
Production G Coarsene	radation	Batch Plant Gra		5 11	34		Coars Work Sieve	eness Factor: ability Factor: Cumulative % Passing	61 36 % Retained	% Retained	
Production G Coarsene	radation ess Factor:	Batch Plant Gra		5 11	34		Coars Work Sieve 2"	eness Factor: ability Factor: Cumulative % Passing 100.0	61 36 % Retained 0.0	% Retained 0.0	
Production G Coarsene	radation ess Factor:	Batch Plant Gra		5 11	34		Coars Work Sieve 2" 1.5"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	61 36 % Retained 0.0 0.0	% Retained 0.0 0.0	
Coarsene	radation ess Factor:	Batch Plant Gra	Work	sability Factor:	34 JMF Zone		Coars Work Sieve 2" 1.5" 1"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3	61 36 % Retained 0.0 0.0 0.7	% Retained 0.0 0.0 0.7	
Production G Coarsene	radation ess Factor:	Batch Plant Gra	Work	sability Factor:	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2	61 36 % Retained 0.0 0.0 0.7 10.1	% Retained 0.0 0.0 0.7 10.8	
Production G Coarsene	radation ess Factor:	Batch Plant Gra	Work	sability Factor:	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7	61 36 % Retained 0.0 0.0 0.7 10.1 18.5	% Retained 0.0 0.0 0.7 10.8 29.3	
Lactor G enseration G 45 40 40 40 40 40 40 40 40 40 40 40 40 40	radation ess Factor:	Batch Plant Gra	Work	sability Factor:	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	eness Factor: ability Factor: Cumulative % 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	% Retained 0.0 0.0 0.7 10.8 29.3 39.3	
Lactor G enseration G 45 40 40 40 40 40 40 40 40 40 40 40 40 40	radation ess Factor:	Batch Plant Gra	Work	eability Factor:	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4	61 36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3	% Retained 0.0 0.0 0.7 10.8 29.3 39.3 55.6	
Lactor G enseration G 45 40 40 40 40 40 40 40 40 40 40 40 40 40	uss Factor:	Batch Plant Gra	Work	sability Factor:	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	eness Factor: ability Factor: Cumulative % 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	% Retained 0.0 0.7 10.8 29.3 39.3 55.6 64.1	
Lactor G enseration G 45 40 40 40 40 40 40 40 40 40 40 40 40 40	IS, 44 45, 33 Operating Zone	Batch Plant Gra	Work	eability Factor:	34 JMF Zone 75, 39		Coars 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 99.3 89.2 70.7 60.7 44.4 35.9 27.3	61 36 % <u>Retained</u> 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5 8.6	% Retained 0.0 0.0 0.7 10.8 29.3 39.3 55.6 64.1 72.7	
ability Factor (%)	uss Factor:	Batch Plant Gra	Work	eability Factor:	34 JMF Zone		Coars 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 99.3 89.2 70.7 60.7 44.4 35.9 27.3 19.1	61 36 % <u>Retained</u> 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5 8.6 8.2	% Retained 0.0 0.7 10.8 29.3 39.3 55.6 64.1 72.7 80.9	
Lactor G Coarsene 45 40 40 40 35 35	IS, 44 45, 33 Operating Zone	Batch Plant Gra		eability Factor:	34 JMF Zone 75, 39		Coars 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 99.3 89.2 70.7 60.7 44.4 35.9 27.3	61 36 % <u>Retained</u> 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5 8.6	% Retained 0.0 0.0 0.7 10.8 29.3 39.3 55.6 64.1 72.7	

