

Aggregate Optimization Chart

Production Gradation Report

PLANT #: 12

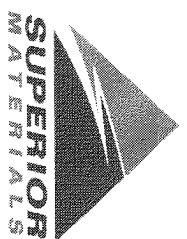
Sample Date: 8/14/23

Dates Test Represents: 8/15/2023 through 8/21/2023

Concrete Grade: P1M, 3500HP

Contractor: _____

MDOT No.: _____



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

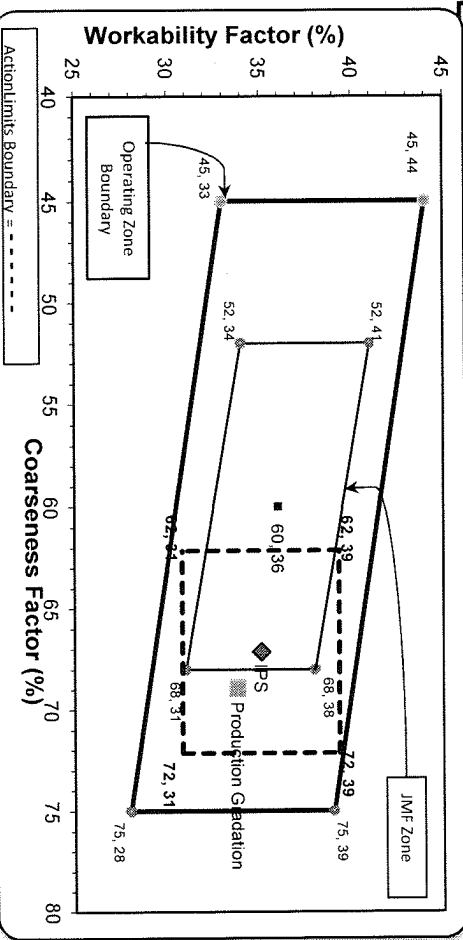
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
CA	71-47	Presque Isle	1020	6.24	2.62	33.2
IA	71-47	Presque Isle	850	5.20	2.62	27.7
NNS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

Sieve	CA	IA	NNS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	90.2	100.0	100.0	96.7	3.3	3.3
1"	33.7	100.0	100.0	78.0	18.8	22.0
3/4"	8.2	98.5	100.0	69.1	8.9	30.9
1/2"	2.6	75.7	100.0	60.9	8.2	39.1
3/8"	2.3	52.4	100.0	54.4	6.6	45.6
#4	2.1	10.2	96.6	41.3	13.1	58.7
#8	1.9	3.1	82.6	33.8	7.5	66.2
#16	1.8	2.2	67.9	27.7	6.0	72.3
#30	1.7	1.9	52.3	21.5	6.2	78.5
#50	1.6	1.7	27.7	11.8	9.7	88.2
#100	1.3	1.5	5.8	3.1	8.7	96.9
LBW	1.0	1.1	0.6	0.9	2.2	99.1

*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: **69** Workability Factor: **34**



Initial Production Sample (IPS)

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: 08/13/2023 - 08/19/2023

Report Date 08/19/2023

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	90.2	%	
	1" (25mm)	33.7	%	
	3/4" (19mm)	8.2	%	
	1/2" (12.5mm)	2.6	%	
	3/8" (9.5mm)	2.3	%	
	#4 (4.75mm)	2.1	%	
	#8 (2.36mm)	1.9	%	
	#16 (1.18mm)	1.8	%	
	#30 (.6mm)	1.7	%	
	#50 (.3mm)	1.6	%	
	#100 (.15mm)	1.3	%	
	#200 (75µm)	1.1	%	
	Wash Loss (#200/75um)	1.0	%	0-2
	Total Moisture	1.52	%	



Plant S12-Onsite Southfield

Product 7920-INTERMED AGG P1M LS

Name/Title Doug Storey / QC Technician

Period: 08/13/2023 - 08/19/2023

Report Date 08/19/2023

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)	98.5	%	
	1/2" (12.5mm)	75.7	%	
	3/8" (9.5mm)	52.4	%	
	#4 (4.75mm)	10.2	%	
	#8 (2.36mm)	3.1	%	
	#16 (1.18mm)	2.2	%	
	#30 (.6mm)	1.9	%	
	#50 (.3mm)	1.7	%	
	#100 (.15mm)	1.5	%	
	#200 (75µm)	1.2	%	
	Wash Loss (#200/75um)	1.1	%	0-3
	Total Moisture	2.63	%	



Plant S12-Onsite Southfield

Product 1022-2NS GR

Period: 08/13/2023 - 08/19/2023

Name/Title Doug Storey / QC Technician

Report Date 08/19/2023

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	96.6	%	95-100
	#8 (2.36mm)	82.6	%	65-95
	#16 (1.18mm)	67.9	%	35-75
	#30 (.6mm)	52.3	%	20-55
	#50 (.3mm)	27.7	%	10-30
	#100 (.15mm)	5.8	%	0-10
	#200 (75µm)	0.8	%	
	FM	2.67		2.6-3
	Wash Loss (#200/75um)	0.6	%	0-3
	Total Moisture	5.19	%	