



Department of Design and Construction

Thomas Foley
Commissioner

Safety & Site Support Division
Office of Quality Assurance

Alla Ayzenshtat
Deputy Commissioner
Safety & Site Support

Concrete and Asphalt Generic Mix Design Approval # 2023 - 134

30-30 Thomson Avenue
Long Island City, NY 11101

Tel. 718 / 391-1624
www.nyc.gov/ddc

Date: 12/15/2023

To: Matthew D. Harrison,
Green Asphalt

From: Juan Martinez, PE, Director
Office of Quality Assurance

Date Submitted: 12/13/2023

Plant: Green Asphalt

NYSDOT Facility Numbers: H0385

Laboratory: MT Group - Intertek

Mix Design Type: 3RA Binder - 100% RAP

Generic Mix Design Serial Number: Green Asphalt/3RA/Binder/Generic/NYCDDC/12/23/134

Generic Mix Design Date: 9/14/2023

Generic Mix Design Expiration Date: 12/31/2025

- Comments:**
- 1) This mix design is approved only for the NYSDOT Facility Numbers listed above.
 - 2) Approval is valid only if facilities listed above remain on the DDC OQA Approved list of Concrete and/or Asphalt Plants.
 - 3) Approval is limited to the material sources and aggregate sizes shown on the mix design.
 - 4) Dosage of admixtures may be adjusted by the plant within manufacturer's written guidelines, but admixtures not listed may not be added.

Reviewed & prepared by: Scott Cruz, QA Inspector

Recommended for Acceptance by: Nader Shehata, PE, Deputy Director

QA & CONSTRUCTION SAFETY BUREAU

ASPHALT JOB MIX FORMULA SHEET - 3 RA BINDER MIX

PLANT NAME: Green Asphalt Co LLC
 NYSDOT FACILITY #: H0385
 PLANT ADDRESS: 37-98 Railroad Avenue
Long Island City, NY 11101

MIX DESIGN DATE: 9/14/2023
 PREPARED BY: Matt Harrison
 COMPANY: Green Asphalt Co LLC
 PLANT QC MGR: Matt Harrison

