Production	Gradation	Report
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PLANT # Sample Date:		P-101 7/11/22	-	ť	Concrete Grade:	DM 4500HP	Contractor:			-
Dates Test R			- through	7/18/2022	JUNCIELE Graue.	Divi, 4000		:		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution	7			
6AA	71-47	Presque Isle	1460	8.93	2.62	50.2	1			
26A	71-47	Presque Isle	300	1.83	2.62	10.3	1			
2NS	75-051	Mid Michigan	1150	6.93	2.66	39.5]			SU
		Total Wt	t 2910	17.69		100.0	< Verify this n	umber is 100%	-	MAT
Sieve	(6AA	26	ЪА	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superi</u> 30701 \
2"		100.0	100		100.0	100.0	0.0	0.0	1	Suite 5
1.5"		100.0	100		100.0	100.0	0.0	0.0		Farmin
1"		96.4	100		100.0	98.2	1.8	1.8		
3/4"		84.0	100		100.0	92.0	6.2	8.0		
1/2"		43.3	98	-	100.0	71.4	20.6	28.6	1	
3/8"		28.2	88		100.0	62.8	8.6	37.2		Retained mus
#4		5.8	22.2		98.9 83.2	44.3	18.5	55.7		acent sieves mi
#8		2.2		5.0		34.5	9.8	65.5		00 and #200 si
#16		1.7	3.		66.7	27.5	7.0	72.5		must be at leas
#30		1.6	2.		51.0	21.2	6.3	78.8		00 and #200 si
#50		1.5	2.		26.9	11.6	9.6	88.4		must be at leas
#100 LBW		1.4	2.		7.0	3.7 1.2	7.9		a 2" max. size ((nom. Max. 1.5
		1.3	2.	-	0.8		2.5	98.8	1	
Production G	radation	Batch Plant Gra	dations (•) Agg	gregate Supplier Gra			Initial Producti	tion Sample (IPS	3)	_
Coarsene	ess Factor:	: 57	Work	kability Factor:	: 34	37.0	Coars	seness Factor:		1
45							Work	kability Factor:		1
	45, 44				JMF Zone	¬ ′	Sieve	Cumulative	%	Cumulati
1	-0,	53.44				_ '	SIEVE	% Passing	Retained	% Retain
40		52, 41					2"	100.0	0.0	0.0
ج ⁴⁰ آ			57, 39	67, 39 68, 3	38 75, 39		1.5"	100.0	0.0	0.0
<u>်</u>			Production Gr		0		1"	100.0	0.0	0.0
<u>5</u>			■ Production Gi	AGailon Age	I		3/4"	95.0	5.0	5.0
Workability Factor (%)			· ·		I		1/2"	70.5	24.5	29.5
	45, 33	52, 34	+	i	I		3/8"	60.0	10.5	40.0
lii li	40, 33		57, 31	67 ₆ 8,13	1		#4	44.4	15.6	55.6
	<u> </u>	_		C . 00, 0	31		#8	35.5	9.0	64.5
¥ ∥	Operating Zone	a			75, 28		#16	28.5	7.0 7.0	71.5
l₽ !L	Boundary				10,20		#30	21.5		78.5
> 25						'	#50	10.2	11.3	89.8

75

80

60 **Coarseness Factor (%)**



perior Materials, LLC 701 W. 10 Mile Rd. ite 500 rmington Hills, MI 48336

must be above the 3/8" sieve. es must equal 10% except max., 00 sieves. least 4% for each sieve except max., 00 sieves. least 8% for the 1" sieve when k. 1.5") aggregate is used.

