

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P11

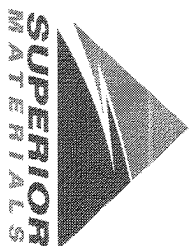
Contractor: _____

Sample Date: 4/29/24

Concrete Grade: DM, 4500HP

Dates Test Represents: 4/30/2024 through 5/6/2024

MDOT No.: _____



Superior Materials, LLC
30701 W. 10 Mile Rd.
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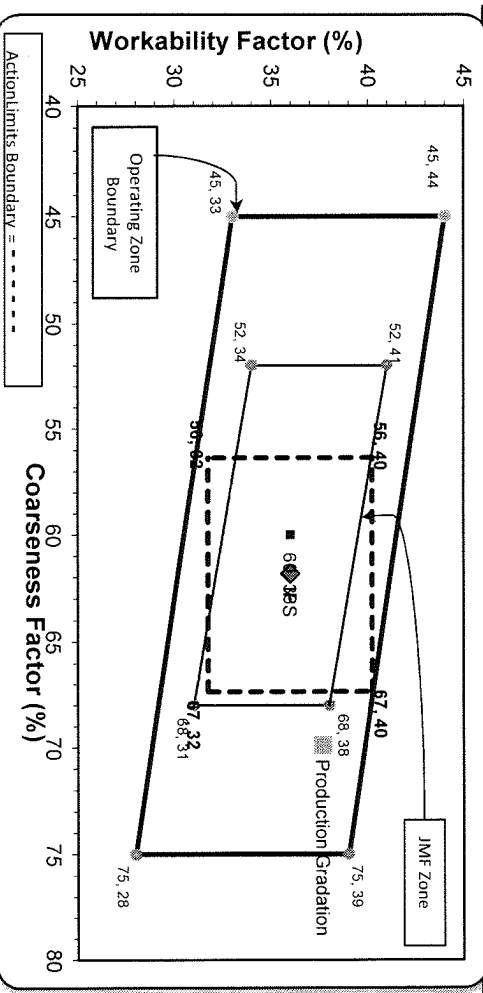
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
GAA	71-47	Presque Isle	1505	9.21	2.62	51.8
26A	71-47	Presque Isle	250	1.53	2.62	8.6
ZNS	95-013	Smelter Bay	1150	6.95	2.65	39.6
Total Wt			2905	17.69		100.0

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"	95.6	100.0	100.0	97.7	2.3	2.3
3/4"	73.0	100.0	100.0	86.0	11.7	14.0
1/2"	31.9	96.3	100.0	64.4	21.6	35.6
3/8"	15.2	84.1	100.0	54.7	9.7	45.3
#4	2.6	20.3	95.7	41.0	13.7	59.0
#8	2.1	5.5	84.9	35.2	5.8	64.8
#16	1.9	3.4	70.6	29.2	5.9	70.8
#30	1.8	2.9	50.7	21.3	8.0	78.7
#50	1.7	2.6	23.7	10.5	10.8	89.5
#100	1.6	2.4	7.2	3.9	6.6	96.1
LBW	1.3	2.2	1.1	1.3	2.6	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 4% for the 3/4" sieve when
 a 1.5" max size (nom. Max 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 70 Workability Factor: 35 Adjusted WF: 37.7



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

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Plant S11-Onsite Jefferson

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 04/28/2024 - 05/04/2024

Report Date 05/04/2024

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	95.6	%	95-100
	3/4" (19mm)	73.0	%	
	1/2" (12.5mm)	31.9	%	30-60
	3/8" (9.5mm)	15.2	%	
	#4 (4.75mm)	2.6	%	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)	1.49	%	
	Wash Loss (#200/75um)	1.3	%	0-2
	Total Moisture	2.14	%	



Plant S11-Onsite Jefferson

Product 1067-26A Mod LS

Period: 04/28/2024 - 05/04/2024

Name/Title Doug Storey / QC Technician

Report Date 05/04/2024

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)	96.3	%	95-100
	3/8" (9.5mm)	84.1	%	60-95
	#4 (4.75mm)	20.3	%	5-30
	#8 (2.36mm)	5.5	%	0-12
	#16 (1.18mm)	3.4	%	
	#30 (.6mm)	2.9	%	
	#50 (.3mm)	2.6	%	
	#100 (.15mm)	2.4	%	
	#200 (75µm)	2.3	%	
	Wash Loss (#200/75um)	2.2	%	0-3
	Total Moisture	2.96	%	



Plant S11-Onsite Jefferson

Product 1022-2NS GR

Period: 04/28/2024 - 05/04/2024

Name/Title Doug Storey / QC Technician

Report Date 05/04/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.7	%	95-100
	#8 (2.36mm)	84.9	%	65-95
	#16 (1.18mm)	70.6	%	35-75
	#30 (.6mm)	50.7	%	20-55
	#50 (.3mm)	23.7	%	10-30
	#100 (.15mm)	7.2	%	0-10
	#200 (75µm)	1.7	%	
	FM	2.67		2.6-3
	Wash Loss (#200/75um)	1.1	%	0-3
	Total Moisture	4.71	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-102**