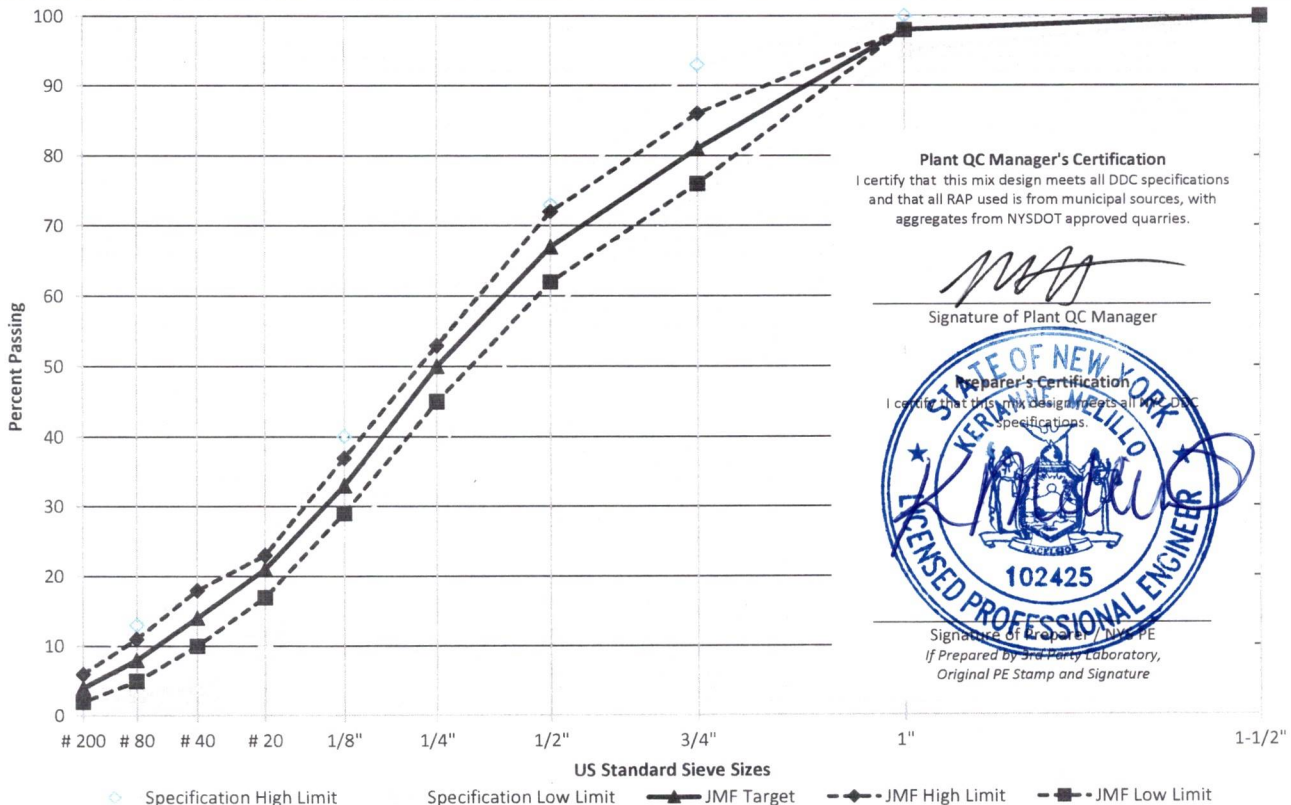
Item	Supplier / Quarry	NYSDOT Source	High Friction	Agg. Blend %	Mix %	Lbs / Ton
					0.0%	0
					0.0%	0
					0.0%	0
					0.0%	0
			N/A		0.0%	0
			N/A		0.0%	0
Coarse RAP (1 1/2")	NYC DOT/DDC	N/A	Yes	78.0%	77.5%	1,549
	RAP % Asphalt: 4.4%			RAP AC	3.4%	68
<i>All RAP to be from Municipal Sources - Aggregates from State Quarries</i>						
				RAP Aggregate	74.1%	1,481
RAP Sand	NYC DOT/DDC	N/A	Yes	22.0%	21.8%	437
	RAP % Asphalt: 6.4%			RAP AC	1.4%	28
<i>All RAP to be from Municipal Sources - Aggregates from State Quarries</i>						
				RAP Aggregate	20.4%	409
Rejuvenating Oil	Grade: Valero VP 165	SG (G _b): 1.034			0.7%	14
Total Asphalt Content (P _b):					5.5%	110
					100.0%	2,000

Project No: Generic
"APPROVED"
 NYC DDC - Office of Quality Assurance
 Date: 12/12/23 Reviewed By: S.C.
 LOG No: 2023-134

GreenAsphalt/3RA/Binder/Generic/NYCDDC/12/23/134 Expiration: 12/31/2025

QA&CS SERIAL NUMBER & EXPIRATION DATE

Sieve Size	1-1/2"	1"	3/4"	1/2"	1/4"	1/8"	# 20	# 40	# 80	# 200	P _b
Specification Limits	100-100	95-100	74-93	58-73	38-53	26-40	9-23	4-18	3-13	2-6	4-6
JMF Target	100	98	81	67	50	33	21	14	8	4	5.5
JMF Range	100-100	98-98	76-86	62-72	45-53	29-37	17-23	10-18	5-11	2-6	4.8-6



QA & CONSTRUCTION SAFETY BUREAU

AGGREGATE SPECIFIC GRAVITY & COMBINED GRADATION WORKSHEET - 3 RA BINDER MIX

PLANT NAME: Green Asphalt Co LLC NYSDOT FACILITY #: H0385 MIX DESIGN DATE: 9/14/2023

