

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-32**

Sample Date: 11/21/20

Dates Test Represents: 11/3/2020 through 11/9/2020

Concrete Grade: **DM**

Contractor: _____

MDOT No.: _____

Aggr. 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	95-013	Smelter Bay	1150	6.95	2.65	39.6
Total Wt			2905	17.69		100.0

Verify this number is 100%

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"	98.4	100.0	100.0	99.1	0.9	0.9
3/4"	85.9	100.0	100.0	92.2	6.9	7.8
1/2"	53.5	95.4	100.0	74.1	18.1	25.9
3/8"	36.7	81.6	100.0	64.1	10.0	35.9
#4	6.7	17.5	95.1	42.3	21.8	57.7
#8	3.1	5.7	82.8	34.8	7.5	65.2
#16	2.6	3.0	67.3	28.2	6.6	71.8
#30	2.5	2.5	46.5	19.9	8.3	80.1
#50	2.4	2.2	24.4	11.1	8.8	88.9
#100	2.3	2.0	8.6	4.8	6.3	95.2
LBW	1.9	1.4	1.1	1.6	3.2	98.4

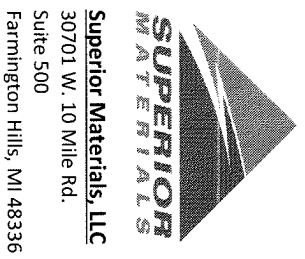
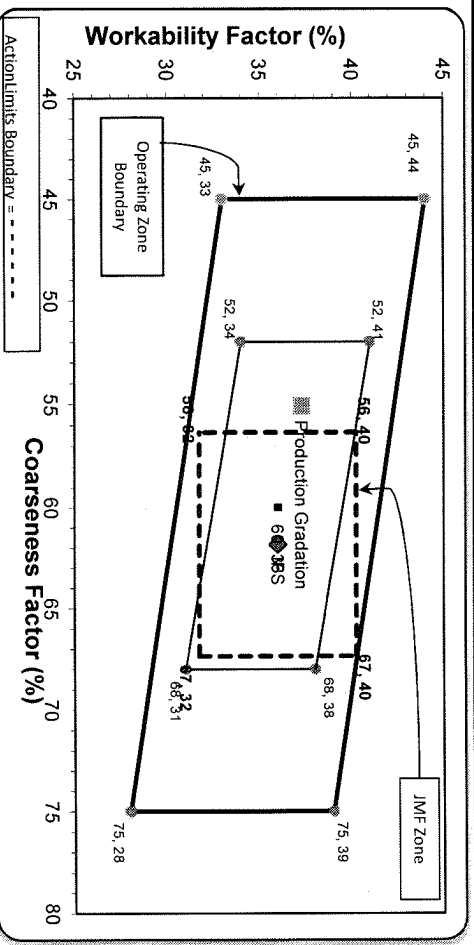
Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **55** Workability Factor: **35** Adjusted WF: **37.3**

Initial Production Sample (IPS)

Coarseness Factor: **62** Workability Factor: **36**

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"	95.0	5.0	5.0
1/2"	72.3	22.8	27.7
3/8"	60.4	11.8	39.6
#4	42.6	17.8	57.4
#8	36.0	6.6	64.0
#16	29.5	6.5	70.5
#30	20.3	9.2	79.7
#50	9.5	10.8	90.5
#100	3.4	6.1	96.6
LBW	1.3	2.1	98.7



Superior Materials, LLC
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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.

PREPARED BY:
SM, LLC Technical Service

Approved By:

Plant 958-JMT

Product 1054-6AA LS PI

Name/Title Doug Storey / QC Technician

Period: 11/01/2020 - 11/07/2020

Report Date 11/06/2020

Procedure	Sieve/Test	Result	Unit	6AA LS PI Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	98.4	%	95-100
	3/4" (19mm)	85.9	%	
	1/2" (12.5mm)	53.5	%	30-60
	3/8" (9.5mm)	36.7	%	
	#4 (4.75mm)	6.7	%	0-8
	#8 (2.36mm)	3.1	%	
	#16 (1.18mm)	2.6	%	
	#30 (.6mm)	2.5	%	
	#50 (.3mm)	2.4	%	
	#100 (.15mm)	2.3	%	
	#200 (75µm)	2.1	%	
	Wash Loss (#200/75um)	1.9	%	0-2
	Total Moisture	3.0	%	

Plant 958-JMT

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 11/01/2020 - 11/07/2020

Report Date 11/06/2020

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)	95.4	%	95-100
	3/8" (9.5mm)	81.6	%	60-95
	#4 (4.75mm)	17.5	%	5-30
	#8 (2.36mm)	5.7	%	0-12
	#16 (1.18mm)	3.0	%	
	#30 (.6mm)	2.5	%	
	#50 (.3mm)	2.2	%	
	#100 (.15mm)	2.0	%	
	#200 (75µm)	1.6	%	
	Wash Loss (#200/75µm)	1.4	%	0-3
	Total Moisture	3.7	%	