Approved BY: Mary 1. Ball

): _	8/22/22	_	С	Concrete Grade:	: DM, 4500HP					
epresents:	8/23/2022	through	8/29/2022			MDOT No.:				
Pit #	Source	Weight (SSD)							5	\mathbb{N}
58-003	Stoneco									
									Ш	
19-55				2.67	-				Bui	
	l otal wt	2960	17.68		100.0	< Verify this n	umber is 100%	1		
6	AA	26	A	2NS		% Retained				
1(00.0	10	0.0	100.0	100.0	0.0	0.0			to while Ru.
		-								n Hills, MI 48336
								1		-,
_	-	-						1		
1	8.2	86	5.8	100.0	57.9	10.6	42.1	*Maximum %	Retained must be a	above the 3/8" sieve.
	1.7	22	.4	99.9	41.0	16.9	59.0	*Any two adja	cent sieves must e	qual 10% except max.,
		6	.5				65.4	nom. max., #10	00 and #200 sieves	i.
								*% Retained	must be at least 4%	for each sieve except r
	-		-					a 2" max. size	(nom. Max. 1.5") aູເ	ggregate is used.
	_		-					. 3)		
		-		1	/ lajaoloa ///	India i Teadola	on oampio (n c	-		
	64	Work	ability Factor:	35	37.1	Coars		63		
	64	Work	ability Factor:	35	37.1		eness Factor:			
	64	Worl	ability Factor:	·	37.1	Work	eness Factor: ability Factor:	36	Cumulative	I
	64	Worl	cability Factor:	·	37.1	Work	eness Factor: ability Factor: Cumulative	36 %		
				·	37.1	Work Sieve	eness Factor: ability Factor: Cumulative % Passing	36 % Retained	% Retained	
			68, 40	JMF Zone	37.1	Work Sieve 2"	eness Factor: ability Factor: Cumulative % Passing 100.0	36 % Retained 0.0	% Retained 0.0	
			68, 40 68, 38	JMF Zone	37.1	Work Sieve 2" 1.5" 1"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3	36 % Retained 0.0 0.0 0.7	% Retained 0.0 0.0 0.7	
		57,40	68, 40 68, 38 Production Gra	JMF Zone	37.1	Work Sieve 2" 1.5" 1" 3/4"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0	36 % Retained 0.0 0.0 0.7 10.3	% Retained 0.0 0.0 0.7 11.0	
		57,40	68, 40 68, 38 Production Gra	JMF Zone	37.1	Work Sieve 2" 1.5" 1" 3/4" 1/2"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3	36 % Retained 0.0 0.0 0.7 10.3 18.7	% Retained 0.0 0.0 0.7 11.0 29.7	
45, 44	52, 41	57,40	68, 40 68, 38 Production Gra	JMF Zone	37.1	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3 59.9	36 % Retained 0.0 0.0 0.7 10.3 18.7 10.4	% Retained 0.0 0.0 0.7 11.0 29.7 40.1	
45, 44	52, 41	57,40	68, 40 68, 38 Production Gra	JMF Zone	37.1	Work 2" 1.5" 1" 3/4" 1/2" 3/8" #4	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3 59.9 41.9	36 % Retained 0.0 0.0 0.7 10.3 18.7 10.4 18.0	% Retained 0.0 0.7 11.0 29.7 40.1 58.1	
45, 44	52, 41	57,40	68, 40 68, 38 Production Gra	JMF Zone	37.1	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3 59.9 41.9 35.9	36 % Retained 0.0 0.0 0.7 10.3 18.7 10.4 18.0 6.0	% Retained 0.0 0.7 11.0 29.7 40.1 58.1 64.1	
45, 44 45, 33 Operating Zone	52, 41	57,40	68, 40 68, 38 Production Gra	JMF Zone 75, 39 adation	37.1	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 99.3 89.0 70.3 59.9 41.9 35.9 27.8	36 % Retained 0.0 0.7 10.3 18.7 10.4 18.0 6.0 8.2	% Retained 0.0 0.7 11.0 29.7 40.1 58.1 64.1 72.2	
45, 44	52, 41	57,40	68, 40 68, 38 Production Gra	JMF Zone	37.1	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 99.3 89.0 70.3 59.9 41.9 35.9 27.8 18.9	36 % Retained 0.0 0.7 10.3 18.7 10.4 18.0 6.0 8.2 8.8	% Retained 0.0 0.0 0.7 11.0 29.7 40.1 58.1 64.1 72.2 81.1	
45, 44 45, 33 Operating Zone	52, 41	57, 40 • 60, 36 57, 2	68, 40 68, 38 Production Gra	JMF Zone 75, 39 adation 75, 28	37.1	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 99.3 89.0 70.3 59.9 41.9 35.9 27.8	36 % Retained 0.0 0.7 10.3 18.7 10.4 18.0 6.0 8.2	% Retained 0.0 0.7 11.0 29.7 40.1 58.1 64.1 72.2	