Average Bin Gradations

Sieve	Not Used		Not Used		Not Used		Not Used		Not Used		Not Used		Coarse RAP (1 1/2")		RAP Sand	
	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass
1.5"		100.0		100.0		100.0		100.0		100.0		100.0	0.0	100.0	0.0	100.0
1"		100.0		100.0		100.0		100.0		100.0		100.0	2.8	97.2	0.0	100.0
3/4"		100.0		100.0		100.0		100.0		100.0		100.0	21.1	76.1	0.0	100.0
1/2"		100.0		100.0		100.0		100.0		100.0		100.0	18.9	57.2	0.0	100.0
1/4"		100.0		100.0		100.0		100.0		100.0		100.0	21.4	35.8	1.1	98.9
1/8"		100.0		100.0		100.0		100.0		100.0		100.0	15.6	20.2	23.0	75.9
#20		100.0		100.0		100.0		100.0		100.0		100.0	5.1	15.1	33.9	42.0
#40		100.0		100.0		100.0		100.0		100.0		100.0	5.5	9.6	11.2	30.8
#80		100.0		100.0		100.0		100.0		100.0		100.0	4.4	5.2	13.0	17.8
#200		100.0		100.0		100.0		100.0		100.0		100.0	2.4	2.8	10.4	7.4
Pan													2.8		7.4	
Totals	0.0		0.0		0.0		0.0		0.0		0.0		100.0		100.0	

Stockpiles Sampled By: Matt Harrison Date Sampled: 9/12/2023

Gradation Technician: Matt Harrison Date Tested: 9/13/2023

Coarse Aggregate Specific Gravity per ASTM C127

Discard portion of sample that passes the 1/4 sieve.
Only Perform this test if aggregate is 10% or more coarse (less than 90% passing the 1/4" sieve)

	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Coarse RAP (1 1/2")	RAP Sand
% Coarse Agg.	---	---	---	---	---	---	---	64.2%	1.1%
Test Required?	NO	NO	NO	NO	NO	NO	NO	YES	NO
A) Wt. in Air								1000.2	
B) Wt. SSD								1010.9	
C) Wt. in Water								640.1	
G _{sb} (A/(B-C))	---	---	---	---	---	---	---	2.697	---
G _{sa} (A/(A-C))	---	---	---	---	---	---	---	2.778	---

Fine Aggregate Specific Gravity per ASTM C128

Discard portion of sample that does not pass the #4 sieve.
Only Perform this test if 10% or more passes the 1/4" Sieve.

	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Coarse RAP (1 1/2")	RAP Sand
% Fine Agg.	---	---	---	---	---	---	---	35.8%	98.9%
Test Required?	NO	NO	NO	NO	NO	NO	NO	YES	YES
A) Wt. in Air								500.0	500.0
B) Wt. Flask + Water								646.1	646.1
C) Wt. Flask + Water + Sample								967.8	961.2
S) Wt. SSD								502.9	503.7
G _{sb} (A/(B+S-C))	---	---	---	---	---	---	---	2.759	2.651
G _{sa} (A/(B+A-C))	---	---	---	---	---	---	---	2.804	2.704

Combined Aggregate Specific Gravity

	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Coarse RAP (1 1/2")	RAP Sand
Combined G _{sb}	---	---	---	---	---	---	---	2.719	2.651
Combined G _{sa}	---	---	---	---	---	---	---	2.787	2.704

S. G. Technician: Matt Harrison Date Tested: 9/13/2023

Combined Average Gradations, % Passing

Bin	Agg Blend	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200
Not Used	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coarse RAP (1 1/2")	78.0%	78.0	75.8	59.4	44.6	27.9	15.8	11.8	7.5	4.1	2.2
RAP Sand	22.0%	22.0	22.0	22.0	22.0	21.8	16.7	9.2	6.8	3.9	1.6
Total	100.0%	100.0	97.8	81.4	66.6	49.7	32.5	21.0	14.3	8.0	3.8
Specification Limits		100-100	95-100	74-93	58-73	38-53	26-40	9-23	4-18	3-13	2-6

