

# Aggregate Optimization Chart

# Production Gradation Report

PLANT #: **P11**

Contractor: \_\_\_\_\_

Sample Date: **7/8/24**

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: **7/9/2024** through **7/15/2024**

MIDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (ssd)	ft <sup>3</sup>	Specific Gravity	% Contribution
CA	71-47	Presque Isle	800	4.89	2.62	26.1
IA	71-47	Presque Isle	1070	6.54	2.62	34.9
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
<b>Total Wt</b>			<b>3070</b>	<b>18.70</b>		<b>100.0</b>

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"	98.1	100.0	100.0	99.5	0.5	0.5
1"	48.1	100.0	100.0	86.5	13.0	13.5
3/4"	13.5	98.6	100.0	77.0	9.5	23.0
1/2"	3.2	64.3	100.0	62.3	14.6	37.7
3/8"	2.5	31.3	100.0	50.6	11.7	49.4
#4	2.3	2.4	95.9	38.9	11.7	61.1
#8	2.2	0.9	80.7	32.4	6.5	67.6
#16	2.1	0.7	66.8	26.9	5.5	73.1
#30	2.0	0.6	52.5	21.3	5.7	78.7
#50	1.9	0.6	29.5	12.2	9.0	87.8
#100	1.7	0.5	7.5	3.5	8.7	96.5
LBW	1.3	0.4	0.9	0.8	2.7	99.2

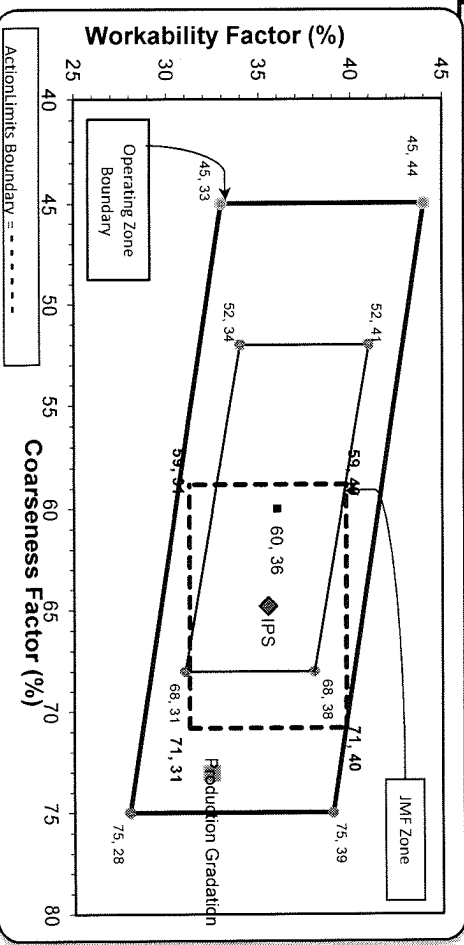
\*Maximum % Retained must be above the 3/8" sieve.  
 \*Any two adjacent sieves must equal 10% except max. nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 4% for each sieve except max. nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 8% for the 1" sieve when at 2" max.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

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Initial Production Sample (IPS)

Coarseness Factor: **73** Workability Factor: **32**

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



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PREPARED BY:  
 SM, LLC Technical Service

Approved By: \_\_\_\_\_



Plant S11-Onsite Jefferson

Product 7919-COARSE AGG P1M LS

Period: 07/07/2024 - 07/13/2024

Name/Title Casey Smith / QC Manager

Report Date 07/14/2024

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	98.1	%	
	1" (25mm)	48.1	%	
	3/4" (19mm)	13.5	%	
	1/2" (12.5mm)	3.2	%	
	3/8" (9.5mm)	2.5	%	
	#4 (4.75mm)	2.3	%	
	#8 (2.36mm)	2.2	%	
	#16 (1.18mm)	2.1	%	
	#30 (.6mm)	2.0	%	
	#50 (.3mm)	1.9	%	
	#100 (.15mm)	1.7	%	
	#200 (75µm)	1.5	%	
	Wash Loss (#200/75um)	1.3	%	0-2
	Total Moisture	1.88	%	



Plant S11-Onsite Jefferson

Product 7920-INTERMED AGG P1M LS

Period: 07/07/2024 - 07/13/2024

Name/Title Casey Smith / QC Manager

Report Date 07/14/2024

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)	98.6	%	
	1/2" (12.5mm)	64.3	%	
	3/8" (9.5mm)	31.3	%	
	#4 (4.75mm)	2.4	%	
	#8 (2.36mm)	0.9	%	
	#16 (1.18mm)	0.7	%	
	#30 (.6mm)	0.6	%	
	#50 (.3mm)	0.6	%	
	#100 (.15mm)	0.5	%	
	#200 (75µm)	0.4	%	
	Wash Loss (#200/75um)	0.4	%	0-3
	Total Moisture	2.57	%	



Plant S11-Onsite Jefferson

Product 1022-2NS GR

Period: 07/07/2024 - 07/13/2024

Name/Title Casey Smith / QC Manager

Report Date 07/14/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.9	%	95-100
	#8 (2.36mm)	80.7	%	65-95
	#16 (1.18mm)	66.8	%	35-75
	#30 (.6mm)	52.5	%	20-55
	#50 (.3mm)	29.5	%	10-30
	#100 (.15mm)	7.5	%	0-10
	#200 (75µm)	1.2	%	
	FM	2.67		2.6-3
	Wash Loss (#200/75um)	0.9	%	0-3
	Total Moisture	3.81	%	