	Pit # 58-003 58-003 58-003 19-55 6 10 10 10 10 10 10 10 10 10 10	B/22/22 Bit # Source 58-003 Stoneco 58-003 Stoneco 19-55 Schlegel Total Wt 6AA 100.0 100.0 100.0 100.0 100.0 100.0 99.4 76.0 36.2 18.2 1.7 1.1 0.9 0.8 0.7 0.7 0.6 Gradation	B/22/22 B/22/22 Represents: B/23/2022 through Pit # Source Weight (SSD) 58-003 Stoneco 1460 58-003 Stoneco 400 19-55 Schlegel 1100 Total Wt 2960 6AA 26 100.0 100 100.0 100 100.0 100 99.4 100 76.0 100 36.2 99 18.2 86 1.7 22 1.1 6 0.9 3 0.8 2 0.7 2 0.6 2 6radation Batch Plant Gradations	B/22/22 Composition Bepresents: 8/23/2022 through 8/29/2022 Pit # Source Weight (ssp) ft ³ 58-003 Stoneco 1460 8.70 58-003 Stoneco 400 2.38 19-55 Schlegel 1100 6.60 Total Wt 2960 17.68 6AA 26A 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 101.0 6.68 1.7 22.4 1.1 6.5 0.9 3.5 0.8 2.6 0.7 2.4 0.7 2.3 0.6 2.0	B/22/22 Concrete Grade: Represents: $B/23/2022$ through $B/29/2022$ Pit # Source Weight (SSD) ft ³ Specific Gravity 58-003 Stoneco 1460 8.70 2.69 58-003 Stoneco 400 2.38 2.69 19-55 Schlegel 1100 6.60 2.67 Total Wt 2960 17.68 2NS 6AA 26A 2NS 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 101.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 18.2 86.8 100.0 1.1 6.5 89.3 0.9 3.5 67.3 0.8 2.6 45.8 0.7 2.4 17.0 0.7 2.3 2.8 0.6	8/22/22 Concrete Grade: DM, 4500HP Represents: $8/23/2022$ through $8/29/2022$ Pit # Source Weight (ssb) ft ³ Specific Gravity 0 Contribution 58-003 Stoneco 1460 8.70 2.69 49.3 $58-003$ Stoneco 400 2.38 2.69 13.5 19-55 Schlegel 1100 6.60 2.67 37.2 Total Wt 2960 17.68 100.0 6AA 26A 2NS Cumulative % Passing 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 88.2 6AA 26A 2NS Cumulative % Passing 100.0 100.0 100.0 100.0 100.0 99.4 100.0 100.0 88.2 36.8 100.0 57.9 1.7 22.4 99.9 41.0 57.9 33.5 67.3 25.9 34.6	8/22/22 Concrete Grade: DM, 4500HP Represents: 8/23/2022 through 8/29/2022 MDOT No.: Pit # Source Weight (ssp) ft ³ Specific Gravity Contribution 58-003 Stoneco 1460 8.70 2.69 49.3 35 19-55 Schlegel 1100 6.60 2.67 37.2	8/22/22 Concrete Grade: DM, 4500HP 8/23/2022 through 8/29/2022 MDOT No.: Pit # Source Weight (ssp) ft ³ Specific Gravity MOT No.: Pit # Source Weight (ssp) ft ³ Specific Gravity MOT No.: Pit # Source 4400 2.38 2.69 49.3 58-003 Stoneco 4400 2.38 2.69 13.5 19-55 Schlegel 1100 6.60 2.67 37.2 Total Wt 2960 17.68 100.0 cumulative % Passing % Retained 100.0 100.0 100.0 100.0 0.0 0.0 0.0 100.0 100.0 100.0 100.0 0.0 0.0 0.0 99.4 100.0 100.0 100.0 88.2 11.5 11.8 36.2 99.9 100.0 68.5 19.6 31.5 18.2 86.8 100.0 57.9 8.7 74.1	B/22/22 Concrete Grade: DM, 4500HP is: B/22/22 through 8/29/2022 MDOT No.: Pit # Source Weight (ssp) ft ³ Specific Gravity % Contribution 58-003 Stoneco 1460 8.70 2.69 13.5 19-55 Schlegel 1100 6.60 2.67 37.2 Total Wt 2960 17.68 100.0 c Verify this number is 100% 6AA 26A 2NS Cumulative % Passing % Retained % Retained 100.0 100.0 100.0 100.0 0.0 0.0 0.0 100.0 100.0 100.0 100.0 0.0 0.0 0.0 100.0 100.0 100.0 100.0 100.0 0.0 0.0 100.0 100.0 100.0 100.0 68.5 19.6 31.5 18.2 86.8 100.0 57.9 10.6 42.1 "Any two adja 1.1 6.5 89.3	B/22/22 Concrete Grade: DM, 4500HP tepresents: 8/23/202 through 8/29/202 MOOT No.: Pit # Source Weight (ssp) ft ³ Gravity Contribution 58-003 Stoneco 1460 8.70 2.38 2.69 13.5 19-55 Schlegel 1100 6.60 2.67 37.2 Total Wt 2960 17.68 100.0 c Verify this number is 100% 6AA 26A 2NS Cumulative % Passing % Retained Builders I 30701 W. 100.0 100.0 100.0 100.0 0.0 0.0 0.0 100.0 100.0 100.0 100.0 0.0 0.0 0.0 108.2 86.8 100.0 57.9 10.6 42.1 *Maximum % Retained must be *1.1 6.5 89.3 34.6 6.4 65.4 nom. max, #100 ant #200 sieves 0.9 3.5 67.3 25.9 8.7 74.1 *% Retained must be

