

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P11**

Contractor: _____

Sample Date: **5/6/24**

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: **5/7/2024** through **5/13/2024**

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	970	5.93	2.62	31.6
NNS	95-013	Smelter Bay	1200	7.26	2.65	39.1
Total Wt						100.0

Verify this number is 100%

Sieve	CA	IA	NNS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	93.6	100.0	100.0	98.1	1.9	1.9
1"	31.5	100.0	100.0	79.9	18.2	20.1
3/4"	12.5	98.1	100.0	73.7	6.2	26.3
1/2"	4.1	70.6	100.0	62.6	11.2	37.4
3/8"	2.9	46.7	100.0	54.7	7.9	45.3
#4	2.2	8.9	96.4	41.1	13.6	58.9
#8	2.0	3.6	85.7	35.2	5.9	64.8
#16	1.9	2.8	70.9	29.2	6.1	70.8
#30	1.8	2.6	50.8	21.2	7.9	78.8
#50	1.8	2.4	24.1	10.7	10.5	89.3
#100	1.6	2.3	7.3	4.0	6.7	96.0
LBW	1.4	2.0	1.4	1.6	2.5	98.4

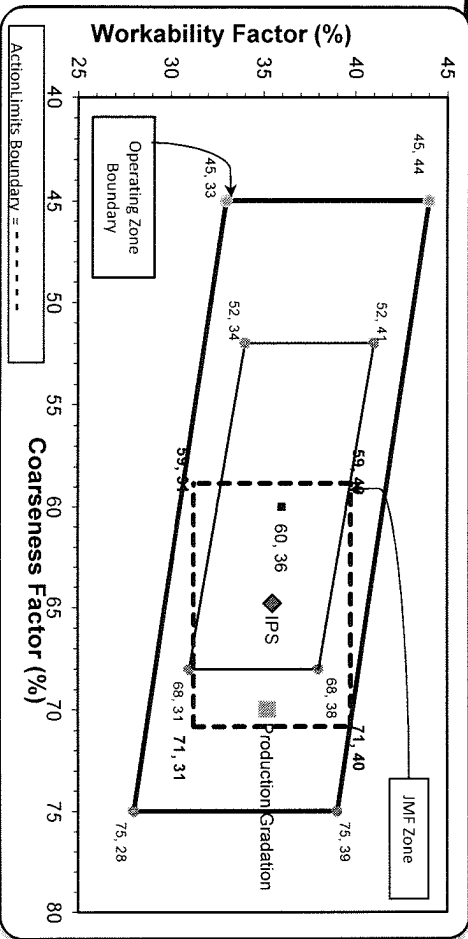
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when
 a 2" max. size (nom.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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

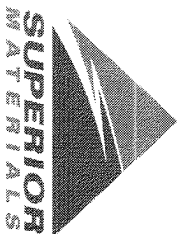
Initial Production Sample (IPS)

Coarseness Factor: **70** Workability Factor: **35**

Coarseness Factor: **65** Workability Factor: **36**



Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.0	0.6	0.6
1"	84.0	15.3	16.0
3/4"	73.5	10.5	26.5
1/2"	65.2	8.2	34.8
3/8"	58.2	7.1	41.8
#4	44.1	14.1	55.9
#8	35.5	8.6	64.5
#16	29.1	6.4	70.9
#30	21.9	7.3	78.1
#50	9.6	12.2	90.4
#100	2.6	7.1	97.4
LBW	1.0	1.6	99.0