Sample Date: **4/29/24**

Dates Test Represents: **4/30/2024** through **5/6/2024**

Concrete Grade: **DM, 4500HP**

Contractor: _____

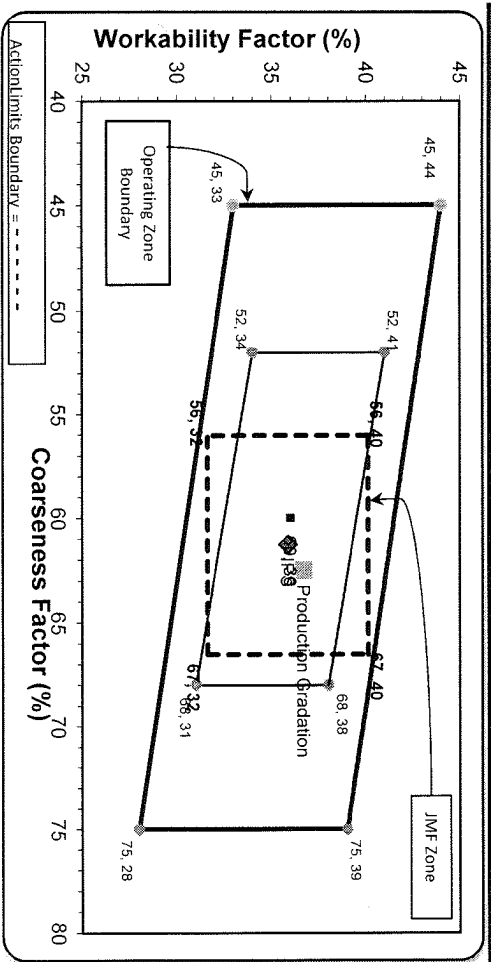
MDOT No.: _____

Aggr. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	58-003	Stoneco	1350	8.04	2.69	45.8
26A	58-003	Stoneco	450	2.68	2.69	15.3
2NS	63-114	Highland	1150	6.95	2.65	39.0
Total Wt						2950
						17.68
						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"	99.5	100.0	100.0	99.8	0.2	0.2
3/4"	77.9	100.0	100.0	89.9	9.9	10.1
1/2"	30.7	99.2	100.0	68.2	21.7	31.8
3/8"	14.1	88.1	100.0	58.9	9.3	41.1
#4	2.4	15.7	98.8	42.0	16.9	58.0
#8	1.6	5.5	83.7	34.2	7.8	65.8
#16	1.5	3.7	65.5	26.8	7.4	73.2
#30	1.4	3.1	45.6	18.9	7.9	81.1
#50	1.3	2.9	18.1	8.1	10.8	91.9
#100	1.2	2.7	4.1	2.6	5.5	97.4
LBW	0.9	2.4	1.1	1.2	1.4	98.8

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **63** Workability Factor: **34** Adjusted WF: **36.7**



Sieve	Cumulative % Passing	% Retained	Cumulative % 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

Initial Production Sample (IPS) Coarseness Factor: **61** Workability Factor: **36**



*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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

PREPARED BY: SM, LLC Technical Service

Approved By: _____



Plant S102-Superior Novi

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 04/28/2024 - 05/04/2024

Report Date 05/04/2024

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	99.5	%	95-100
	3/4" (19mm)	77.9	%	
	1/2" (12.5mm)	30.7	%	30-60
	3/8" (9.5mm)	14.1	%	
	#4 (4.75mm)	2.4	%	0-8
	#8 (2.36mm)	1.6	%	
	#16 (1.18mm)	1.5	%	
	#30 (.6mm)	1.4	%	
	#50 (.3mm)	1.3	%	
	#100 (.15mm)	1.2	%	
	#200 (75µm)	1.10	%	
	Wash Loss (#200/75um)	0.9	%	0-2
	Total Moisture	2.23	%	



Plant S102-Superior Novi

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 04/28/2024 - 05/04/2024

Report Date 05/04/2024

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)	99.2	%	95-100
	3/8" (9.5mm)	88.1	%	60-95
	#4 (4.75mm)	15.7	%	5-30
	#8 (2.36mm)	5.5	%	0-12
	#16 (1.18mm)	3.7	%	
	#30 (.6mm)	3.1	%	
	#50 (.3mm)	2.9	%	
	#100 (.15mm)	2.7	%	
	#200 (75µm)	2.5	%	
	Wash Loss (#200/75um)	2.4	%	0-3
	Total Moisture	4.18	%	



Plant S102-Superior Novi

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 04/28/2024 - 05/04/2024

Report Date 05/04/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	98.8	%	95-100
	#8 (2.36mm)	83.7	%	65-95
	#16 (1.18mm)	65.5	%	35-75
	#30 (.6mm)	45.6	%	20-55
	#50 (.3mm)	18.1	%	10-30
	#100 (.15mm)	4.1	%	0-10
	#200 (75µm)	1.2	%	
	FM	2.84		2.6-3
	Wash Loss (#200/75um)	1.1	%	0-3
	Total Moisture	3.37	%	