Approved By: Mart 1. Ball

Bates Test Represents: #23/2022 through 8/29/2022 MOOT No:: Sige Class Pit # Source Weight (ssn) ft ³ Gravity Contribution Source Workshit Source	PLANT #	#:	P-12					Contractor:				
Jales Test Represents: R23/2022 through 8/29/2022 MDOT No:: Sige: Source Weight (ssp) ft ³ Gravitic Contribution Source Source Weight (ssp) ft ³ Gravitic Contribution Source Weight (ssp) ft ³ 2.62 8.6 Source Source Weight (ssp) ft ³ 2.62 8.6 Source Source <th>Sample Date</th> <th>:</th> <th>8/22/22</th> <th></th> <th></th> <th>Concrete Grade:</th> <th>DM, 4500HP</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Sample Date	:	8/22/22			Concrete Grade:	DM, 4500HP					
Sign Case Pit # Source Weight (sso) ft* Gravity Contribution 6AA 7147 Presque isle 1506 9.21 2.62 51.8 2NS 63-115 Ray Rd 1150 6.96 2.86 39.6 2NS 63-115 Ray Rd 1150 6.96 2.86 39.6 Cumulative % Retained Cumulative % Retained Superior Materials, LC 300.0 100.0 100.0 100.0 0.0 0.0 1.5' 100.0 100.0 100.0 9.1 9.7 38' 21.8 85.5 100.0 58.2 12.0 41.8 7/2' 43.1 97.7 77.8 32.4 9.8 67.6 7/38' 2.5.5 96.7 42.2 16.0 57.8 70.0	Dates Test R	epresents:	8/23/2022	through				MDOT No.:				
26A 71-47 Presque Isle 250 1.53 2.62 3.6 2NS 63-115 Ray Rd 1150 6.95 2.66 39.6 Sieve 6A 26A 2NS Cumulative % Passing % Retained Cumulative % Retained Superior Materials, LC 3073 W: 10 Mile Rd. Suite 50 Superior Materials, LC 3073 W: 10 Mile Rd. Suite 50 1* 98.8 100.0 100.0 100.0 9.0.4 0.6 0.6 34' 81.2 100.0 100.0 70.3 9.7 77.7 77.7 77.8 32.4 9.8 67.6 nom. max, #100 and £20 serves. #4 3.4 61.9 25.5 96.7 42.2 16.0 57.8 nom. max, #100 and £20 serves. #16 1.6 3.4 61.9 25.6 6.8 74.4 n% Retained must be allosed % for the 1' sieve where. #300 1.5 2.5 47.9 20.0 5.7 80.0 nom. max, #100 and £20 sieve. #100 1.4 2.3 27.7 1.9	Agg. Class	Pit #	Source	Weight (SSD)	ft ³							
2NS 63-115 Ray Rd 1150 6.95 2.65 39.6 Total Wi 2905 17.69 100.0 c Verify this number is 100% Superior Materials, LC Sieve 6AA 26A 2NS Cumulative % Passing % Retained % Retained Cumulative % Retained Superior Materials, LC 2' 100.0 100.0 100.0 0.0	6AA	71-47	Presque Isle	1505	9.21	2.62	51.8					
Total Wi 2905 17.69 100.0 c Verity this number is 100%. Sieve 6AA 26A 2NS Cumulative % Passing % Retained % Retained Cumulative % Retained Superior Materials, LL 30701 W. 10 Mile Rd. 1: 98.8 100.0 100.0 100.0 0.0 0.0 0.0 3/4' 81.2 100.0 100.0 99.4 0.6 0.6 0.6 3/4' 81.2 100.0 100.0 90.3 9.1 9.7 1/2' 43.1 97.1 100.0 70.3 20.0 29.7 3/8' 21.8 85.5 100.0 58.2 12.0 41.8 */ny two adjacent sieves must equal 10% except max max. 100 ad 200 sieves. */w two adjacent sieves must equal 10% except max #16 1.6 3.4 61.9 25.6 6.8 74.4 */m two adjacent sieve secept max #100 1.4 2.1 7.7 71.9 8.1 88.1 */m totact sieve except secont size ad 2 max. size (nom. Max. 1.5') aggregate is used.	-					-						
Sieve 6AA 26A 2NS Cumulative Passing % Retained % Retaine	2NS	63-115				2.65					SUP	FRIOR
Sieve GAA ZbA 2NS % Passing % Retained % Retained Superior Materials, LLC 2" 100.0 100.0 100.0 100.0 0.			Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	•		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Sieve	(6AA	26	A	2NS		% Retained				
$\frac{1}{3/4^{*}} = 98.8 + 100.0 + 100.0 + 99.4 + 0.6 + 0.6 + 0.6 + 0.6 + 0.6 + 0.6 + 0.6 + 0.7 + 0.00$		1	00.0	100	0.0	100.0	100.0	0.0	0.0]	Suite 500	
$\frac{3/4"}{112"} = \frac{81.2}{43.1} = \frac{100.0}{97.1} = \frac{100.0}{100.0} = \frac{90.3}{90.3} = \frac{9.1}{9.1} = \frac{9.7}{10.7}$ $\frac{112"}{12"} = \frac{43.1}{43.1} = \frac{97.1}{97.1} = \frac{100.0}{100.0} = \frac{70.3}{20.0} = \frac{29.7}{29.7}$ $\frac{112"}{43.4} = \frac{43.1}{2.0} = \frac{97.7}{11.1} = \frac{100.0}{55.2} = \frac{12.0}{12.0} = \frac{41.8}{11.6}$ $\frac{14.4}{25.5} = \frac{96.7}{42.2} = \frac{16.0}{57.8} = \frac{57.8}{100.0} = \frac{57.8}{100.0} = \frac{100.0}{57.8} = \frac{100.0}{10.0} = \frac{57.8}{100.0} = \frac{100.0}{10.0} = \frac{100.0}{10.0} = \frac{100.0}{10.0} = \frac{100.0}{10.0} = \frac{100.0}{1.6} = \frac{100.0}{1.4} = \frac{27.5}{10.0} = \frac{100.0}{1.4} = \frac{27.5}{10.0} = \frac{100.0}{1.4} = \frac{27.7}{11.9} = \frac{8.1}{8.1} = \frac{88.1}{1} = \frac{100.0}{1.4} = \frac{27.7}{1.2} = \frac{100.0}{1.6} = \frac{100.0}{1.4} = \frac{27.7}{1.2} = \frac{100.0}{1.6} = \frac{100.0}{1.4} = \frac{27.7}{1.2} = \frac{100.0}{1.6} = \frac{100.0}{1.1} = \frac{27.7}{2.8} = \frac{100.0}{1.5} = \frac{100.0}{1.5} = \frac{100.0}{1.5} = \frac{100.0}{1.5} = \frac{100.0}{1.5} = \frac{100.0}{1.1} = \frac{100.0}{2.8} = \frac{100.0}{1.1} = \frac{100.0}{2.8} = \frac{100.0}{1.5} = \frac{100.0}{1.$]	Farmingtor	n Hills, MI 48336
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	-				-					1		
$\frac{3/8"}{44} = \frac{21.8}{3.4} = \frac{85.5}{100.0} = \frac{52.4}{96.7} = \frac{12.0}{41.8}$ *Maximum % Retained must be above the 3/8" sieve. *Any two adjacent sieves must equal 10% except max *Any two adjacent sieves must equal 10% except max ** Retained must be a least 4% for teach sieve except ** Retained ** Retained ** Retained ** Retained ** Retained ** Retained ** Reta			-						-			