96.9

98.7

7.1

1.8

#100

LBW

3.1

1.3

PREPARED BY: SM, LLC Technical Service

50

55

45

ActionLimits Boundary = - - - - -

40

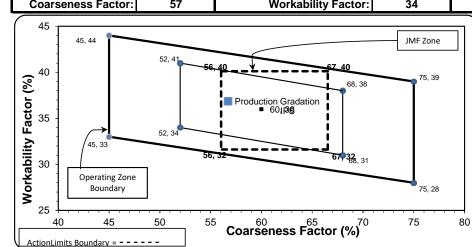
Approved By:

PLANT #	#:	P-102					Contractor:			
Sample Date	:	7/11/22		(Concrete Grade	e: DM, 4500HP				
Dates Test R	epresents:	7/12/2022	through	7/18/2022			MDOT No.:			
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				SUP
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%		MATE
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior I</u> 30701 W. 1
2"	1	00.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500
1.5"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Farmingtor
1"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		
3/4"		90.6	100	0.0	100.0	94.9	5.1	5.1		
1/2"		51.8	99	.8	100.0	73.8	21.1	26.2		
3/8"		32.7	89	.3	100.0	62.8	11.1	37.2	*Maximum %	Retained must be a
#4		5.4	19	.6	98.8	42.8	20.0	57.2	*Any two adja	cent sieves must e
#8		2.3	6.	6	83.8	34.4	8.4	65.6	nom. max., #10	00 and #200 sieves
#16		1.5	4.	-	66.2	26.9	7.5	73.1	*% Retained I	must be at least 4%
#30		1.4	3.		48.5	19.9	7.0	80.1	nom. max., #10	00 and #200 sieves
#50		1.2	2.		24.4	10.4	9.5	89.6	*% Retained I	must be at least 8%
#100		1.2	2.		7.4	3.7	6.6	96.3	a 2" max. size	(nom. Max. 1.5") ag
LBW		1.0	2.	6	1.3	1.2	2.5	98.8		
Production G	radation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gra	adations	Adjusted WF	Intial Production	on Sample (IPS	5)	
Coarsene	ess Factor:	57	Work	ability Factor:	34	36.9	Coars	eness Factor:	61	
45							Work	ability Factor:	36	
	15, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained



Materials, LLC 10 Mile Rd. on Hills, MI 48336

above the 3/8" sieve. equal 10% except max., 6 for each sieve except max., 6 for the 1" sieve when ggregate is used.



	on oumpic (in o	7	
Coars	seness Factor:	61	
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

Approved By: Mary 1. Ball

PLANT :	#:	P-103	_				Contractor:				
Sample Date		7/11/22	-	C	Concrete Grade	DM, 4500HP					
Dates Test R	Represents:	7/12/2022	through	7/18/2022			MDOT No.:				
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		6.95	2.65	39.0				SUD	ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%		MATE	RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		Superior 30701 W. 1	<u>Materials, LLC</u> 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"		100.0	10		100.0	100.0	0.0	0.0			
3/4"		90.6	10		100.0	94.9	5.1	5.1			
1/2"		51.8	99	.8	100.0	73.8	21.1	26.2			
3/8"		32.7	89	.3	100.0	62.8	11.1	37.2	*Maximum %	Retained must be a	above the 3/8" sieve.
#4		5.4	19	0.6	98.8	42.8	20.0	57.2	*Any two adja	cent sieves must e	qual 10% except max.,
#8		2.3	6	6	83.8	34.4	8.4	65.6	nom. max., #10	00 and #200 sieves	
#16		1.5	4	.0	66.2	26.9	7.5	73.1	*% Retained	must be at least 4%	for each sieve except
#30		1.4	3	.1	48.5	19.9	7.0	80.1	nom. max., #10	00 and #200 sieves	
#50		1.2	2		24.4	10.4	9.5	89.6	*% Retained	must be at least 8%	for the 1" sieve when
#100		1.2	2		7.4	3.7	6.6	96.3	a 2" max. size	(nom. Max. 1.5") aç	gregate is used.
LBW		1.0		.6	1.3	1.2	2.5	98.8			
Production G	Gradation	O Batch Plant Gra	adations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	S)	_	
Coarsene	ess Factor:	57	Work	ability Factor:	34	36.9	Coars	eness Factor:	61		
45							Work	ability Factor:	36		
45	45, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	
1		52, 41		_			2"	100.0	0.0	0.0	
4 0		56	40	67.40	75, 39		1.5"	100.0	0.0	0.0	
8			!	68, 38	10, 39		1"	99.3	0.7	0.7	
2			Production Gra	dation			3/4"	89.2	10.1	10.8	
Factor (%)			■ 60, F3	i			1/2"	70.7	18.5	29.3	
E E	\rightarrow	52, 34		!			3/8"	60.7	10.0	39.3	
	45, 33		L				#4	44.4	16.3	55.6	
-		56	, 32	67, 32, 31			#8	35.9	8.5	64.1	
ia 30 1	+						#16	27.3	8.6	72.7	
kabi 30	Operating Zone	1			75, 28		#30	19.1	8.2	80.9	
orkabi	Operating Zone Boundary				15,20						
Worka					75,20		#50	7.4	11.7	92.6	
30 Norkabi			5 60 Coarseness	65 70	75,28	80	#50 #100 LBW	7.4 1.9 0.7	11.7 5.6 1.2	92.6 98.1 99.3	