# Aggregate Optimization Chart

# Production Gradation Report

PLANT #: **P-102**

Sample Date: **7/8/24**

Dates Test Represents: **7/9/2024** through **7/15/2024**

Concrete Grade: **P1M, 3500HP**

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

Aggr. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	Contribution %
CA	58-003	Stoneco	1420	8.46	2.69	45.5
IA	58-003	Stoneco	500	2.98	2.69	16.0
NNS	63-114	Highland	1200	7.26	2.65	38.5
Total Wt			<b>3120</b>	<b>18.70</b>		<b>100.0</b>

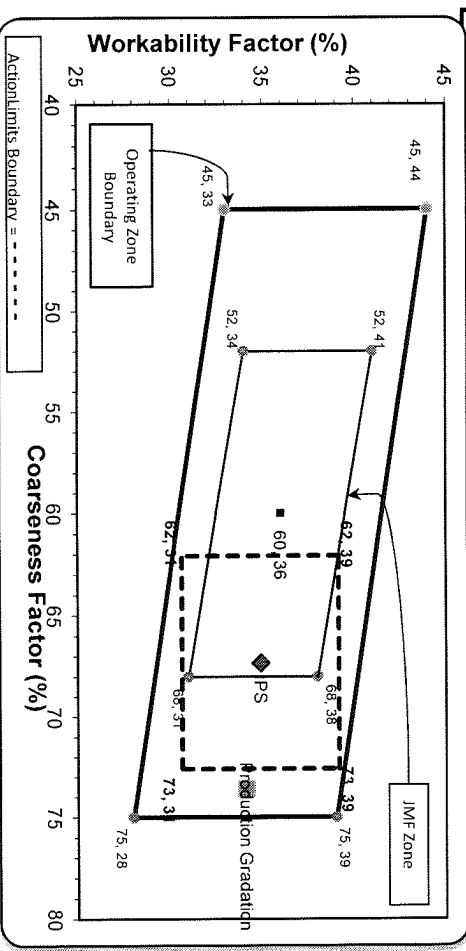
<----- Verify this number is 100%

Sieve	CA	IA	NNS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	41.6	100.0	100.0	73.4	26.6	26.6
3/4"	7.0	100.0	100.0	57.7	42.3	42.3
1/2"	3.4	93.5	100.0	55.0	45.0	45.0
3/8"	1.9	76.1	100.0	51.5	48.5	48.5
#4	1.2	14.5	98.9	40.9	59.1	59.1
#8	1.2	5.0	85.2	34.1	65.9	65.9
#16	1.2	3.0	68.0	27.2	72.8	72.8
#30	1.1	2.5	48.3	19.5	80.5	80.5
#50	1.1	2.2	18.4	7.9	92.1	92.1
#100	0.9	2.1	3.6	2.1	97.9	97.9
LBW	0.9	2.0	0.6	1.0	99.0	99.0

\*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: **74** Workability Factor: **34**

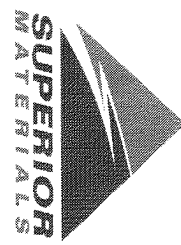


Initial Production Sample (IPS)

Sieve	Coarseness Factor:	Workability Factor:	% Retained	Cumulative % Retained
2"	<b>67</b>	<b>35</b>	0.0	0.0
1.5"			0.0	0.0
1"			14.5	14.5
3/4"			26.6	26.6
1/2"			39.0	39.0
3/8"			43.8	43.8
#4			43.1	13.1
#8			34.9	8.2
#16			29.4	5.5
#30			21.6	7.8
#50			8.1	13.4
#100			2.2	5.9
LBW			1.4	0.8

PREPARED BY:  
SM, LLC Technical Service

Approved By: \_\_\_\_\_



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 Farmington Hills, MI 48336



Plant S102-Superior Novi

Product 7919-COARSE AGG P1M LS

Period: 07/07/2024 - 07/13/2024

Name/Title Casey Smith / QC Manager

Report Date 07/14/2024

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	41.6	%	
	3/4" (19mm)	7.0	%	
	1/2" (12.5mm)	3.4	%	
	3/8" (9.5mm)	1.9	%	
	#4 (4.75mm)	1.2	%	
	#8 (2.36mm)	1.2	%	
	#16 (1.18mm)	1.2	%	
	#30 (.6mm)	1.1	%	
	#50 (.3mm)	1.1	%	
	#100 (.15mm)	0.9	%	
	#200 (75µm)	0.9	%	
	Wash Loss (#200/75um)	0.8	%	0-2
	Total Moisture	5.38	%	



Plant S102-Superior Novi  
 Product 7920-INTERMED AGG P1M LS  
 Period: 07/07/2024 - 07/13/2024

Name/Title Casey Smith / QC Manager  
 Report Date 07/14/2024

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)	100.0	%	
	1/2" (12.5mm)	93.5	%	
	3/8" (9.5mm)	76.1	%	
	#4 (4.75mm)	14.5	%	
	#8 (2.36mm)	5.0	%	
	#16 (1.18mm)	3.0	%	
	#30 (.6mm)	2.5	%	
	#50 (.3mm)	2.2	%	
	#100 (.15mm)	2.1	%	
	#200 (75µm)	2.0	%	
	Wash Loss (#200/75µm)	2.0	%	0-3
	Total Moisture	10.24	%	



Plant S102-Superior Novi  
Product 1022-2NS GR  
Period: 07/07/2024 - 07/13/2024

Name/Title Casey Smith / QC Manager  
Report Date 07/14/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	98.9	%	95-100
	#8 (2.36mm)	85.2	%	65-95
	#16 (1.18mm)	68.0	%	35-75
	#30 (.6mm)	48.3	%	20-55
	#50 (.3mm)	18.4	%	10-30
	#100 (.15mm)	3.6	%	0-10
	#200 (75µm)	0.9	%	
	FM	2.78		2.6-3
	Wash Loss (#200/75um)	0.6	%	0-3
	Total Moisture	14.84	%	