

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-32**

Contractor: _____

Sample Date: **9/28/20**

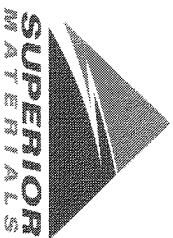
Concrete Grade: **S2M**

Dates Test Represents: **9/29/2020** through **10/5/2020**

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1820	11.13	2.62	59.7
26A	71-47	Presque Isle	0	0.00	2.62	0.0
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
		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"	96.7	100.0	100.0	98.0	2.0	2.0
3/4"	77.4	100.0	100.0	86.5	11.5	13.5
1/2"	38.1	98.3	100.0	63.1	23.5	36.9
3/8"	19.4	88.1	100.0	51.9	11.2	48.1
#4	3.3	20.3	96.7	41.0	10.9	59.0
#8	2.5	6.2	83.5	35.2	5.8	64.8
#16	2.2	3.3	67.4	28.5	6.7	71.5
#30	2.1	2.7	47.1	20.2	8.2	79.8
#50	2.0	2.5	22.6	10.3	9.9	89.7
#100	1.9	2.3	6.2	3.6	6.7	96.4
LBW	1.3	2.0	1.0	1.2	2.5	98.8

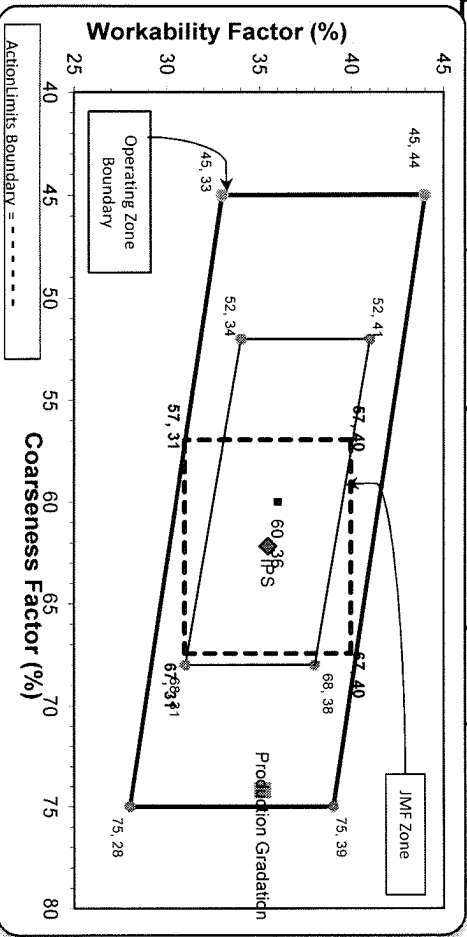


Superior Materials, LLC
 30701 W. 10 Mile Rd.
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*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max.
 nom. 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

Initial Production Sample (IPS)



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: 09/27/2020 - 10/03/2020

Report Date 10/03/2020

Procedure	Sieve/Test	Result	Unit	6AA LS PI Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	96.7	%	95-100
	3/4" (19mm)	77.4	%	
	1/2" (12.5mm)	38.1	%	30-60
	3/8" (9.5mm)	19.4	%	
	#4 (4.75mm)	3.3	%	0-8
	#8 (2.36mm)	2.5	%	
	#16 (1.18mm)	2.2	%	
	#30 (.6mm)	2.1	%	
	#50 (.3mm)	2.0	%	
	#100 (.15mm)	1.9	%	
	#200 (75µm)	1.5	%	
	Wash Loss (#200/75um)	1.3	%	0-2
	Total Moisture	2.5	%	

Plant 958-JMT

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 09/27/2020 - 10/03/2020

Report Date 10/03/2020

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)	98.3	%	95-100
	3/8" (9.5mm)	88.1	%	60-95
	#4 (4.75mm)	20.3	%	5-30
	#8 (2.36mm)	6.2	%	0-12
	#16 (1.18mm)	3.3	%	
	#30 (.6mm)	2.7	%	
	#50 (.3mm)	2.5	%	
	#100 (.15mm)	2.3	%	
	#200 (75µm)	2.1	%	
	Wash Loss (#200/75um)	2.0	%	0-3
	Total Moisture	2.2	%	

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Detroit, 48209
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Plant 958-JMT

Product 1022-2NS GR - Smelter Bay

Period: 09/27/2020 - 10/03/2020

Name/Title Doug Storey / QC Technician

Report Date 10/03/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	96.7	%	95-100
	#8 (2.36mm)	83.5	%	65-95
	#16 (1.18mm)	67.4	%	35-75
	#30 (.6mm)	47.1	%	20-55
	#50 (.3mm)	22.6	%	10-30
	#100 (.15mm)	6.2	%	0-10
	#200 (75µm)	1.3	%	
	FM	2.76		2.6-3
	Wash Loss (#200/75um)	1.0	%	0-3
	Total Moisture	5.0	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-36**

