

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-32**

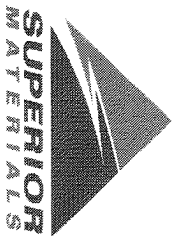
Sample Date: **4/6/20**

Dates Test Represents: **4/7/2020** through **4/13/2020**

Concrete Grade: **S2M**

Contractor: _____

MDOT No.: _____



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

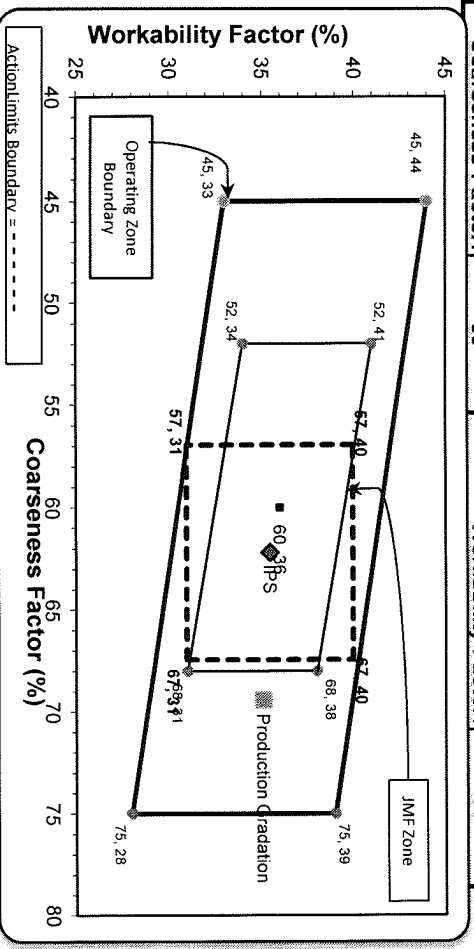
Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1470	8.99	2.62	48.2
26A	71-47	Presque Isle	300	1.83	2.62	9.8
2NS	63-115	Ray Rd	1280	7.74	2.65	42.0
		Total Wt	3050	18.57		100.0

Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	86.7	100.0	100.0	93.6	6.4	6.4
1/2"	30.7	97.3	100.0	66.3	27.3	33.7
3/8"	9.0	87.8	100.0	54.9	11.4	45.1
#4	3.8	25.4	96.8	45.0	10.0	55.0
#8	3.2	7.4	78.2	35.1	9.9	64.9
#16	3.0	3.4	60.6	27.2	7.9	72.8
#30	2.8	2.8	46.9	21.3	5.9	78.7
#50	2.6	2.5	23.3	11.3	10.0	88.7
#100	2.4	2.3	5.5	3.7	7.6	96.3
LBW	1.9	1.8	1.0	1.5	2.2	98.5

*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max.
 nom. max.: #100 and #200 sieves.
 **Retained must be at least 4% for each sieve except max..
 nom. max.: #100 and #200 sieves.
 ***Retained must be at least 8% for the 1" sieve when
 a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **69** Workability Factor: **35**



Initial Production Sample (IPPS)

Coarseness Factor:	Workability Factor:	62	35
Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	100.0	0.0	0.0
3/4"	94.0	6.0	6.0
1/2"	70.2	23.7	29.8
3/8"	59.9	10.4	40.1
#4	42.7	17.2	57.3
#8	35.5	7.2	64.5
#16	28.4	7.0	71.6
#30	19.2	9.2	80.8
#50	8.9	10.3	91.1
#100	3.1	5.9	96.9
LBW	1.4	1.7	98.6

