

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **11**

Sample Date: **11/17/22**

Dates Test Represents: **11/8/2022** through **11/14/2022**

Concrete Grade: **P1M, 3500HP**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	920	5.63	2.62	30.0
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	95-013	Smelter Bay	1250	7.56	2.65	40.7
		Total Wt	3070			100.0

<----- Verify this number is 100%

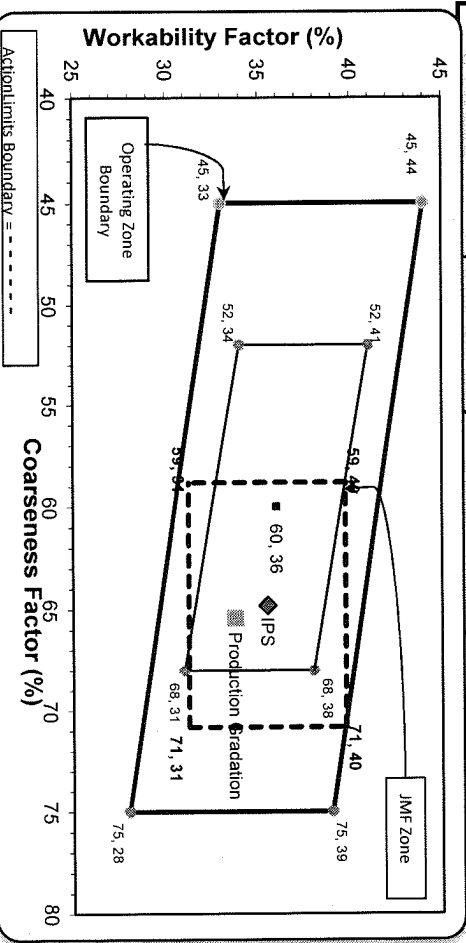
Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	64.1	100.0	100.0	89.2	10.8	10.8
3/4"	21.9	98.9	100.0	76.3	13.0	23.7
1/2"	5.7	74.3	100.0	64.2	12.1	35.8
3/8"	4.1	50.2	100.0	56.7	7.5	43.3
#4	3.1	9.9	97.1	43.4	13.3	56.6
#8	2.8	3.1	78.6	33.8	9.6	66.2
#16	2.8	2.3	61.7	26.6	7.1	73.4
#30	2.7	2.1	46.8	20.5	6.2	79.5
#50	2.5	2.0	23.5	10.9	9.6	89.1
#100	2.3	1.9	4.3	3.0	7.9	97.0
LBW	1.8	1.5	0.5	1.2	1.8	98.8

Production Gradation

Batch Plant Gradations

Aggregate Supplier Gradations

Coarseness Factor: **65** Workability Factor: **34**

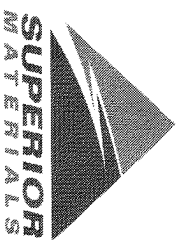


Initial Production Sample (IPS)

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



*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.

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Plant S11-Superior Onsite Jefferson

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 11/06/2022 - 11/12/2022

Report Date 11/11/2022

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	97.1	%	95-100
	#8 (2.36mm)	78.6	%	65-95
	#16 (1.18mm)	61.7	%	35-75
	#30 (.6mm)	46.8	%	20-55
	#50 (.3mm)	23.5	%	10-30
	#100 (.15mm)	4.3	%	0-10
	#200 (75µm)	0.6	%	
	FM	2.88		2.6-3
	Wash Loss (#200/75um)	0.5	%	0-3
	Total Moisture	4.50	%	



Plant S11-Superior Onsite Jefferson

Product 7920-INTERMED AGG P1M LS

Name/Title Doug Storey / QC Technician

Period: 11/06/2022 - 11/12/2022

Report Date 11/11/2022

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)	98.9	%	
	1/2" (12.5mm)	74.3	%	
	3/8" (9.5mm)	50.2	%	
	#4 (4.75mm)	9.9	%	
	#8 (2.36mm)	3.1	%	
	#16 (1.18mm)	2.3	%	
	#30 (.6mm)	2.1	%	
	#50 (.3mm)	2.0	%	
	#100 (.15mm)	1.9	%	
	#200 (75µm)	1.7	%	
	Wash Loss (#200/75um)	1.5	%	0-3
	Total Moisture	2.16	%	



Plant S11-Superior Onsite Jefferson

Product 7919-COARSE AGG P1M LS

Period: 11/06/2022 - 11/12/2022

Name/Title Doug Storey / QC Technician

Report Date 11/11/2022

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	64.1	%	
	3/4" (19mm)	21.9	%	
	1/2" (12.5mm)	5.7	%	
	3/8" (9.5mm)	4.1	%	
	#4 (4.75mm)	3.1	%	
	#8 (2.36mm)	2.8	%	
	#16 (1.18mm)	2.8	%	
	#30 (.6mm)	2.7	%	
	#50 (.3mm)	2.5	%	
	#100 (.15mm)	2.3	%	
	#200 (75µm)	1.9	%	
	Wash Loss (#200/75um)	1.8	%	0-2
	Total Moisture	1.64	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-32**