QA & CONSTRUCTION SAFETY BUREAU
ASPHALT TRIAL GRADATION WORKSHEET - 3 RA BINDER MIX

PLANT NAME: Green Asphalt Co LLC

NYSDOT FACILITY #: H0385

MIX DESIGN DATE: 9/14/2023

BATCH 1
 Batch P_b: 5.4%
 Batch Grams: 1260.0

Batch Weights, Retained on Sieve - Grams																
Bin	Agg. Blend	Mix Blend	Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coarse RAP (1 1/2")	78.0%	77.2%	972.5	42.8	0.0	27.2	205.2	183.8	208.1	151.7	49.6	53.5	42.8	23.3	-15.6	972.5
RAP Sand	22.0%	22.2%	280.2	17.9	0.0	0.0	0.0	0.0	3.1	64.4	95.0	31.4	36.4	29.1	2.8	280.2
Virgin Asphalt		0.6%	7.3	7.3												7.3
Total Mix	100.0%	100.0%	1260.0	68.0	0.0	27.2	205.2	183.8	211.2	216.2	144.6	84.9	79.2	52.5	-12.8	1260.0

5.40%

BATCH 2
 Batch P_b: 5.5%
 Batch Grams: 1260.0

Batch Weights, Retained on Sieve - Grams																
Bin	Agg. Blend	Mix Blend	Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coarse RAP (1 1/2")	78.0%	77.1%	971.5	42.7	0.0	27.2	205.0	183.6	207.9	151.6	49.5	53.4	42.7	23.3	-15.5	971.5
RAP Sand	22.0%	22.2%	279.9	17.9	0.0	0.0	0.0	0.0	3.1	64.4	94.9	31.3	36.4	29.1	2.8	279.9
Virgin Asphalt		0.7%	8.6	8.6												8.6
Total Mix	100.0%	100.0%	1260.0	69.3	0.0	27.2	205.0	183.6	211.0	215.9	144.4	84.8	79.1	52.4	-12.7	1260.0

5.50%

BATCH 3
 Batch P_b: 5.6%
 Batch Grams: 1260.0

Batch Weights, Retained on Sieve - Grams																
Bin	Agg. Blend	Mix Blend	Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coarse RAP (1 1/2")	78.0%	77.0%	970.5	42.7	0.0	27.2	204.8	183.4	207.7	151.4	49.5	53.4	42.7	23.3	-15.5	970.5
RAP Sand	22.0%	22.2%	279.6	17.9	0.0	0.0	0.0	0.0	3.1	64.3	94.8	31.3	36.3	29.1	2.8	279.6
Virgin Asphalt		0.8%	10.0	10.0												10.0
Total Mix	100.0%	100.0%	1260.0	70.6	0.0	27.2	204.8	183.4	210.8	215.7	144.3	84.7	79.0	52.4	-12.7	1260.0

5.60%

BATCH 4
 Batch P_b: 5.7%
 Batch Grams: 1260.0

Batch Weights, Retained on Sieve - Grams																
Bin	Agg. Blend	Mix Blend	Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coarse RAP (1 1/2")	78.0%	76.9%	969.4	42.7	0.0	27.1	204.6	183.2	207.5	151.2	49.4	53.3	42.7	23.3	-15.5	969.4
RAP Sand	22.0%	22.2%	279.3	17.9	0.0	0.0	0.0	0.0	3.1	64.2	94.7	31.3	36.3	29.0	2.8	279.3
Virgin Asphalt		0.9%	11.3	11.3												11.3
Total Mix	100.0%	100.0%	1260.0	71.8	0.0	27.1	204.6	183.2	210.5	215.5	144.1	84.6	79.0	52.3	-12.7	1260.0