Approved BY: Mary P. Ball

Superior M 30701 W. 10 Suite 500	
Superior M 30701 W. 10 Suite 500	
30701 W. 10 Suite 500	
	<u>Materials, LLC</u> 10 Mile Rd.
Farmington	
	n Hills, MI 48336
	above the 3/8" sieve.
	equal 10% except max.,
and #200 sieves.	
	% for each sieve except
and #200 sieves.	s. % for the 1" sieve when
	aggregate is used.
11. Max. 1.5) ag	aggregate is used.
Cumulative	1
% Retained	
0.0	1
0.0	
0.7	
11.0	1
	4
	4
	4
	4
	-
	1
-	1
93.7	-1
	11.0 29.7 40.1 58.1 64.1 72.2 81.1

Approved By:

#:						Contractor:			-	
:	7/11/22		C	oncrete Grade	DM, 4500HP					
epresents:	7/12/2022	through	7/18/2022			MDOT No.:			_	
Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
71-47	Presque Isle	1755		2.62	60.4					
71-47	Presque Isle	0			0.0					
95-013	Smelter Bay			2.65					SUP	ERIOR
	Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	1		RIALS
	6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			<u>Materials, LLC</u> 10 Mile Rd.
1	00.0	10	0.0	100.0	100.0	0.0	0.0	1	Suite 500	
				100.0	100.0	0.0	0.0	1	Farmingto	n Hills, MI 48336
1	00.0			100.0	100.0	0.0	0.0			
				100.0	91.0	9.0	9.0			
		-	-				-	*Maximum %	Retained must be a	above the 3/8" sieve.
		-								
										•
								· · · · ·		
									(110111. Max. 1.5) aç	jgregate is used.
radation	-		-			-		6)		
ss Factor:	62	Work	ability Factor:	34				<i>.</i>	1	
			,, j							
									Cumulative	
5, 44										
				JMF Zone		Sieve				
	52, 41	3.40	67 40	JMF Zone		Sieve 2"	% Passing 100.0	Retained 0.0	% Retained 0.0	
	52, 41 56	5.40	67, 40	75, 39			% Passing	Retained	% Retained	
	52, 41 56		68, 38	75, 39		2" 1.5" 1"	% Passing 100.0 100.0 100.0	Retained 0.0 0.0 0.0	% Retained 0.0 0.0 0.0	
	52, 41 56		68, 38	75, 39		2" 1.5" 1" 3/4"	% 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	
	52, 4			75, 39		2" 1.5" 1" 3/4" 1/2"	% 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	
	52, 41 56		68, 38	75, 39		2" 1.5" 1" 3/4" 1/2" 3/8"	% Passing 100.0 100.0 100.0 95.0 72.3 60.4	Retained 0.0 0.0 5.0 22.8 11.8	% Retained 0.0 0.0 0.0 27.7 39.6	
45, 33	5		68, 38 Production Gradatio S	75, 39		2" 1.5" 1" 3/4" 1/2" 3/8" #4	% Passing 100.0 100.0 100.0 72.3 60.4 42.6	Retained 0.0 0.0 0.0 22.8 11.8 17.8	% Retained 0.0 0.0 0.0 27.7 39.6 57.4	
45, 33	5		68, 38	75, 39		2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	% Passing 100.0 100.0 100.0 72.3 60.4 42.6 36.0	Retained 0.0 0.0 0.0 22.8 11.8 17.8 6.6	% Retained 0.0 0.0 0.0 27.7 39.6 57.4 64.0	
Operating Zone	52, 34		68, 38 Production Gradatio S	n		2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	% Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5	Retained 0.0 0.0 0.0 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	
	52, 34		68, 38 Production Gradatio S	75, 39		2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	% Passing 100.0 100.0 100.0 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 5.0 27.7 39.6 57.4 64.0 70.5 79.7	