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

PREPARED BY:
 SM, LLC Technical Service

Approved By: _____



Plant S11-Onsite Jefferson

Product 7919-COARSE AGG P1M LS

Name/Title Doug Storey / QC Technician

Period: 05/05/2024 - 05/11/2024

Report Date 05/10/2024

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	93.6	%	
	1" (25mm)	31.5	%	
	3/4" (19mm)	12.5	%	
	1/2" (12.5mm)	4.1	%	
	3/8" (9.5mm)	2.9	%	
	#4 (4.75mm)	2.2	%	
	#8 (2.36mm)	2.0	%	
	#16 (1.18mm)	1.9	%	
	#30 (.6mm)	1.8	%	
	#50 (.3mm)	1.8	%	
	#100 (.15mm)	1.6	%	
	#200 (75µm)	1.5	%	
	Wash Loss (#200/75um)	1.4	%	0-2
	Total Moisture	1.22	%	



Plant S11-Onsite Jefferson

Product 7920-INTERMED AGG P1M LS

Name/Title Doug Storey / QC Technician

Period: 05/05/2024 - 05/11/2024

Report Date 05/10/2024

Procedure	Sieve/Test	Result	Unit	Intermed Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	98.1	%	
	1/2" (12.5mm)	70.6	%	
	3/8" (9.5mm)	46.7	%	
	#4 (4.75mm)	8.9	%	
	#8 (2.36mm)	3.6	%	
	#16 (1.18mm)	2.8	%	
	#30 (.6mm)	2.6	%	
	#50 (.3mm)	2.4	%	
	#100 (.15mm)	2.3	%	
	#200 (75µm)	2.1	%	
	Wash Loss (#200/75um)	2.0	%	0-3
	Total Moisture	1.92	%	



Plant S11-Onsite Jefferson

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 05/05/2024 - 05/11/2024

Report Date 05/10/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	96.4	%	95-100
	#8 (2.36mm)	85.7	%	65-95
	#16 (1.18mm)	70.9	%	35-75
	#30 (.6mm)	50.8	%	20-55
	#50 (.3mm)	24.1	%	10-30
	#100 (.15mm)	7.3	%	0-10
	#200 (75µm)	1.7	%	
	FM	2.65		2.6-3
	Wash Loss (#200/75um)	1.4	%	0-3
	Total Moisture	4.70	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: 12

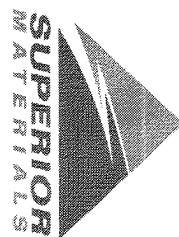
Sample Date: 5/6/24

Dates Test Represents: 5/7/2024 through 5/13/2024

Concrete Grade: P1M, 3500HP

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 %
CA	71-47	Presque Isle	970	5.93	2.62	31.6
IA	71-47	Presque Isle	900	5.50	2.62	29.3
NNS	63-115	Ray Rd	1200	7.26	2.65	39.1
		Total Wt	3070			100.0

Sieve	CA	IA	NNS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.7	100.0	100.0	99.6	0.4	0.4
1"	44.2	100.0	100.0	82.4	17.2	17.6
3/4"	12.8	99.1	100.0	72.2	27.8	27.8
1/2"	3.7	76.9	100.0	62.8	37.2	37.2
3/8"	2.9	52.7	100.0	55.5	44.5	44.5
#4	2.3	8.1	96.4	40.8	59.2	59.2
#8	2.1	2.7	82.0	33.5	66.5	66.5
#16	2.0	2.3	67.2	27.6	72.4	72.4
#30	1.9	2.2	50.5	21.0	79.0	79.0
#50	1.9	2.0	24.5	10.8	89.2	89.2
#100	1.8	1.9	4.5	2.9	97.1	97.1
LBW	1.4	1.8	1.0	1.4	98.6	98.6