5.70%

BATCH 5
 Batch P_b: 5.8%
 Batch Grams: 1260.0

Batch Weights, Retained on Sieve - Grams																
Bin	Agg. Blend	Mix Blend	Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coarse RAP (1 1/2")	78.0%	76.9%	968.4	42.6	0.0	27.1	204.3	183.0	207.2	151.1	49.4	53.3	42.6	23.2	-15.5	968.4
RAP Sand	22.0%	22.1%	279.0	17.9	0.0	0.0	0.0	0.0	3.1	64.2	94.6	31.2	36.3	29.0	2.8	279.0
Virgin Asphalt		1.0%	12.6	12.6												12.6
Total Mix	100.0%	100.0%	1260.0	73.1	0.0	27.1	204.3	183.0	210.3	215.2	144.0	84.5	78.9	52.3	-12.7	1260.0

5.80%

QA & CONSTRUCTION SAFETY BUREAU

ASPHALT MAXIMUM DENSITY & MARSHALL PROPERTIES WORKSHEET - 3 RA BINDER MIX

PLANT NAME: Green Asphalt Co LLC

NYSDOT FACILITY #: H0385

MIX DESIGN DATE: 9/14/2023

Theoretical Maximum Specific Gravity G_{mm} per ASTM D2041

Trial Batch	1		2		3		4		5	
P_b	5.4%		5.5%		5.6%		5.7%		5.8%	
A) Sample in Air (grams)	2045.3	2042.6	2033.9	2042.7	2043.0	2047.1	2044.2	2039.8	2047.2	2045.4
B) Pycnometer in Water (Grams)	7407.3	7414.8	7407.3	7414.8	7407.3	7414.8	7407.3	7414.8	7407.3	7414.8
C) Sample & Pycnometer in Water (Grams)	8658.2	8661.7	8649.0	8658.9	8650.2	8660.4	8647.9	8654.1	8648.3	8656.0
$G_{mm} (A/(A+B-C))$	2.575	2.567	2.567	2.558	2.553	2.554	2.544	2.548	2.539	2.543
Average G_{mm}	2.571		2.563		2.554		2.546		2.541	

Density Technician: Matt Harrison

Date Tested: 9/13/2023

Computation of Marshall Mix Properties (75 Blows per Side)

Weight In Air	SSD Weight	Weight In Water	Sample Volume	Bulk SG G_{mb}	Max SG G_{mm}	% Air P_a	Unit Weight	Meas. Stability	Corr. Factor	Corr. Stability	Marshall Flow	Marshall Quotient
Grams	Grams	Grams	CC	---	---	%	PCF	lbs	lbs	lbs	0.01"	lb/0.01"
A	B	C	D	E	F	G	H	J	K	L	M	N
---	---	---	B-C	A/D	---	(F-E)/F	E*62.4	---	---	J*K	---	L/M

TRIAL BATCH 1 $P_b = 5.4\%$

Specimen A	1251.0	1255.9	745.0	510.9	2.449	2.571	4.8%		2850	1	2850	9.0	317
Specimen B	1251.7	1257.6	744.7	512.9	2.440	2.571	5.1%		2700	1	2700	8.5	318
Specimen C	1245.8	1250.4	740.5	509.9	2.443	2.571	5.0%		2925	1	2930	8.0	366
Average					2.444	2.571	4.9%	152.5			2830	8.5	334

TRIAL BATCH 2 $P_b = 5.5\%$

Specimen A	1252.0	1255.6	745.0	510.6	2.452	2.563	4.3%		3025	1	3030	9.5	319
Specimen B	1253.2	1257.0	745.3	511.7	2.449	2.563	4.4%		3000	1	3000	8.5	353
Specimen C	1246.9	1251.0	741.9	509.1	2.449	2.563	4.4%		3000	1	3000	8.0	375
Average					2.450	2.563	4.4%	152.9			3010	8.7	349