Contractor: _____

Sample Date: **9/28/20**

Concrete Grade: **S2M**

Dates Test Represents: **9/29/2020** through **10/5/2020**

MDOT No.: _____



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 Suite 500
 Farmington Hills, MI 48336

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	49.2
26A	71-47	Presque Isle	350	2.14	2.62	1.5
2NS	63-92	Grange Hall	1200	7.26	2.65	39.3
Total Wt:			3050	18.57		100.0

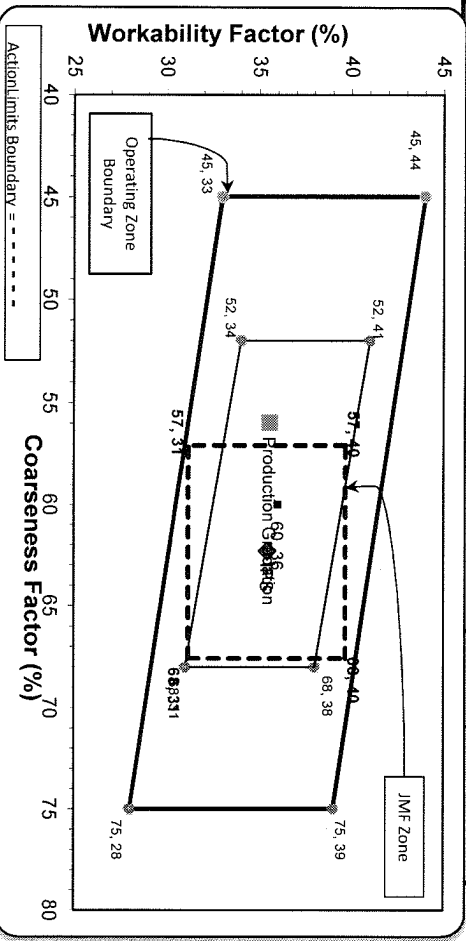
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	98.6	100.0	100.0	99.3	0.7	0.7
3/4"	83.0	100.0	100.0	91.6	7.7	8.4
1/2"	49.4	98.0	100.0	74.9	16.8	25.1
3/8"	29.4	88.2	100.0	63.9	11.0	36.1
#4	6.0	23.8	97.7	44.1	19.8	55.9
#8	3.2	7.1	84.3	35.6	8.6	64.4
#16	2.8	3.6	69.0	28.9	6.6	71.1
#30	2.6	2.9	47.6	20.3	8.6	79.7
#50	2.6	2.8	19.3	9.2	11.1	90.8
#100	2.4	2.6	3.5	2.9	6.3	97.1
LBW	1.9	2.2	1.1	1.6	1.2	98.4

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Initial Production Sample (IPS)

Coarseness Factor: **56** Workability Factor: **36**

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

*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.

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: 09/27/2020 - 10/03/2020

Report Date 10/03/2020

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	98.6	%	95-100
	3/4" (19mm)	83.0	%	
	1/2" (12.5mm)	49.4	%	30-60
	3/8" (9.5mm)	29.4	%	
	#4 (4.75mm)	6.0	%	0-8
	#8 (2.36mm)	3.2	%	
	#16 (1.18mm)	2.8	%	
	#30 (.6mm)	2.6	%	
	#50 (.3mm)	2.6	%	
	#100 (.15mm)	2.4	%	
	#200 (75µm)	2.2	%	
	Wash Loss (#200/75um)	1.9	%	0-2
	Total Moisture	3.36	%	
AASHTO T11	-#200 (75um)	2.16	%	



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 09/27/2020 - 10/03/2020

Report Date 10/03/2020

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)	98.0	%	95-100
	3/8" (9.5mm)	88.2	%	60-95
	#4 (4.75mm)	23.8	%	5-30
	#8 (2.36mm)	7.1	%	0-12
	#16 (1.18mm)	3.6	%	
	#30 (.6mm)	2.9	%	
	#50 (.3mm)	2.8	%	
	#100 (.15mm)	2.6	%	
	#200 (75µm)	2.4	%	
	Wash Loss (#200/75um)	2.2	%	0-3
	Total Moisture	2.67	%	



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 09/27/2020 - 10/03/2020

Report Date 10/03/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	97.7	%	95-100
	#8 (2.36mm)	84.3	%	65-95
	#16 (1.18mm)	69.0	%	35-75
	#30 (.6mm)	47.6	%	20-55
	#50 (.3mm)	19.3	%	10-30
	#100 (.15mm)	3.5	%	0-10
	#200 (75µm)	1.2	%	
	FM	2.79		2.6-3
	Wash Loss (#200/75um)	1.1	%	0-3
	Total Moisture	3.54	%	