PREPARED BY:
SM, LLC Technical Service

Approved By: _____

Plant 958-JMT

Product 1054-6AA LS PI

Name/Title Doug Storey / QC Technician

Period: 04/05/2020 - 04/11/2020

Report Date 04/09/2020

Procedure	Sieve/Test	Result	Unit	6AA LS PI Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	100.0	%	95-100
	3/4" (19mm)	86.7	%	
	1/2" (12.5mm)	30.7	%	30-60
	3/8" (9.5mm)	9.0	%	
	#4 (4.75mm)	3.8	%	0-8
	#8 (2.36mm)	3.2	%	
	#16 (1.18mm)	3.0	%	
	#30 (.6mm)	2.8	%	
	#50 (.3mm)	2.6	%	
	#100 (.15mm)	2.4	%	
	#200 (75µm)	2.1	%	
	Wash Loss (#200/75um)	1.9	%	0-2
	Total Moisture	2.9	%	



Brennan Street
 Detroit, MI 48209
 (313) 429-2429

Plant 164-SCA DETROIT DOCK

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 04/05/2020 - 04/11/2020

Report Date 04/09/2020

Procedure	Sieve/Test	Result	Unit	26A Mod LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	97.3	%	95-100
	3/8" (9.5mm)	87.8	%	60-95
	#4 (4.75mm)	25.4	%	5-30
	#8 (2.36mm)	7.4	%	0-12
	#16 (1.18mm)	3.4	%	
	#30 (.6mm)	2.8	%	
	#50 (.3mm)	2.5	%	
	#100 (.15mm)	2.3	%	
	#200 (75µm)	2.0	%	
	Wash Loss (#200/75um)	1.8	%	0-3
	Total Moisture	4.4	%	

Edw. C. Levy Co.

8911 W. Jefferson
Detroit, 48209
(313) 429-2429

Plant 958-JMT

Product 1022-2NS GR

Period: 04/05/2020 - 04/11/2020

Name/Title Doug Storey / QC Technician

Report Date 04/09/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	96.8	%	95-100
	#8 (2.36mm)	78.2	%	65-95
	#16 (1.18mm)	60.6	%	35-75
	#30 (.6mm)	46.9	%	20-55
	#50 (.3mm)	23.3	%	10-30
	#100 (.15mm)	5.5	%	0-10
	#200 (75µm)	1.2	%	
	FM	2.89		2.6-3
	Wash Loss (#200/75um)	1.0	%	0-3
	Total Moisture	6.7	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-36

Sample Date: 4/6/20

Dates Test Represents: 4/7/2020 through 4/13/2020

Concrete Grade: S2M

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1450	8.87	2.62	47.5
26A	71-47	Presque Isle	400	2.45	2.62	13.1
2NS	63-92	Grange Hill	1200	7.26	2.65	39.3
Total Wt			3050	18.57		100.0

Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.0	100.0	100.0	99.5	0.5	0.5
3/4"	83.6	100.0	100.0	92.2	7.3	7.8
1/2"	52.8	97.8	100.0	77.3	14.9	22.7
3/8"	32.5	90.9	100.0	66.7	10.6	33.3
#4	5.2	26.0	97.3	44.2	22.6	55.8
#8	2.1	7.1	85.1	35.4	8.8	64.6
#16	1.9	3.8	69.8	28.9	6.5	71.1
#30	1.8	3.2	51.8	21.7	7.2	78.3
#50	1.7	2.9	24.0	10.6	11.0	89.4
#100	1.6	2.7	4.1	2.7	7.9	97.3
LBW	1.4	2.4	0.8	1.3	1.4	98.7



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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.0	100.0	100.0	99.5	0.5	0.5
3/4"	83.6	100.0	100.0	92.2	7.3	7.8
1/2"	52.8	97.8	100.0	77.3	14.9	22.7
3/8"	32.5	90.9	100.0	66.7	10.6	33.3
#4	5.2	26.0	97.3	44.2	22.6	55.8
#8	2.1	7.1	85.1	35.4	8.8	64.6
#16	1.9	3.8	69.8	28.9	6.5	71.1
#30	1.8	3.2	51.8	21.7	7.2	78.3
#50	1.7	2.9	24.0	10.6	11.0	89.4
#100	1.6	2.7	4.1	2.7	7.9	97.3
LBW	1.4	2.4	0.8	1.3	1.4	98.7