TRIAL BATCH 3 $P_b = 5.6\%$

Specimen A	1255.0	1258.4	748.7	509.7	2.462	2.554	3.6%		3225	1	3230	9.5	340
Specimen B	1254.2	1255.7	745.5	510.2	2.458	2.554	3.7%		3100	1	3100	8.5	365
Specimen C	1253.3	1256.9	747.2	509.7	2.459	2.554	3.7%		2975	1	2980	8.0	373
Average					2.460	2.554	3.7%	153.5			3100	8.7	359

TRIAL BATCH 4 $P_b = 5.7\%$

Specimen A	1253.0	1255.0	744.2	510.8	2.453	2.546	3.7%		2825	1	2830	9.0	314
Specimen B	1249.9	1251.7	744.7	507.0	2.465	2.546	3.2%		3000	1.04	3120	9.5	328
Specimen C	1249.8	1251.5	740.5	511.0	2.446	2.546	3.9%		2900	1	2900	9.5	305
Average					2.455	2.546	3.6%	153.2			2950	9.3	316

TRIAL BATCH 5 $P_b = 5.8\%$

Specimen A	1250.2	1251.1	741.5	509.6	2.453	2.541	3.5%		2825	1	2830	10.5	270
Specimen B	1251.0	1252.1	742.6	509.5	2.455	2.541	3.4%		3000	1	3000	10.5	286
Specimen C	1247.9	1248.9	739.9	509.0	2.452	2.541	3.5%		2900	1	2900	10.5	276
Average					2.453	2.541	3.5%	153.1			2910	10.5	277

Marshall Technician: Matt Harrison

Date Tested: 9/13/2023

QA & CONSTRUCTION SAFETY BUREAU

MIX VOLUMETRIC PROPERTIES WORKSHEET - 3 RA BINDER MIX

PLANT: Green Asphalt Co LLC	NYS DOT FACILITY #: H0385	MIX DESIGN DATE: 9/14/2023
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Agg. Blend %	Constituent Material	NYS DOT Source	G _{sa}	G _{sb}	Total Mix Composition by Weight				
					Trial Batch				
					1	2	3	4	5
0.0%	Not Used	---	---	---	0.0%	0.0%	0.0%	0.0%	0.0%
0.0%	Not Used	---	---	---	0.0%	0.0%	0.0%	0.0%	0.0%
0.0%	Not Used	---	---	---	0.0%	0.0%	0.0%	0.0%	0.0%
0.0%	Not Used	---	---	---	0.0%	0.0%	0.0%	0.0%	0.0%
0.0%	Not Used	---	---	---	0.0%	0.0%	0.0%	0.0%	0.0%
0.0%	Not Used	---	---	---	0.0%	0.0%	0.0%	0.0%	0.0%
78.0%	Coarse RAP (1 1/2")		2.787	2.719	77.2%	77.1%	77.0%	76.9%	76.9%
22.0%	RAP Sand		2.704	2.651	22.2%	22.2%	22.2%	22.2%	22.1%
	Virgin Asphalt				0.6%	0.7%	0.8%	0.9%	1.0%
100.0%					100.0%	100.0%	100.0%	100.0%	100.0%

Mix General Properties			Trial Batch				
			1	2	3	4	5
P _b	Percent Total Asphalt Binder, %		5.4%	5.5%	5.6%	5.7%	5.8%
P _{ba}	Percent Absorbed Asphalt Binder, %		1.43%	1.36%	1.28%	1.22%	1.19%
P _{be}	Percent Effective Asphalt Binder, %		4.05%	4.21%	4.39%	4.55%	4.68%
DP	Dust Proportion (0.6 to 1.2 desired)		0.9	0.9	0.9	0.8	0.8
G _{mm}	Mix Maximum Specific Gravity		2.571	2.563	2.554	2.546	2.541
G _{mb}	Mix Bulk Specific Gravity		2.444	2.450	2.460	2.455	2.453
G _{sb}	Aggregate Bulk Gravity		2.704	2.704	2.704	2.704	2.704
G _{se}	Aggregate Effective Gravity		2.809	2.804	2.798	2.793	2.791
G _{sa}	Aggregate Apparent Specific Gravity		2.768	2.768	2.768	2.768	2.768