#4 3.4 25.5 96.7 42.2 16.0 57.8 "Any two adjacent sleves must equal 10% except max #8 1.9 7.7 77.8 32.4 9.8 67.6 nom. max., #100 and #200 sleves. #16 1.6 3.4 61.9 25.6 6.8 74.4 "% Retained must be at least 4% for each sleve excep #30 1.5 2.5 47.9 20.0 5.7 80.0 nom. max., #100 and #200 sleves. #100 1.4 2.3 27.7 11.9 8.1 88.1 "% Retained must be at least 8% for the 1" sleve where at least 100 sleves. #100 1.4 2.1 7.7 4.0 7.9 96.0 a 2" max. size (nom. Max. 1.5") aggregate is used. EBW 1.2 1.6 0.9 1.1 2.8 98.9 Orduction Gradation O Batch Plant Gradations @ Aggregate Suppler Gradations Adjusted WF Intial Production Sample (IPS) Coarseness Factor: 62 Workability Factor: 32 34.9 Coarseness Factor: 63 40 52.4 60.39PS Production Ghdation 75.39 10.4 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>4</td><td></td><td></td></t<>										4		
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $												
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $												
#50 1.4 2.3 27.7 11.9 8.1 88.1 ** Retained must be at least 8% for the 1" sieve where a 2" max. size (nom. Max. 1.5") aggregate is used. #100 1.4 2.1 7.7 4.0 7.9 96.0 a 2" max. size (nom. Max. 1.5") aggregate is used. LBW 1.2 1.6 0.9 1.1 2.8 98.9 Production Gradation Batch Plant Gradations Aggregate Supplier Gradations Adjusted WF Initial Production Sample (IPS) Coarseness Factor: 62 Workability Factor: 32 34.9 Coarseness Factor: 63 40 45,44 45,44 45,44 45,44 46,49 98.30 10.0 0.0 0.0 30 35 60,38PS Production Gradation 52,34 46,40 75,39 75,39 10.4 40.1 11/2" 70.3 18.7 29.7 30 0 0 0.0 0.0 0.0 10.3 11.0 40 45,33 60,38PS 75,28 72.2 72.2 70.3 18.7 29.7 3/8" 59.9 10.4 <td>-</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	-			-								
#100 1.4 2.1 7.7 4.0 7.9 96.0 a 2" max. size (nom. Max. 1.5") aggregate is used. LBW 1.2 1.6 0.9 1.1 2.8 98.9 Oroduction Gradation Batch Plant Gradations Aggregate Supplier Gradations Adjusted WF Intial Production Sample (IPS) Coarseness Factor: 62 Workability Factor: 32 34.9 Coarseness Factor: 63 40 45,44 52,44 57,49 68,40 75,39 Workability Factor: 36 30 45,33 60,38PS 60,38PS 75,39 75,28 100.0 0.0 0.0 10 27.8 83.0 10.3 11.0 1/2" 70.3 18.7 29.7 30 0 0.0 64.1 75,28 #16 27.8 8.2 72.2												
LBW 1.2 1.6 0.9 1.1 2.8 98.9 Production Gradation O Batch Plant Gradations Aggregate Supplier Gradations Adjusted WF Initial Production Sample (IPS) Coarseness Factor: 62 Workability Factor: 32 34.9 Coarseness Factor: 63 40 45,44 45,44 45,44 46,38 98,9 Workability Factor: 36 40 40 52,44 57,49 68,40 75,39 MF Zone % Passing Retained % Retained 40 40 68,38 75,39 100.0 0.0 0.0 1" 99.3 0.7 0.7 0.7 33 62,34 9 Production Gradation 75,39 10.4 40.1 1" 99.3 0.7 0.7 0.7 34 83.9 9 10.4 40.1 100 0.0 0.0 0.6 64.1 40 9 75,28 #16 27.8 8.2 72.2 416 27.8 8.2 72.2 #30 1					-							
$\begin{array}{c c c c c c c c c c c c c c c c c c c $											(1011. Max. 1.0) a	ggregate is used.
45 Workability Factor: 36 40 45, 44 52, 41 57, 40 68, 40 40 52, 41 57, 40 68, 40 75, 39 40 52, 34 60, 36PS 75, 39 100.0 0.0 0.0 1.5" 100.0 0.0 0.0 0.0 1" 99.3 0.7 0.7 36 37, 32 68, 33 75, 39 100.0 0.0 0.0 1.5" 100.0 0.0 0.0 0.0 0.0 1.5" 100.0 0.0 0.0 0.0 1" 99.3 0.7 0.7 374" 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	Production G	radation	O Batch Plant Gra	dations 💿 Aggr	egate Supplier Gr	adations	Adjusted WF	Intial Production	on Sample (IPS	■ S)		
40 45,44 52,41 57,40 68,40 52,41 57,40 68,38 75,39 60,38PS 60,38PS 75,39 1" 99.3 0.7 0.7 35 60,38PS 9 100.0 0.0 0.0 1" 99.3 0.7 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	Coarsene	ss Factor:	62	Work	ability Factor	: 32	34.9	Coars	eness Factor:	63		
40 45,44 52,41 57,40 68,40 52,41 57,40 68,38 75,39 60,38PS 60,38PS 75,39 1" 99.3 0.7 0.7 35 60,38PS 9 100.0 0.0 0.0 1" 99.3 0.7 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	45							Work	ability Factor:	36		
40 57, 40 68, 40 57, 40 68, 38 60, 30 PS 99.3 75, 39 1.5" 100.0 0.0 1" 99.3 30 60, 30 PS 90 75, 39 40, 45, 33 68, 33 40, 52, 34 90 52, 34 90 52, 34 90 52, 34 90 52, 34 90 52, 34 90 52, 34 90 52, 34 90 52, 34 90 53, 31 90 90 90 53, 31 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 9	4	15, 44				JMF Zone		Sieve				
30 1.5" 100.0 0.0 0.0 31 68, 38 68, 38 10.3 11.0 30 52, 34 68, 32 10.3 11.0 30 1/2" 70.3 18.7 29.7 3/4" 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	10		52, 4	57, 40	<u>68,</u> 40			2"				
Jack Stress					68.38	75, 39						
Jack Stress	Ľ							1"	99.3	0.7	0.7	
Jack Stress	<u>8</u>											
Jack Stress	a 35			Pro Pro	oduction Gradatio	n						
30 #4 41.9 18.0 58.1 Operating Zone Boundary 00 00 00 00 00 75, 28 75, 28 75, 28 72.2 72.2		45.33	52, 34		1							
#8 35.9 6.0 64.1 Operating Zone Boundary 75,28 #16 27.8 8.2 72.2 #30 18.9 8.8 81.1	ii i	/ 10,00		37,22		2						
Operating Zone Boundary #16 27.8 8.2 72.2 #30 18.9 8.8 81.1			_		00, 3							
ž 1 Boundary #30 18.9 8.8 81.1	τ					75 28						
	ă 🗌	Boundary				13,20		#30 #50	18.9 6.3	8.8	81.1 93.7	