Sample Date: **11/17/22**

Dates Test Represents: **11/8/2022** through **11/14/2022**

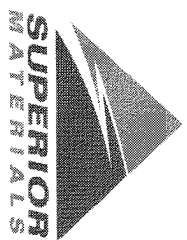
Concrete Grade: **P1M, 3500HP**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
CA	71-47	Presque Isle	920	5.63	2.62	30.0
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	95-013	Smelter Bay	1250	7.56	2.65	40.7
		Total Wt	3070			100.0

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	89.5	100.0	100.0	96.9	3.1	3.1
1"	35.5	100.0	100.0	80.7	16.2	19.3
3/4"	11.3	98.9	100.0	73.1	7.6	26.9
1/2"	4.8	69.8	100.0	62.6	10.5	37.4
3/8"	3.3	42.0	100.0	54.0	8.6	46.0
#4	2.4	8.5	95.5	42.1	11.9	57.9
#8	2.3	3.9	82.6	35.5	6.6	64.5
#16	2.1	3.1	66.9	28.8	6.7	71.2
#30	2.0	2.8	47.7	20.8	7.9	79.2
#50	1.9	2.6	23.2	10.8	10.1	89.2
#100	1.8	2.4	6.6	3.9	6.8	96.1
LBW	1.4	1.9	1.4	1.5	2.4	98.5

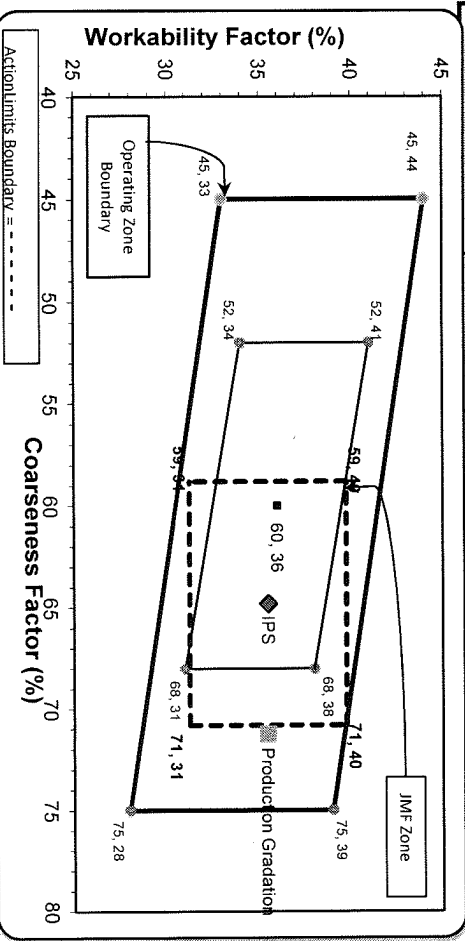


Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

*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

Coarseness Factor: **71** Workability Factor: **35**



Initial Production Sample (IPS)

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

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

PREPARED BY:
SM, LLC Technical Service

Approved By: _____

Plant 958-JMT

Product 1022-2NS GR - Smelter Bay

Name/Title Doug Storey / QC Technician

Period: 11/06/2022 - 11/12/2022

Report Date 11/11/2022

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.5	%	95-100
	#8 (2.36mm)	82.6	%	65-95
	#16 (1.18mm)	66.9	%	35-75
	#30 (.6mm)	47.7	%	20-55
	#50 (.3mm)	23.2	%	10-30
	#100 (.15mm)	6.6	%	0-10
	#200 (75µm)	1.6	%	
	FM	2.78		2.6-3
	Wash Loss (#200/75um)	1.4	%	0-3
	Total Moisture	2.6	%	

Plant 958-JMT
 Product 7920-INTERMED AGG P1M LS PI
 Period: 11/06/2022 - 11/12/2022

Name/Title Doug Storey / QC Technician
 Report Date 11/11/2022

Procedure	Sieve/Test	Result	Unit	Intermed Agg P1M LS PI Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	98.9	%	
	1/2" (12.5mm)	69.8	%	
	3/8" (9.5mm)	42.0	%	
	#4 (4.75mm)	8.5	%	
	#8 (2.36mm)	3.9	%	
	#16 (1.18mm)	3.1	%	
	#30 (.6mm)	2.8	%	
	#50 (.3mm)	2.6	%	
	#100 (.15mm)	2.4	%	
	#200 (75µm)	2.1	%	
	Wash Loss (#200/75um)	1.9	%	0-3
	Total Moisture	1.8	%	

Edw. C. Levy Co.

JMT
 8911 W. Jefferson
 Detroit, 48209
 (313) 429-2429

Plant 958-JMT

Product 7919-COARSE AGG P1M LS PI

Name/Title Doug Storey / QC Technician

Period: 11/06/2022 - 11/12/2022

Report Date 11/11/2022

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS PI Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	89.5	%	
	1" (25mm)	35.5	%	
	3/4" (19mm)	11.3	%	
	1/2" (12.5mm)	4.8	%	
	3/8" (9.5mm)	3.3	%	
	#4 (4.75mm)	2.4	%	
	#8 (2.36mm)	2.3	%	
	#16 (1.18mm)	2.1	%	
	#30 (.6mm)	2.0	%	
	#50 (.3mm)	1.9	%	
	#100 (.15mm)	1.8	%	
	#200 (75µm)	1.5	%	
	Wash Loss (#200/75um)	1.4	%	0-2
	Total Moisture	0.3	%	