Operating Zone	52, 34		68, 38 Production Gradatio S	n		2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	% Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5	Retained 0.0 0.0 0.0 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	
	epresents: Pit # 71-47 71-47 95-013 1 1 1 1 1 1 1 1 1 1 1 1 1	epresents: 7/12/2022 Pit # Source 71-47 Presque Isle 95-013 Smelter Bay Total Wt 6AA 100.0 100.0 100.0 100.0 100.0 32.1 54.6 32.1 5.0 2.3 2.0 1.9 1.8 1.7 1.3 Tradation Batch Plant Gra	7/11/22 epresents: 7/12/2022 through Pit # Source Weight (ssp) 71-47 Presque Isle 1755 71-47 Presque Isle 0 95-013 Smelter Bay 1150 Total Wt 2905 6AA 26 100.0 100 2.3 11	7/11/22 7/11/22 through 7/18/2022 Pit # Source Weight (ssp) ft ³ 71-47 Presque Isle 1755 10.73 71-47 Presque Isle 0 0.00 95-013 Smelter Bay 1150 6.95 Total Wt 2905 17.69 6AA 26A 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 2.3 11.0 2.0 4.9 1.9 3.5 1.8 3.1 1	7/11/22 Concrete Grade epresents: 7/12/2022 through 7/18/2022 Pit # Source Weight (ssp) ft ³ Specific Gravity 71-47 Presque Isle 1755 10.73 2.62 71-47 Presque Isle 0 0.00 2.62 95-013 Smelter Bay 1150 6.95 2.65 Total Wt 2905 17.69 100.0 6AA 26A 2NS 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 32.1 82.3 100.0 23.1 2.0 4.9 68.2 1.9 3.5 1.9 3.5 49.7 1.8 3.1 25.5 1.7 2.9 8.2 1.3 2.5 1.6	T/11/22 Concrete Grade: DM, 4500HP epresents: 7/12/2022 through 7/18/2022 Pit # Source Weight (ssp) ft³ Specific Gravity % Contribution 71-47 Presque Isle 1755 10.73 2.62 60.4 71-47 Presque Isle 0 0.00 2.62 0.0 95-013 Smelter Bay 1150 6.95 2.65 39.6 Total Wt 2905 17.69 100.0 100.0 6AA 26A 2NS Cumulative % Passing 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 32.1 82.3 100.0 72.6 32.1 82.3 100.0 59.0	7/11/22 Concrete Grade: DM, 4500HP epresents: 7/12/2022 through 7/18/2022 MDOT No.: Pit # Source Weight (ssb) ft ³ Specific Gravity % Contribution 71-47 Presque Isle 1755 10.73 2.62 60.4 71-47 Presque Isle 0 0.00 2.62 39.6 50-013 Smelter Bay 1150 6.95 2.65 39.6 Total Wt 2905 17.69 100.0	T/11/22 Concrete Grade: DM, 4500HP epresents: 7/12/2022 through 7/18/2022 MDOT No.: Pit # Source Weight (ssp) ft ³ Specific Gravity % Contribution 71-47 Presque Isle 1755 10.73 2.62 60.4 71-47 Presque Isle 0 0.00 2.65 39.6 Total Wt 2905 17.69 100.0 c Verify this number is 10% 6AA 26A 2NS Cumulative % Passing % Retained 100.0 100.0 100.0 100.0 0.0 0.0 100.0 100.0 100.0 100.0 0.0 0.0 100.0 100.0 100.0 100.0 0.0 0.0 100.0 100.0 100.0 100.0 9.0 9.0 54.6 95.8 100.0 72.6 18.4 27.4 32.1 82.3 100.0 59.0 13.6 41.0 5.0 29.1	7/11/22 Concrete Grade: DM, 4500HP epresents: 7/12/2022 through 7/18/2022 Pit # Source Weight (ssp) ft ³ Specific % 71-47 Presque Isle 1755 10.73 2.62 0.0 95-013 Smelter Bay 1150 6.95 2.65 39.6 Total Wt 2905 17.69 100.0 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 0.0 0.0 0.0 100.0 100.0 100.0 100.0 9.0 9.0 9.0 54.6 95.8 100.0 72.6 18.4 27.4 *At two adje 32.1 82.3 100.0 59.0 1	T/11/22 Concrete Grade: DM, 4500HP epresents: 7/12/2022 through 7/18/2022 Pit # Source Weight (sso) ft ³ Gravity Contribution 71-47 Presque Isle 0 0.00 2.62 60.4