80

75

 $\operatorname{Coarseness}^{60}\operatorname{Factor}^{65}(\%)^{70}$

#100

LBW

1.7

1.0

4.6

0.7

Mart P. Ball

Approved By:

98.3

99.0

PREPARED BY: SM, LLC Technical Service

50

55

45

ActionLimits Boundary = - - - - -

25

40

PLANT #	#:	P-32	_				Contractor:				
Sample Date	e:	8/22/22		C	Concrete Grade	DM, 4500HP					
Dates Test R	epresents:	8/23/2022	through	8/29/2022			MDOT No.:				
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	200	1.22	2.62	6.9					
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%	1		RIALS
Sieve		6 A A	26	Α	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
2"	1	00.0	100).0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	100		100.0	100.0	0.0	0.0	1	Farmingto	n Hills, MI 48336
1"		98.0	100).0	100.0	98.9	1.1	1.1	1		
3/4"		83.0	100		100.0	90.9	8.0	9.1]		
1/2"		43.9	97	.1	100.0	69.8	21.1	30.2			
3/8"		22.6	85	-	100.0	57.6	12.2	42.4	*Maximum %	Retained must be	above the 3/8" sieve.
#4		4.2	25		95.9	42.0	15.6	58.0	*Any two adja	cent sieves must e	qual 10% except max.,
#8		2.2	7.		82.9	34.5	7.4	65.5		00 and #200 sieves	
#16		1.9	3.		67.9	28.1	6.4	71.9			for each sieve except
#30		1.8	2.		49.2	20.6	7.5	79.4		00 and #200 sieves	
#50		1.7	2.		24.7	10.8	9.8	89.2			for the 1" sieve when
#100 LBW		1.5 1.2	2.		7.8 1.3	4.0 1.3	6.8 2.8	96.0 98.7	a 2" max. size	(nom. Max. 1.5") ag	ggregate is used.
Production G	radation	Batch Plant Gra	-	regate Supplier Gra	-		-	on Sample (IPS	2)		
	ess Factor:	65	0.22	ability Factor:	35	37.0		eness Factor:	62		
Coarsene	55 Factor.	05	WOIR .	ability Factor.		57.0		ability Factor:	36		
⁴⁵ T)	WOIK	Cumulative	30 %	Cumulative	
1 4	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
-		52, 41					2"	100.0	0.0	0.0	
~ ⁴⁰			â. 40 	67,40	75, 39		1.5"	100.0	0.0	0.0	
<u> </u>				68, 38			1"	100.0	0.0	0.0	
ъ				Production G	radation		3/4"	95.0	5.0	5.0	
Factor (%)			■ 60, 3 18	°			1/2"	72.3	22.8	27.7	
	\rightarrow	52, 34	i.	!			3/8"	60.4	11.8	39.6	
ity	45, 33		!				#4	42.6	17.8	57.4	
iq 30		50), <u>Sil</u>	67, 32 68, 31			#8	36.0	6.6	64.0	
ka [Operating Zone						#16	29.5	6.5	70.5	
	Boundary				75, 28		#30	20.3	9.2	79.7	
<u>o</u>]							#50	9.5	10.8	90.5	
00 Norkability							#100	0 4	C 4	00.0	
25 40	45	50 55	5 60	65 Factor (%)	75	80	#100 LBW	3.4 1.3	6.1 2.1	96.6 98.7	

Approved By:

	#:	P-35	-				Contractor:			-	
Sample Date	e:	8/22/22	-		Concrete Grade	DM, 4500HP					
Dates Test R	Represents:	8/23/2022	through	8/29/2022			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		6.95	2.65	39.0				CUD	ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	-	MATE	ERIALS
Sieve		6AA	26	5A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
2"	1	00.0	10	0.0	100.0	100.0	0.0	0.0	1	Suite 500	
1.5"		00.0	10	0.0	100.0	100.0	0.0	0.0]	Farmingto	n Hills, MI 48336
1"		99.4		0.0	100.0	99.7	0.3	0.3			
3/4"		76.0	-	0.0	100.0	88.6	11.1	11.4			
1/2"		36.2		9.9	100.0	69.7	18.9	30.3			
3/8"		18.2		5.8	100.0	59.4	10.3	40.6	*Maximum %	Retained must be	above the 3/8" sieve.
#4		1.7		2.4	99.2	42.5	16.9	57.5	*Any two adja	acent sieves must e	qual 10% except max.
#8		1.1		.5	83.9	34.1	8.4	65.9	nom. max., #10	00 and #200 sieves	5.
#16		0.9		.5	66.5	26.8	7.3	73.2			6 for each sieve except
#30		0.8		.6	48.2	19.5	7.3	80.5	· · · ·	00 and #200 sieves	
#50		0.7		.4	23.4	9.8	9.7	90.2			6 for the 1" sieve when
#100 LBW		0.7 0.6	2	. <u>3</u> .0	6.4 1.0	3.1 0.9	6.6 2.2	96.9 99.1	a 2" max. size	(nom. Max. 1.5") ag	ggregate is used.
		0.0	2	.0	1.0	0.9	2.2				
		Batch Plant Gra	dations 🔘 Agg	-	adations		Initial Draductio				
Production G	Gradation	Batch Plant Gra		regate Supplier Gra				on Sample (IPS	ŕ	1	
Production G		Batch Plant Gra		-		Adjusted WF 36.6	Coars	on Sample (IPS eness Factor:	61	1	
Production G Coarsene	Gradation	<u> </u>		regate Supplier Gra			Coars	on Sample (IPS eness Factor: ability Factor: Cumulative	61 36 %	Cumulative	
Production G Coarsene	Gradation ess Factor:	62		regate Supplier Gra	: 34		Coars Work Sieve	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing	61 36 % Retained	% Retained	
Coarsene	Gradation ess Factor:	<u> </u>		regate Supplier Gra	JMF Zone		Coars Work Sieve 2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0	61 36 % Retained 0.0	% Retained 0.0	
Coarsene	Gradation ess Factor:	62		regate Supplier Gra	. 34 JMF Zone		Coars Work Sieve 2" 1.5"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	61 36 % Retained 0.0 0.0	% Retained 0.0 0.0	
Production G Coarsend	Gradation ess Factor:	62	Work	kability Factor	: 34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3	61 36 % Retained 0.0 0.0 0.7	% Retained 0.0 0.0 0.7	
Production G Coarsend	Gradation ess Factor:	62	Work	regate Supplier Gra kability Factor	: 34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1" 3/4"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1	61 36 % Retained 0.0 0.0 0.7 10.2	% Retained 0.0 0.0 0.7 10.9	
Production G Coarsend	Gradation ess Factor:	62	Work	kability Factor	: 34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5	61 36 % Retained 0.0 0.0 0.7 10.2 18.6	% Retained 0.0 0.0 0.7 10.9 29.5	
Production G Coarsend	As, 44	62	Work	kability Factor	: 34 JMF Zone 75, 39		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 99.3 89.1 70.5 60.5	61 36 % Retained 0.0 0.0 0.7 10.2 18.6 10.0	% Retained 0.0 0.7 10.9 29.5 39.5	
Production G Coarsend	Gradation ess Factor:	62		regate Supplier Gra kability Factor 68, 38 roduction Gradation	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1	61 36 % Retained 0.0 0.0 0.7 10.2 18.6 10.0 16.4	% Retained 0.0 0.0 0.7 10.9 29.5	
Production G Coarsend	45, 44 45, 33	62 52, 41 52, 34 52, 34 56,		kability Factor	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1 35.6	61 36 % Retained 0.0 0.0 0.7 10.2 18.6 10.0 16.4 8.5	% Retained 0.0 0.7 10.9 29.5 39.5 55.9 64.4	
Production G Coarsend	Ats, 44 (45, 44 (45, 33) Operating Zone	62 52, 41 52, 34 52, 34 56,		regate Supplier Gra kability Factor 68, 38 roduction Gradation	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7	61 36 % Retained 0.0 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9	% Retained 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3	
Production G Coarsend 45 40 40 40 40 40 40 40 40 40 40	45, 44 45, 33	62 52, 41 52, 34 52, 34 56,		regate Supplier Gra kability Factor 68, 38 roduction Gradation	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7 20.6	61 36 % Retained 0.0 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9 7.1	% Retained 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3 79.4	
Production G Coarsend	Ats, 44 (45, 44 (45, 33) Operating Zone	62 52, 41 52, 34 52, 34 56,		regate Supplier Gra kability Factor 68, 38 roduction Gradation	: 34 JMF Zone 75, 39 75, 28		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7	61 36 % Retained 0.0 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9	% Retained 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3	