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Plant 958-JMT

Product 1022-2NS GR - Smelter Bay

Name/Title Doug Storey / QC Technician

Period: 11/01/2020 - 11/07/2020

Report Date 11/06/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.1	%	95-100
	#8 (2.36mm)	82.8	%	65-95
	#16 (1.18mm)	67.3	%	35-75
	#30 (.6mm)	46.5	%	20-55
	#50 (.3mm)	24.4	%	10-30
	#100 (.15mm)	8.6	%	0-10
	#200 (75µm)	1.4	%	
	FM	2.75		2.6-3
	Wash Loss (#200/75um)	1.1	%	0-3
	Total Moisture	5.1	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-36**

Contractor: _____

Sample Date: 11/21/20

Concrete Grade: **DM**

Dates Test Represents: 11/3/2020 through 11/9/2020

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
Total Wt			2905	17.69		100.0

Verify this number is 100%

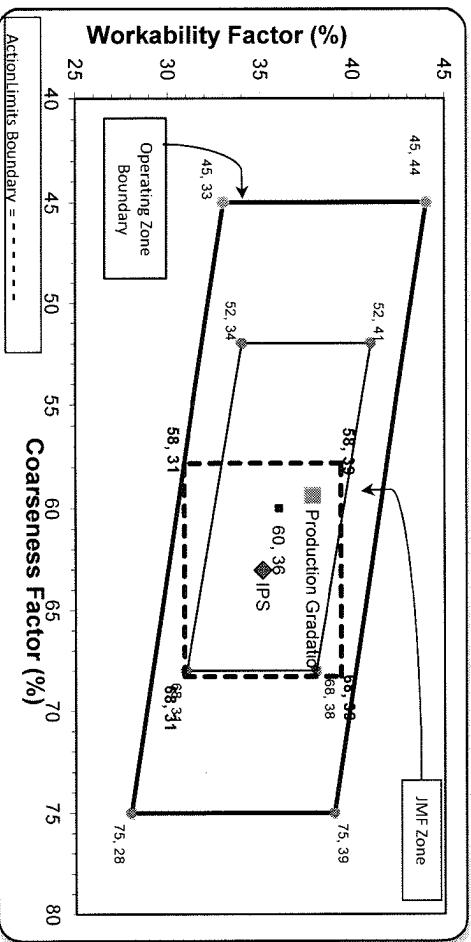
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	87.4	100.0	100.0	93.0	7.0	7.0
1/2"	51.2	98.2	100.0	72.9	20.1	27.1
3/8"	31.9	88.7	100.0	61.6	11.3	38.4
#4	5.7	21.2	98.2	41.8	19.8	58.2
#8	2.7	5.8	88.3	35.3	6.5	64.7
#16	2.2	2.8	67.8	27.1	8.2	72.9
#30	2.1	2.3	48.6	19.7	7.4	80.3
#50	1.9	2.2	26.4	11.2	8.5	88.8
#100	1.8	2.0	9.5	4.7	6.5	95.3
LBW	1.5	1.6	1.0	1.3	3.4	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. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **59** Workability Factor: **35** Adjusted WF: **37.8**

Initial Production Sample (IPS) Coarseness Factor: **63** 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"	90.3	8.8	9.7
1/2"	69.2	21.1	30.8
3/8"	59.1	10.1	40.9
#4	41.8	17.3	58.2
#8	35.1	6.6	64.9
#16	28.5	6.6	71.5
#30	21.2	7.3	78.8
#50	8.7	12.5	91.3
#100	1.8	7.0	98.2
LBW	0.7	1.0	99.3



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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: 11/01/2020 - 11/07/2020

Report Date 11/06/2020

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	100.0	%	95-100
	3/4" (19mm)	87.4	%	
	1/2" (12.5mm)	51.2	%	30-60
	3/8" (9.5mm)	31.9	%	
	#4 (4.75mm)	5.7	%	0-8
	#8 (2.36mm)	2.7	%	
	#16 (1.18mm)	2.2	%	
	#30 (.6mm)	2.1	%	
	#50 (.3mm)	1.9	%	
	#100 (.15mm)	1.8	%	
	#200 (75µm)	1.7	%	
	Wash Loss (#200/75um)	1.5	%	0-2
	Total Moisture	2.13	%	
AASHTO T11	-#200 (75um)	1.68	%	



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 11/01/2020 - 11/07/2020

Report Date 11/06/2020

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)	98.2	%	95-100
	3/8" (9.5mm)	88.7	%	60-95
	#4 (4.75mm)	21.2	%	5-30
	#8 (2.36mm)	5.8	%	0-12
	#16 (1.18mm)	2.8	%	
	#30 (.6mm)	2.3	%	
	#50 (.3mm)	2.2	%	
	#100 (.15mm)	2.0	%	
	#200 (75µm)	1.8	%	
	Wash Loss (#200/75um)	1.6	%	0-3
	Total Moisture	2.92	%	



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 11/01/2020 - 11/07/2020

Report Date 11/06/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	98.2	%	95-100
	#8 (2.36mm)	88.3	%	65-95
	#16 (1.18mm)	67.8	%	35-75
	#30 (.6mm)	48.6	%	20-55
	#50 (.3mm)	26.4	%	10-30
	#100 (.15mm)	9.5	%	0-10
	#200 (75µm)	1.1	%	
	FM	2.61		2.6-3
	Wash Loss (#200/75um)	1.0	%	0-3
	Total Moisture	4.76	%	