Approved By:

PLANT #	#:	P-35					Contractor:				
Sample Date	:	7/11/22		(Concrete Grade:	DM, 4500HP					
Dates Test R	epresents:	7/12/2022	through	7/18/2022			MDOT No.:				
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				SUD	ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%			ERIALS
Sieve	(5AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		30701 W.	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"		00.0	100		100.0	100.0	0.0	0.0			
3/4"		90.6	100		100.0	94.9	5.1	5.1			
1/2"		51.8	99		100.0	73.8	21.1	26.2			
3/8"		32.7	89		100.0	62.8	11.1	37.2			above the 3/8" sieve.
#4		5.4	19		98.8	42.8	20.0	57.2			equal 10% except max.,
#8		2.3	6.		83.8	34.4	8.4	65.6	-	00 and #200 sieves	
#16 #30		1.5	4.	-	66.2	26.9	7.5 7.0	73.1 80.1			6 for each sieve except
#30 #50		1.4 1.2	3.		48.5 24.4	19.9 10.4	9.5	80.1 89.6	-	00 and #200 sieves	3. 6 for the 1" sieve when
#100		1.2	2.		7.4	3.7	9.5 6.6	96.3		(nom. Max. 1.5") a	
LBW		1.0	2.		1.3	1.2	2.5	98.8	a 2 111ax. 3126	(1011: 104. 1.5) a	ggregate is used.
Production G		Batch Plant Gra	dations 💿 Aggr	egate Supplier Gra				on Sample (IPS	5)		
Coarsene	ess Factor:	57	Work	ability Factor:	34	36.9		eness Factor:	61		
				,, ,,, ,				ability Factor:	36		
⁴⁵								Cumulative	%	Cumulative	
- 4	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
		52, 41					2"	100.0	0.0	0.0	
2 ⁴⁰		56,	# 0		75, 39		1.5"	100.0	0.0	0.0	
8			!	68, 38			1"	99.3	0.7	0.7	
b l			Production Grad 60,136	dation			3/4"	89.1	10.2	10.9	
tz 35			- ^{00,} 198	i			1/2"	70.5	18.6	29.5	
ГЩ I		52, 34		!			3/8"	60.5	10.0	39.5	
lity	45, 33						#4	44.1	16.4	55.9	
ig 30 [56,	31	67, Ø8, 31			#8	35.6	8.5	64.4	
Workability Factor (%)	Operating Zone						#16	27.7	7.9	72.3	
§ _	Boundary				75, 28		#30	20.6	7.1	79.4	
S 25							#50	8.7	11.8 7.1	91.3	
1 20 1		50 55	Coarseness	65 70	75	80	#100 LBW	1.6 1.1	0.6	98.4 98.9	
40	45	00 00									

PREPARED BY: SM, LLC Technical Service

Approved By:

PLANT #	#:	P-36					Contractor:				
Sample Date:	:	7/11/22		C	Concrete Grade	DM, 4500HP					
Dates Test Re	epresents:	7/12/2022	through	7/18/2022			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	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%			RIALS
Sieve	(6AA	26	A	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		Suite 500	
1.5"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		00.0	10		100.0	100.0	0.0	0.0			
3/4"		87.6	10		100.0	93.1	6.9	6.9			
1/2"		47.3	95		100.0	70.6	22.6	29.4			
3/8"		22.4	82	-	100.0	55.9	14.7	44.1			above the 3/8" sieve.
#4		2.7	29		97.4	40.4	15.5	59.6			qual 10% except max.,
#8		1.6	11	-	82.4	32.8	7.5	67.2		00 and #200 sieves	
#16 #30		<u>1.4</u> 1.4	4.		67.0 47.6	26.5 19.0	6.4 7.4	73.5 81.0			for each sieve except r
#30 #50		1.3	3.		17.3	7.5	11.6	92.5	,	00 and #200 sieves	for the 1" sieve when
#100		1.2	2.		3.3	2.1	5.4	97.9		(nom. Max. 1.5") ag	
				0	0.0		0.4				ggregate is used.
LBW		0.9	2.	.5	0.4	0.8	1.3	99.2			
LBW				5 regate Supplier Gra				99.2 on Sample (IPS	3)	. , ,	
LBW Production G		0.9	dations 💿 Agg	-			Intial Production		6 3		
LBW Production G Coarsene	radation	0.9	dations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Productio	on Sample (IPS	<i>.</i>		
LBW Production G Coarsene	radation ss Factor:	0.9	dations 💿 Agg	regate Supplier Gra	dations 33	Adjusted WF	Intial Productio Coars Work	on Sample (IPS eness Factor:	63	Cumulative	l
LBW Production G Coarsene	radation	0.9	dations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Productio	on Sample (IPS eness Factor: ability Factor:	63 35		
LBW Production GI Coarsene	radation ss Factor:	0.9	dations 💿 Agg	regate Supplier Gra	dations 33	Adjusted WF	Intial Productio Coars Work Sieve 2"	on Sample (IPS eness Factor: ability Factor: Cumulative	63 35 %	Cumulative % Retained 0.0	
LBW Production G Coarsene	radation ss Factor:	0.9 O Batch Plant Gra 66	dations 💿 Agg	regate Supplier Gra cability Factor:	dations 33	Adjusted WF	Intial Productio Coars Work Sieve 2" 1.5"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	63 35 % Retained 0.0 0.0	Cumulative % Retained 0.0 0.0	
LBW Production G Coarsene	radation ss Factor:	0.9 O Batch Plant Gra 66	dations 💿 Agg	regate Supplier Gra	dations 33 JMF Zone	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.1	63 35 % Retained 0.0 0.0 0.0 0.9	Cumulative % Retained 0.0 0.0 0.9	
LBW Production G Coarsene	radation ss Factor:	0.9 O Batch Plant Gra 66	dations Agg Work 58, 32	regate Supplier Gra ability Factor:	dations 33 JMF Zone 75, 39	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 99.1 90.3	63 35 % Retained 0.0 0.0 0.0 0.9 8.8	Cumulative % Retained 0.0 0.0 0.9 9.7	
LBW Production G Coarsene	radation ss Factor:	0.9 O Batch Plant Gra 66	dations 💿 Agg	regate Supplier Gra cability Factor:	dations 33 JMF Zone 75, 39	Adjusted WF	Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2	63 35 % Retained 0.0 0.0 0.0 0.9 8.8 21.1	Cumulative % Retained 0.0 0.0 0.9 9.7 30.8	
LBW Production Gi Coarsene 45 40 40 40 40 40 40 40 40 40 40 40 40 40	radation ess Factor:	0.9 O Batch Plant Gra 66	dations Agg Work 58, 32	regate Supplier Gra ability Factor:	dations 33 JMF Zone 75, 39	Adjusted WF	Intial Productio 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 99.1 90.3 69.2 59.1	63 35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1	Cumulative % Retained 0.0 0.0 0.9 9.7 30.8 40.9	
LBW Production Gi Coarsene 45 40 40 40 40 40 40 40 40 40 40 40 40 40	radation ss Factor:	0.9	dations Agg Work 58, 32 60, 36	Potential Production	dations 33 JMF Zone 75, 39 Gradation	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 99.1 90.3 69.2 59.1 41.8	63 35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3	Cumulative % Retained 0.0 0.9 9.7 30.8 40.9 58.2	
LBW Production Gi Coarsene 45 40 40 40 40 40 40 40 40 40 40 40 40 40	radation ss Factor:	0.9 Batch Plant Gra 66 52, 41 52, 34	dations Agg Work 58, 32	regate Supplier Gra ability Factor:	dations 33 JMF Zone 75, 39 Gradation	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: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2 59.1 41.8 35.1	63 35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3 6.6	Cumulative % Retained 0.0 0.9 9.7 30.8 40.9 58.2 64.9	
LBW Production Gi Coarsene 45 40 40 40 40 40 40 40 40 40 40 40 40 40	radation ss Factor: 5, 44 45, 33 Operating Zone	0.9 Batch Plant Gra 66 52, 41 52, 34	dations Agg Work 58, 32 60, 36	Potential Production	dations 33 JMF Zone 75, 39 Gradation	Adjusted WF	Intial Production Coarse 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 99.1 90.3 69.2 59.1 41.8 35.1 28.5	63 35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3 6.6 6.6	Cumulative % Retained 0.0 0.9 9.7 30.8 40.9 58.2 64.9 71.5	
LBW Production Gi Coarsene 45 40 40 40 40 40 40 40 40 40 40	radation ss Factor:	0.9 Batch Plant Gra 66 52, 41 52, 34	dations	Potential Production	dations 33 JMF Zone 75, 39 Gradation	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: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2 59.1 41.8 35.1 28.5 21.2	63 35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3 6.6 6.6 7.3	Cumulative % Retained 0.0 0.9 9.7 30.8 40.9 58.2 64.9	
LBW Production Gi Coarsene 45 40 40 40 40 40 40 40 40 40 40 40 40 40	radation ss Factor: 5, 44 45, 33 Operating Zone	0.9 Batch Plant Gra 66 52, 41 52, 34	dations	Potential Production	dations 33 JMF Zone 75, 39 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: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2 59.1 41.8 35.1 28.5	63 35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3 6.6 6.6	Cumulative % Retained 0.0 0.9 9.7 30.8 40.9 58.2 64.9 71.5 78.8	