PREPARED BY: SM, LLC Technical Service

ActionLimits Boundary = - - - - -

Approved By:

PLANT #	#:	P-36					Contractor:				
Sample Date	:	8/22/22		(Concrete Grade	DM, 4500HP				-	
Dates Test R	epresents:	8/23/2022	through	8/29/2022			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	63-92	Grange Hall	1100	6.65	2.65	37.9				SUP	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		MATE	RIALS
Sieve		6AA	26	Α	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior</u> 30701 W. 1	Materials, LLC 10 Mile Rd.
2"	1	00.0	100).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"		98.8	100).0	100.0	99.4	0.6	0.6			
3/4"		81.2	100		100.0	90.3	9.1	9.7			
1/2"		43.1	97		100.0	70.2	20.0	29.8			
3/8"		21.8	85	-	100.0	58.0	12.2	42.0	*Maximum %	Retained must be	above the 3/8" sieve.
#4		3.4	25		96.7	41.0	17.0	59.0			qual 10% except max.,
#8		1.9	7.		80.5	32.3	8.7	67.7		00 and #200 sieves	
#16		1.6	3.		64.3	25.5	6.7 7.2	74.5			for each sieve except r
#30 #50		1.5 1.4	2.		45.7 19.5	18.3 8.3	10.0	81.7 91.7	,	00 and #200 sieves	5 for the 1" sieve when
#100		1.4	2.	-	3.3	2.2	6.2	97.8		(nom. Max. 1.5") ag	
LBW		1.2	1.		0.7	1.1	1.1	98.9		(1011: Max: 1.0) a	ggregate is used.
Production G	Fradation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gra	adations	Adjusted WF	Intial Production	on Sample (IPS	5)	_	
Coarsene	ess Factor:	62	Work	ability Factor:	: 32	34.8	Coars	eness Factor:	63		
45							Work	ability Factor:	35		
45					JMF Zone		Sieve	Cumulative	%	Cumulative	
	45, 44				5			% Passing	Retained	% Retained	
1.1		52, 41					2"	100.0	0.0	0.0	
२ ⁴⁰ ।			58, 39	68,39	75, 39		1.5"	100.0	0.0	0.0	
			58, 39	68, 39 68, 38	75, 39		1.5" 1"	99.1	0.9	0.9	
			58, 39				1.5" 1" 3/4"	99.1 90.3	0.9 8.8	0.9 9.7	
	\rightarrow		58, 39 ■ 60, 36 ■ P				1.5" 1" 3/4" 1/2"	99.1 90.3 69.2	0.9 8.8 21.1	0.9 9.7 30.8	
	45 33	52, 34	58, 39 60, 36 P				1.5" 1" 3/4" 1/2" 3/8"	99.1 90.3 69.2 59.1	0.9 8.8 21.1 10.1	0.9 9.7 30.8 40.9	
	45, 33	52, 34			n		1.5" 1" 3/4" 1/2"	99.1 90.3 69.2	0.9 8.8 21.1	0.9 9.7 30.8	
			58, 39 60, 36 P 58, 31		n		1.5" 1" 3/4" 1/2" 3/8" #4	99.1 90.3 69.2 59.1 41.8 35.1	0.9 8.8 21.1 10.1 17.3	0.9 9.7 30.8 40.9 58.2	
	45, 33 Operating Zone Boundary				in ki		1.5" 1" 3/4" 1/2" 3/8" #4 #8	99.1 90.3 69.2 59.1 41.8	0.9 8.8 21.1 10.1 17.3 6.6	0.9 9.7 30.8 40.9 58.2 64.9	
Workability Factor (%)	Operating Zone				n		1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	99.1 90.3 69.2 59.1 41.8 35.1 28.5	0.9 8.8 21.1 10.1 17.3 6.6 6.6	0.9 9.7 30.8 40.9 58.2 64.9 71.5	
orkability Factor (%)	Operating Zone		58, 31		on 3175, 28	80	1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	99.1 90.3 69.2 59.1 41.8 35.1 28.5 21.2	0.9 8.8 21.1 10.1 17.3 6.6 6.6 7.3	0.9 9.7 30.8 40.9 58.2 64.9 71.5 78.8	

Approved By:

PLANT #		P-39					Contractor:				
Sample Date	:	8/22/22		(Concrete Grade:	DM, 4500HP					
Dates Test R	Represents:	8/23/2022	through	8/29/2022	-	-	MDOT No.:			-	
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				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		<u>Superior I</u> 30701 W. 2	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		100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		98.5	10		100.0	99.2	0.8	0.8			
3/4"		84.0	10		100.0	91.2	8.0	8.8			
1/2"		41.3	98	3.6	100.0	67.5	23.7	32.5			
3/8"		20.9	88		100.0	55.5	12.0	44.5	*Maximum %	Retained must be a	above the 3/8" sieve.
#4		2.7	23		96.7	39.8	15.7	60.2	*Any two adja	icent sieves must e	qual 10% except max.,
#8		1.7		.6	81.3	32.1	7.6	67.9	nom. max., #10	00 and #200 sieves	
#16		1.5		2	67.2	26.5	5.6	73.5			for each sieve except i
#30		1.3	2		50.9	20.2	6.3	79.8	nom. max., #100 and #200 sieves.		
#50		1.3	2		24.9	10.3	9.9	89.7	*% Retained must be at least 8% for the 1" sieve		
#100 LBW		1.2 1.1	2		7.3	3.6 1.2	6.7 2.4	96.4 98.8	a 2" max. size	(nom. Max. 1.5") ag	gregate is used.
		Batch Plant Gra	_	regate Supplier Gra							
Production G		Ű			-			on Sample (IPS	<i>.</i>		
Coarsene	ess Factor:	66	Worl	ability Factor:	32	34.6		eness Factor:	63		
45						_)	Work	ability Factor:	36		
4	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
-		52, 41					0"	% Passing	Retained	% Retained	
40			-58-40	68-40			2" 1.5"	100.0 100.0	0.0	0.0	
G ~ I				68, 38	75, 39		1.5	100.0	0.0	0.0	
\$ I			i	Ť			3/4"	89.7	10.3	10.3	
r (%											
tor (%			■ 60, 36	IPS_			1/2"	/0.2	10./	20.7	
-actor (%	\rightarrow		■ 60, 36	IPS Production	Gradation		1/2" 3/8"	70.3 59.1	19.4 11.2	29.7 40.9	
y Factor (%	45.33	52, 34	● 60, 36	IPS Production	Gradation		3/8"	59.1	11.2	40.9	
ility Factor (%	45, 33	52, 34	• 60, 36	Production			3/8" #4	59.1 42.8	11.2 16.3	40.9 57.2	
00 00 00 00 00 00 00 00 00 00 00 00 00	[6 0, 36	IPS Production 68,87			3/8" #4 #8	59.1 42.8 35.5	11.2 16.3 7.3	40.9 57.2 64.5	
orkability Factor (%	Operating Zone		• 60, 36	Production	12		3/8" #4 #8 #16	59.1 42.8 35.5 29.0	11.2 16.3 7.3 6.5	40.9 57.2 64.5 71.0	
ility Fa	[• 60, 36	Production			3/8" #4 #8 #16 #30	59.1 42.8 35.5 29.0 21.2	11.2 16.3 7.3 6.5 7.7	40.9 57.2 64.5 71.0 78.8	
Workability Factor (%	Operating Zone		50, 22	Production	12 75, 28		3/8" #4 #8 #16	59.1 42.8 35.5 29.0	11.2 16.3 7.3 6.5	40.9 57.2 64.5 71.0	

Approved By: Mart P. Ball

PLANT		P-02	-				Contractor:				
Sample Date Dates Test R		8/22/22 8/23/2022	- through	8/29/2022	Concrete Grade:	DM, 4500HP					
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	250	1.53	2.62	8.6					
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6					_
		Total Wt		17.69		100.0	< Verify this n	umber is 100%		MATI	E R
Sieve	(6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior</u> 30701 W.	
2"	1	100.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"	1	100.0	10	0.0	100.0	100.0	0.0	0.0		Farmingto	n Hil
1"		98.8	100	0.0	100.0	99.4	0.6	0.6			
3/4"		81.2	10		100.0	90.3	9.1	9.7			
1/2"		43.1	97	.1	100.0	70.3	20.0	29.7			
3/8"		21.8	85		100.0	58.2	12.0	41.8	*Maximum %	Retained must be	abov
#4		3.4	25	5.5	96.7	42.2	16.0	57.8	*Any two adja	icent sieves must e	qual
#8		1.9	7.	.7	77.8	32.4	9.8	67.6	nom. max., #10	00 and #200 sieves	<i>.</i>
#16		1.6	3.		61.9	25.6	6.8	74.4	*% Retained	must be at least 4%	5 for
#30		1.5	2.		47.9	20.0	5.7	80.0	nom. max., #10	00 and #200 sieves	j.
#50		1.4	2.		27.7	11.9	8.1	88.1	*% Retained	must be at least 8%	o for
#100		1.4	2.		7.7	4.0	7.9	96.0	a 2" max. size	(nom. Max. 1.5") a	ggre
LBW		1.2	1.	.6	0.9	1.1	2.8	98.9			
Production G	Gradation	O Batch Plant Gra	dations 💿 Agg	regate SupplierGra	adations	Adjusted WF	Intial Production	on Sample (IPS	5)	•	
Coarsene	ess Factor:	62	Work	ability Factor	: 32	34.9	Coars	eness Factor:	63		
45							Work	ability Factor:	35		_
	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
	-10, +1				5111 20110		Sieve	% Passing	Retained	% Retained	
40		52, 41	\downarrow				2"	100.0	0.0	0.0	
् ⁴⁰			58, 39	68, 39	75, 39		1.5"	100.0	0.0	0.0	
<u>ව</u>			i		Í		1"	100.0	0.0	0.0	l l
Ē Į			6 0, 36				3/4"	95.1	4.9	4.9	l
Workability Factor (%)			Pi	Contraction Gradatic	on		1/2"	74.6	20.5	25.4	
≝		52, 34		!			3/8"	59.3	15.3	40.7	
i j	45, 33						#4 #8	42.1	17.2	57.9	
ig 30 -		_	58, 31	6688.33	n 🛛			35.1	7.1	64.9	
ž	Operating Zone	e					#16 #30	29.2 21.9	5.9 7.3	70.8 78.1	l
₽ IL	Boundary				75, 28		#30 #50	21.9 9.6	12.4	90.4	
> 25							#50	9.0	12.4	90.4	l l

75

80



als, LLC Rd. VII 48336

e 3/8" sieve. except max., sieve except max., " sieve when is used.

2.4

0.9

#100

LBW

7.2

1.5

97.6

99.1

SM, LLC Technical Service

 $\operatorname{Coarseness}^{60}\operatorname{Factor}^{65}(\%)^{70}$

45

PREPARED BY:

ActionLimits Boundary = - - - -

50

55

25

40

Approved By: Mart P. Ball