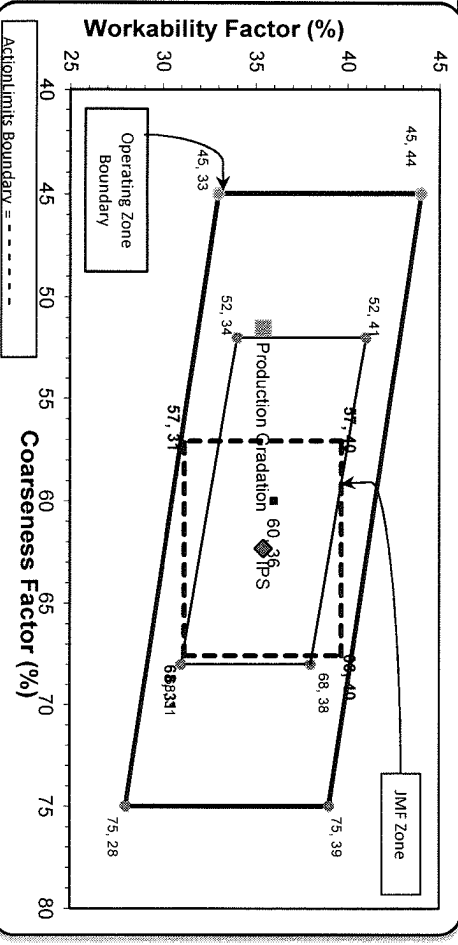
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max.
nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max.
nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when
a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 52 Workability Factor: 35

Initial Production Sample (IPS)

Coarseness Factor: 62 Workability Factor: 35



Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.1	0.9	0.9
3/4"	90.5	8.6	9.5
1/2"	69.8	20.7	30.2
3/8"	59.8	10.0	40.2
#4	42.2	17.6	57.8
#8	35.4	6.7	64.6
#16	28.8	6.7	71.2
#30	21.4	7.4	78.6
#50	8.8	12.6	91.2
#100	1.8	7.0	98.2
LBW	0.7	1.0	99.3

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 04/05/2020 - 04/11/2020

Report Date 04/09/2020

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	99.0	%	95-100
	3/4" (19mm)	83.6	%	
	1/2" (12.5mm)	52.8	%	30-60
	3/8" (9.5mm)	32.5	%	
	#4 (4.75mm)	5.2	%	0-8
	#8 (2.36mm)	2.1	%	
	#16 (1.18mm)	1.9	%	
	#30 (.6mm)	1.8	%	
	#50 (.3mm)	1.7	%	
	#100 (.15mm)	1.6	%	
	#200 (75µm)	1.47	%	
	Wash Loss (#200/75um)	1.4	%	0-2
	Total Moisture	4.85	%	



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 04/05/2020 - 04/11/2020

Report Date 04/09/2020

Procedure	Sieve/Test	Result	Unit	26A LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	97.8	%	95-100
	3/8" (9.5mm)	90.9	%	60-95
	#4 (4.75mm)	26.0	%	5-30
	#8 (2.36mm)	7.1	%	0-12
	#16 (1.18mm)	3.8	%	
	#30 (.6mm)	3.2	%	
	#50 (.3mm)	2.9	%	
	#100 (.15mm)	2.7	%	
	#200 (75µm)	2.5	%	
	Wash Loss (#200/75um)	2.4	%	0-3
	Total Moisture	6.44	%	



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 04/05/2020 - 04/11/2020

Report Date 04/09/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	97.3	%	95-100
	#8 (2.36mm)	85.1	%	65-95
	#16 (1.18mm)	69.8	%	35-75
	#30 (.6mm)	51.8	%	20-55
	#50 (.3mm)	24.0	%	10-30
	#100 (.15mm)	4.1	%	0-10
	#200 (75µm)	1.0	%	
	FM	2.68		2.6-3
	Wash Loss (#200/75um)	0.8	%	0-3
	Total Moisture	3.66	%	