Approved By:

PLANT #	#:	P-39					Contractor:				
Sample Date):	7/11/22		(Concrete Grade:	DM, 4500HP				•	
Dates Test R	epresents:	7/12/2022	through	7/18/2022			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		Superior 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	10		100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		96.4	10		100.0	98.0	2.0	2.0			
3/4"		84.0	10		100.0	91.2	6.9	8.8			
1/2"		43.3	98		100.0	68.6	22.6	31.4			
3/8"		28.2	88		100.0	59.5	9.0	40.5	*Maximum %	Retained must be	above the 3/8" sieve.
#4		5.8	22		98.9	42.2	17.4	57.8			qual 10% except max.,
#8		2.2	5.		83.2	33.1	9.1	66.9		00 and #200 sieves	
#16		1.7	3.		66.7	26.4	6.6	73.6			for each sieve except
#30 #50		1.6 1.5	2.		51.0 26.9	20.4 11.2	6.0 9.2	79.6 88.8		00 and #200 sieves	
#30 #100		1.5	2.		7.0	3.6	9.2 7.6	96.4			for the 1" sieve when
LBW		1.4	2.		0.8	1.2	2.4	98.8	a z max. size	(nom. Max. 1.5") aç	ggregate is used.
Production G	radation	Batch Plant Gra		regate Supplier Gra				on Sample (IPS	5)		
	ess Factor:	60	Work	ability Factor	: 33	35.6		eness Factor:	63		
						00.0		ability Factor:	36		
⁴⁵]							WORK	Cumulative	%	Cumulative	
4	15, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
1		52, 41					2"	100.0	0.0	0.0	
a ⁴⁰			58, 40		75, 39		1.5"	100.0	0.0	0.0	
8			i	68, 38			1"	100.0	0.0	0.0	
2							3/4"	89.7	10.3	10.3	
Factor			∎¶ ^e rodt	ictli86 Gradation			1/2"	70.3	19.4	29.7	
ц, Т		52, 34					3/8"	59.1	11.2	40.9	
lity	45, 33						#4	42.8	16.3	57.2	
iq 30		_	58, 22	68 68,81	32		#8	35.5	7.3	64.5	
ka [Operating Zone	2					#16	29.0	6.5	71.0	
Workability	Boundary				75, 28		#30	21.2	7.7	78.8	
< 15 L							#50	9.8	11.5	90.2	
25 40	45	50 55	60	65 70	75	80	#100 LBW	3.7 1.2	6.1	96.3 98.8	
			Coarseness	Factor (%)			LBVV	1.2	2.5	90.0	