Production Gradation

Batch Plant Gradations

Aggregate Supplier Gradations

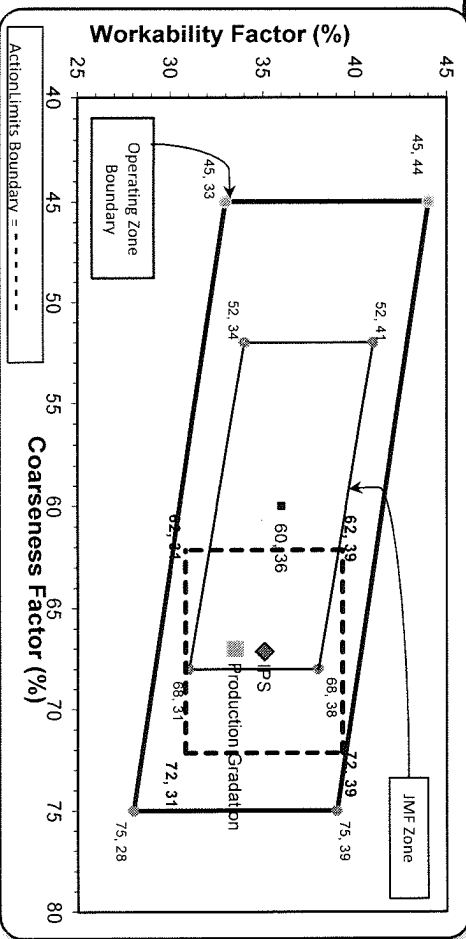
Coarseness Factor: **67**

Workability Factor: **34**

Initial Production Sample (IPS)

Coarseness Factor: **67**

Workability Factor: **35**



Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.6	0.4	0.4
1"	83.9	15.7	16.1
3/4"	74.0	9.8	26.0
1/2"	63.7	10.3	36.3
3/8"	56.4	7.3	43.6
#4	43.0	13.4	57.0
#8	35.1	7.9	64.9
#16	29.0	6.1	71.0
#30	20.9	8.0	79.1
#50	8.1	12.8	91.9
#100	1.6	6.5	98.4
LBW	0.9	0.8	99.1

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Plant S12-Onsite Southfield

Product 7919-COARSE AGG P1M LS

Name/Title Doug Storey / QC Technician

Period: 05/05/2024 - 05/11/2024

Report Date 05/10/2024

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	98.7	%	
	1" (25mm)	44.2	%	
	3/4" (19mm)	12.8	%	
	1/2" (12.5mm)	3.7	%	
	3/8" (9.5mm)	2.9	%	
	#4 (4.75mm)	2.3	%	
	#8 (2.36mm)	2.1	%	
	#16 (1.18mm)	2.0	%	
	#30 (.6mm)	1.9	%	
	#50 (.3mm)	1.9	%	
	#100 (.15mm)	1.8	%	
	#200 (75µm)	1.6	%	
	Wash Loss (#200/75um)	1.4	%	0-2
	Total Moisture	0.30	%	



Plant S12-Onsite Southfield

Product 7920-INTERMED AGG P1M LS

Name/Title Doug Storey / QC Technician

Period: 05/05/2024 - 05/11/2024

Report Date 05/10/2024

Procedure	Sieve/Test	Result	Unit	Intermed Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	99.1	%	
	1/2" (12.5mm)	76.9	%	
	3/8" (9.5mm)	52.7	%	
	#4 (4.75mm)	8.1	%	
	#8 (2.36mm)	2.7	%	
	#16 (1.18mm)	2.3	%	
	#30 (.6mm)	2.2	%	
	#50 (.3mm)	2.0	%	
	#100 (.15mm)	1.9	%	
	#200 (75µm)	1.8	%	
	Wash Loss (#200/75um)	1.8	%	0-3
	Total Moisture	1.94	%	



Plant S12-Onsite Southfield

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 05/05/2024 - 05/11/2024

Report Date 05/10/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	96.4	%	95-100
	#8 (2.36mm)	82.0	%	65-95
	#16 (1.18mm)	67.2	%	35-75
	#30 (.6mm)	50.5	%	20-55
	#50 (.3mm)	24.5	%	10-30
	#100 (.15mm)	4.5	%	0-10
	#200 (75µm)	1.0	%	
	FM	2.75		2.6-3
	Wash Loss (#200/75um)	1.0	%	0-3
	Total Moisture	2.67	%	