Mix Acceptance Properties			Low Limit	High Limit	Trial Batch				
					1	2	3	4	5
VMA	Voids in Mineral Aggregate, %	13.5%			✓ 14.5%	✓ 14.4%	✓ 14.1%	✓ 14.4%	✓ 14.5%
<i>Note: All five trial batches must meet the minimum VMA requirement.</i>									
VFA	Voids Filled with Asphalt, %	65%	75%		✓ 65.9%	✓ 69.3%	✓ 73.9%	✗ 75.2%	✗ 76.2%
P _a	Percent Air Voids, %	3.0%	5.0%		✓ 4.9%	✓ 4.4%	✓ 3.7%	✓ 3.6%	✓ 3.5%
---	Marshall Stability (Corrected), lb	1500			✓ 2830	✓ 3010	✓ 3100	✓ 2950	✓ 2910
---	Marshall Flow, 0.01"	8	12		✓ 8.5	✓ 8.7	✓ 8.7	✓ 9.3	✓ 10.5
---	Marshall Quotient, lb/0.01"	150			✓ 334	✓ 349	✓ 359	✓ 316	✓ 277

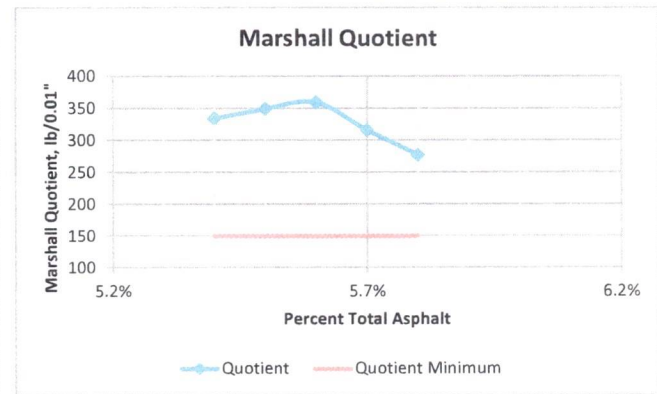
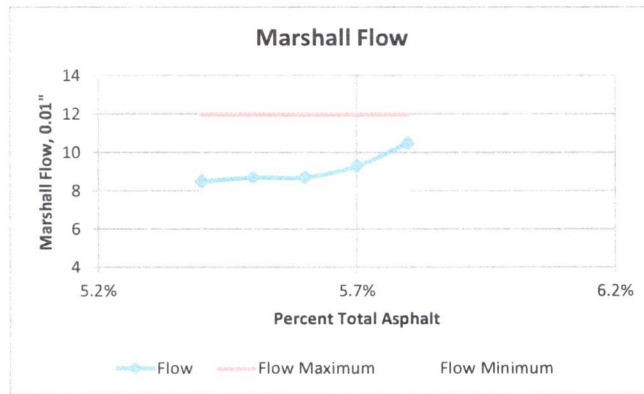
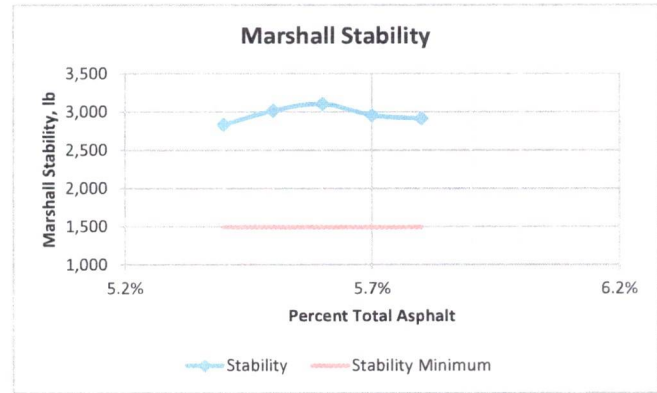
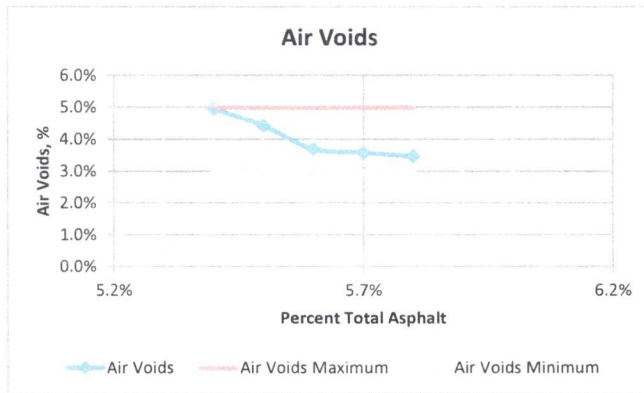
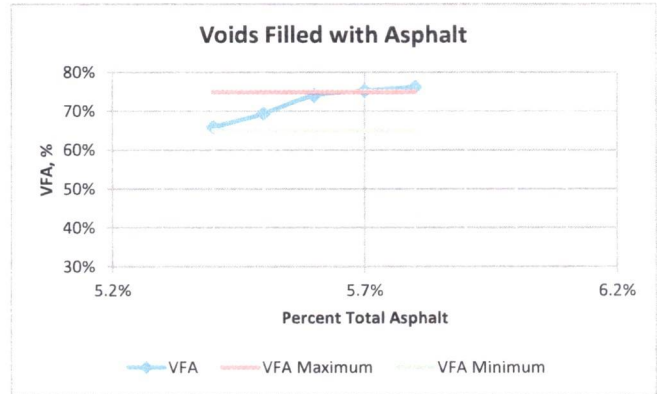
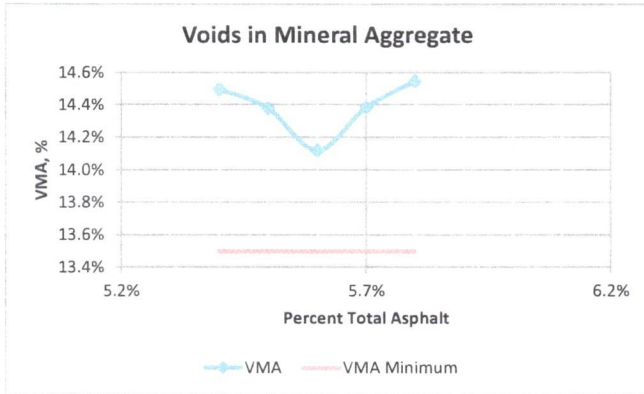
QA & CONSTRUCTION SAFETY BUREAU

PROPERTY CURVES & DESIRED ASPHALT CONTENT WORKSHEET - 3 RA BINDER MIX

PLANT NAME: Green Asphalt Co LLC

NYSDOT FACILITY #: H0385

MIX DESIGN DATE: 9/14/2023



Property	High	Low
Voids in Mineral Aggregate (VMA), %	5.8%	5.4%
Voids Filled with Asphalt (VFA), %	5.6%	5.4%
Percent Air Voids, %	5.8%	5.5%
Marshall Stability (Corrected), lb	5.6%	5.4%
Marshall Flow, 0.01"	5.8%	5.4%
Marshall Quotient, lb/0.01"	5.8%	5.4%
Overlap	5.6%	5.4%

Properties at Desired AC%
14.4%
69.3%
4.4%
3010
8.7
341.7

Midpoint	5.5%
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Desired Total Asphalt Content P _b	5.5%
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Desired Asphalt Content is the midpoint, unless the midpoint is on the VMA curve's positive slope. If this is the case, the Desired Asphalt Content is as close as possible to the bottom of the VMA curve, within the Overlap Range.