Approved By: Mart P. Ball

PLANT :	#:	P-02					Contractor:				
Sample Date	ə:	7/11/22	-		Concrete Grade	DM, 4500HP					
Dates Test R	Represents:	7/12/2022	through	7/18/2022			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	150	0.92	2.62	5.2					
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6				SUP	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	1		FIALS
Sieve	1	6AA	26	Α	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		100.0	100.0	0.0	0.0	1	Farmingto	n Hills, MI 48336
1"		100.0	100	0.0	100.0	100.0	0.0	0.0	1		
3/4"		87.6	100		100.0	93.1	6.9	6.9			
1/2"		47.3	95	-	100.0	70.7	22.5	29.3			
3/8"		22.4	82		100.0	56.2	14.5	43.8	*Maximum %	Retained must be	above the 3/8" sieve.
#4		2.7	29		96.7	41.3	14.9	58.7			equal 10% except max.,
#8		1.6	11		79.3	32.8	8.4	67.2		00 and #200 sieves	
#16		1.4	4.		61.8	25.5	7.4	74.5			6 for each sieve except
#30 #50		1.4	3.		45.5	19.0	6.5	81.0		00 and #200 sieves	
#50 #100		1.3 1.2	3.		24.7 4.9	10.7 2.8	8.3 7.9	89.3 97.2			6 for the 1" sieve when
LBW		0.9	2.		1.0	1.0	1.7	97.2	a z max. size	(nom. Max. 1.5") aç	ggregate is used.
Production G	Gradation	Batch Plant Gra		egate SupplierGra		-		on Sample (IPS	6)		
Coarsene	ess Factor:	65	Work	ability Factor	: 33	35.3	Coars	eness Factor:	63		
				•	•		Work	ability Factor:	35		
45		_			JMF Zone			Cumulative	%	Cumulative	
1 '	45, 44				JIVIF ZONE		Sieve	% Passing	Retained	% Retained	
.]		52, 41					2"	100.0	0.0	0.0	
् ⁴⁰			58, 39	68, 39 68, 38	75, 39		1.5"	100.0	0.0	0.0	
ల 1			i		Í		1"	100.0	0.0	0.0	
Ē			6 0, 36		One de lie a		3/4"	95.1	4.9	4.9	
2 35 -			i		Gradation		1/2"	74.6	20.5	25.4	
ַ ָּ ט		52, 34					3/8" #4	59.3 42.1	15.3 17.2	40.7 57.9	
y Fa	45.00			i			#4 #8	35.1	7.1	57.9 64.9	
ility Fa	45, 33						#0			04.3	
ability Fa			58, 31	689.33	1		#16	20.2	59	70.8	
orkability Fa	Operating Zone	2	58, 31	6683.331			#16 #30	29.2 21.9	5.9 7.3	70.8 78.1	
ability Fa		2	58, 31	6 8 8.39	75, 28		#30	21.9	7.3	70.8 78.1 90.4	
A0	Operating Zone	50 55		688; 38 665 Factor (%)	75, 28	80				78.1	

Approved By: