



# 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 - 130

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:** 6FRA Top – 50% RAP

**Generic Mix Design Serial Number:** GreenAsphalt/6FRA/Top/Generic/NYCDDC/12/23/130

**Generic Mix Design Date:** 11/13/2023

**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 - 6F RA TOP MIX**

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

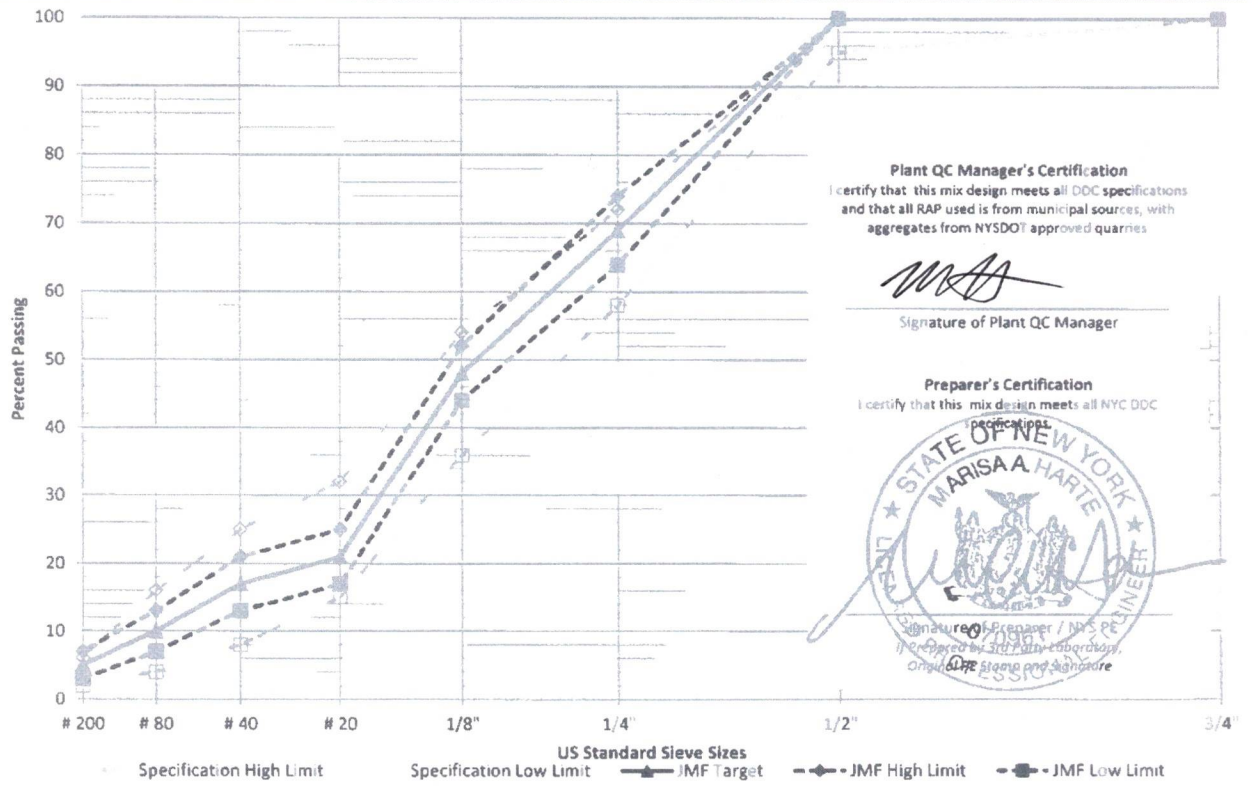
MIX DESIGN DATE: 11/13/2023  
 PREPARED BY: Alex Cantos  
 COMPANY: MT Group  
 PLANT QC MGR: Matthew Harrison

Item	Supplier / Quarry	NYSDOT Source	Friction Agg.	Agg Blend %	Mix %	Lbs / Ton
					0.0%	0
					0.0%	0
#8 Stone	P. Valente	1-48R	Yes	50.0%	48.8%	975
					0.0%	0
			N/A		0.0%	0
			N/A		0.0%	0
		N/A	Yes		0.0%	0
	RAP % Asphalt:			RAP AC	0.0%	0
				RAP Aggregate	0.0%	0
Fine RAP	Green Asphalt	N/A	Yes	50.0%	48.8%	975
	RAP % Asphalt: 6.1%			RAP AC	3.0%	60
				RAP Aggregate	45.8%	915
Virgin Asphalt	Grade: PG64 22	SG (G <sub>v</sub> ):	1.031		2.5%	50
Total Asphalt Content (P <sub>b</sub> )					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: 2023-130

**GreenAsphalt/6FRA/Top/Generic/NYCDDC/12/23/130 Expiration: 12/31/2025**  
QABCS SERIAL NUMBER & EXPIRATION DATE

Sieve Size	1 1/2"	1"	3/4"	1/2"	1/4"	1/8"	# 20	# 40	# 80	# 200	P <sub>b</sub>
Specification Limits	100	100	100	95-100	58-72	36-54	15-32	8-25	4-16	2-6	5.0-6.2
JMF Target	100	100	100	100	69	48	21	17	10	5	5.5
JMF Range	100	100	100	100	64-74	44-52	17-25	13-21	7-13	3-7	5.0-6.2



**QA & CONSTRUCTION SAFETY BUREAU**  
ASPHALT COMBINED GRADATION WORKSHEET - 6F RA TOP MIX

PLANT NAME: Green Asphalt

NYSDOT FACILITY #: H0385

MIX DESIGN DATE 11/13/2023

**Average Bin Gradations**

Sieve	Not Used		Not Used		#8 Stone		Not Used		Not Used		Not Used		Not Used		Fine RAP	
	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass
1.5"		100.0		100.0	0.0	100.0		100.0		100.0		100.0		100.0	0.0	100.0
1"		100.0		100.0	0.0	100.0		100.0		100.0		100.0		100.0	0.0	100.0
3/4"		100.0		100.0	0.0	100.0		100.0		100.0		100.0		100.0	0.0	100.0
1/2"		100.0		100.0	0.0	100.0		100.0		100.0		100.0		100.0	0.0	100.0
1/4"		100.0		100.0	57.1	42.9		100.0		100.0		100.0		100.0	5.6	94.4
1/8"		100.0		100.0	26.2	16.7		100.0		100.0		100.0		100.0	5.7	78.7
#20		100.0		100.0	15.9	0.8		100.0		100.0		100.0		100.0	17.4	41.3
#40		100.0		100.0	0.0	0.8		100.0		100.0		100.0		100.0	8.8	32.5
#80		100.0		100.0	0.0	0.8		100.0		100.0		100.0		100.0	13.4	19.1
#200		100.0		100.0	0.0	0.8		100.0		100.0		100.0		100.0	8.9	9.2
Pan					0.8										8.7	
Totals	0.0		0.0		100.0		0.0		0.0		0.0		0.0		100.0	

Stockpiles Sampled By Alex Cantos Date Sampled: 11/17/23

Gradation Technician Zak Aranov Date Tested: 11/17/23

**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	#8 Stone	Not Used	Not Used	Not Used	Not Used	Fine RAP
% Coarse Agg.	---	---	57.1%	---	---	---	---	5.9%
Test Required?	NO	NO	YES	NO	NO	NO	NO	NO
A) Wt. in Air			3223.7					
B) Wt. SSD			3239.5					
C) Wt. in Water			2041.0					
G <sub>sb</sub> (A/(B-C))	---	---	2.690	---	---	---	---	---
G <sub>sa</sub> (A/(A-C))	---	---	2.726	---	---	---	---	---

**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	#8 Stone	Not Used	Not Used	Not Used	Not Used	Fine RAP
% Fine Agg.	---	---	42.9%	---	---	---	---	94.4%
Test Required?	NO	NO	YES	NO	NO	NO	NO	YES
A) Wt. in Air			499.1					502.5
B) Wt. Flask + Water			1451.6					1451.6
C) Wt. Flask + Water + Sample			1767.1					1770.7
S) Wt. SSD			501.7					504.1
G <sub>sb</sub> (A/(B+S-C))	---	---	2.680	---	---	---	---	2.716
G <sub>sa</sub> (A/(B+A-C))	---	---	2.718	---	---	---	---	2.740

**Combined Aggregate Specific Gravity**

	Not Used	Not Used	#8 Stone	Not Used	Not Used	Not Used	Not Used	Fine RAP
Combined G <sub>sb</sub>	---	---	2.686	---	---	---	---	2.716
Combined G <sub>sa</sub>	---	---	2.723	---	---	---	---	2.740

S. G. Technician Alex Cantos Date Tested: 11/17/23

**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
#8 Stone	50.0%	50.0	50.0	50.0	50.0	21.5	8.4	0.4	0.4	0.4	0.4
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
Fine RAP	50.0%	50.0	50.0	50.0	47.2	39.4	20.7	16.3	9.6	4.6	
Total	100.0%	100.0	100.0	100.0	100.0	68.7	47.7	21.1	16.7	10.0	5.0
Specification Limit:		100	100	100	95-100	58-72	36-54	15-32	8-25	4-16	2-6





**QA & CONSTRUCTION SAFETY BUREAU**  
**ASPHALT TRIAL GRADATION WORKSHEET - 6F RA TOP MIX**

PLANT NAME: Green Asphalt

NYSDOT FACILITY #: H0385

MIX DESIGN DATE: 11/13/2023

**BATCH 1**  
 Batch P<sub>g</sub>: 4  
 Batch Grams: 1

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
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
#8 Stone	50.0%	47.8%	596.9		0.0	0.0	0.0	0.0	340.8	156.4	94.9	0.0	0.0	0.0	4.8	596.9
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
Fine RAP	50.0%	50.9%	635.6	38.8	0.0	0.0	0.0	0.0	35.6	99.8	237.7	55.9	85.2	62.9	19.7	635.6
Virgin Asphalt		1.4%	17.5	17.5												17.5
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1250.0</b>	<b>56.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>376.4</b>	<b>256.2</b>	<b>332.6</b>	<b>55.9</b>	<b>85.2</b>	<b>62.9</b>	<b>24.5</b>	<b>1250.0</b>

**BATCH 2**  
 Batch P<sub>g</sub>: 1  
 Batch Grams: 1

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
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
#8 Stone	50.0%	47.5%	593.8		0.0	0.0	0.0	0.0	339.0	155.6	94.4	0.0	0.0	0.0	4.8	593.8
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
Fine RAP	50.0%	50.6%	632.3	38.6	0.0	0.0	0.0	0.0	35.4	99.3	236.5	55.6	84.7	62.6	19.6	632.3
Virgin Asphalt		1.9%	23.9	23.9												23.9
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1250.0</b>	<b>62.5</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>374.4</b>	<b>254.8</b>	<b>330.9</b>	<b>55.6</b>	<b>84.7</b>	<b>62.6</b>	<b>24.4</b>	<b>1250.0</b>

**BATCH 3**  
 Batch P<sub>g</sub>: 1  
 Batch Grams: 1

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
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
#8 Stone	50.0%	47.3%	590.6		0.0	0.0	0.0	0.0	337.2	154.7	93.9	0.0	0.0	0.0	4.7	590.6
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
Fine RAP	50.0%	50.3%	629.0	38.4	0.0	0.0	0.0	0.0	35.2	98.8	235.2	55.4	84.3	62.3	19.5	629.0
Virgin Asphalt		2.4%	30.4	30.4												30.4
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1250.0</b>	<b>68.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>372.5</b>	<b>253.5</b>	<b>329.2</b>	<b>55.4</b>	<b>84.3</b>	<b>62.3</b>	<b>24.2</b>	<b>1250.0</b>

**BATCH 4**  
 Batch P<sub>g</sub>: 1  
 Batch Grams: 1

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
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
#8 Stone	50.0%	47.0%	587.5		0.0	0.0	0.0	0.0	335.5	153.9	93.4	0.0	0.0	0.0	4.7	587.5
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
Fine RAP	50.0%	50.1%	625.7	38.2	0.0	0.0	0.0	0.0	35.0	98.2	234.0	55.1	83.8	61.9	19.4	625.7
Virgin Asphalt		2.9%	36.8	36.8												36.8
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1250.0</b>	<b>75.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>370.5</b>	<b>252.2</b>	<b>327.4</b>	<b>55.1</b>	<b>83.8</b>	<b>61.9</b>	<b>24.1</b>	<b>1250.0</b>

**BATCH 5**  
 Batch P<sub>g</sub>: 1  
 Batch Grams: 1

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
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
#8 Stone	50.0%	46.8%	584.4		0.0	0.0	0.0	0.0	333.7	153.1	92.9	0.0	0.0	0.0	4.7	584.4
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
Fine RAP	50.0%	49.8%	622.3	38.0	0.0	0.0	0.0	0.0	34.9	97.7	232.8	54.8	83.4	61.6	19.3	622.3
Virgin Asphalt		3.5%	43.3	43.3												43.3
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1250.0</b>	<b>81.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>368.5</b>	<b>250.8</b>	<b>325.7</b>	<b>54.8</b>	<b>83.4</b>	<b>61.6</b>	<b>24.0</b>	<b>1250.0</b>



# QA & CONSTRUCTION SAFETY BUREAU

## ASPHALT MAXIMUM DENSITY & MARSHALL PROPERTIES WORKSHEET - 6F RA TOP MIX

PLANT NAME: Green Asphalt

NYSDOT FACILITY #: H0385

MIX DESIGN DATE: 11/13/2023

### Theoretical Maximum Specific Gravity $G_{mm}$ per ASTM D2041

Trial Batch	1		2		3		4		5	
$P_b$	4.5%		5.0%		5.5%		6.0%		6.5%	
A) Sample in Air (grams)	2020.5	2023.1	2036.7	2062.3	2041.5	2039.8	2017.4	2021.6	2046.9	2031.7
B) Pycnometer in Water (Grams)	1318.8	1326.5	1318.8	1326.5	1318.8	1326.5	1318.8	1326.5	1318.8	1326.5
C) Sample & Pycnometer in Water (Grams)	2550.0	2559.4	2553.0	2576.4	2551.1	2549.3	2531.6	2544.4	2543.1	2541.9
$G_{mm} (A/(A+B-C))$	2.560	2.560	2.538	2.539	2.523	2.528	2.507	2.515	2.488	2.489
Average $G_{mm}$	2.560		2.538		2.525		2.511		2.489	

Density Technician: Alex Cantos Date Tested: 11/13/2023

### 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 $P_b = 4.5\%$													
Specimen A	1242.3	1244.5	724.0	520.5	2.387	2.560	6.77%	3250	1	3250	8.1	401	
Specimen B	1241.5	1243.8	724.6	519.2	2.391	2.560	6.59%		3340	1	3340	8.2	407
Specimen C	1247.8	1249.9	724.9	525.0	2.377	2.560	7.16%		3420	0.96	3280	8.6	381
Average					2.385	2.560	6.84%	148.8		3290	8.3	397	

TRIAL BATCH 2 $P_b = 5.0\%$													
Specimen A	1244.5	1246.0	727.0	519.0	2.398	2.538	5.52%	3350	1	3350	10.1	332	
Specimen B	1243.8	1245.4	727.5	517.9	2.402	2.538	5.37%		3390	1	3390	9.6	353
Specimen C	1245.6	1247.2	727.4	519.8	2.396	2.538	5.58%		3240	1	3240	10.4	312
Average					2.399	2.538	5.48%	149.7		3330	10.0	332	

TRIAL BATCH 3 $P_b = 5.5\%$													
Specimen A	1240.4	1241.4	728.5	512.9	2.418	2.525	4.22%	3530	1	3530	11.5	307	
Specimen B	1243.6	1244.6	728.7	515.9	2.411	2.525	4.53%		3610	1	3610	11.6	311
Specimen C	1242.4	1243.5	728.3	515.2	2.411	2.525	4.50%		3540	1	3540	10.9	325
Average					2.413	2.525	4.44%	150.6		3560	11.3	314	

TRIAL BATCH 4 $P_b = 6.0\%$													
Specimen A	1241.6	1242.6	731.9	510.7	2.431	2.511	3.18%	3560	1	3560	12.4	287	
Specimen B	1239.6	1240.4	729.4	511.0	2.426	2.511	3.39%		3420	1	3420	12.1	283
Specimen C	1239.4	1240.1	728.8	511.3	2.424	2.511	3.46%		3580	1	3580	12.8	280
Average					2.427	2.511	3.35%	151.4		3520	12.4	283	

TRIAL BATCH 5 $P_b = 6.5\%$													
Specimen A	1237.4	1237.9	731.0	506.9	2.441	2.489	1.92%	3470	1.04	3610	12.9	280	
Specimen B	1237.7	1238.2	730.0	508.2	2.435	2.489	2.15%		3410	1.04	3550	12.4	286
Specimen C	1240.5	1241.2	731.3	509.9	2.433	2.489	2.26%		3360	1	3360	13.5	249
Average					2.436	2.489	2.13%	152.0		3510	12.9	272	

Marshall Technician: Alex Cantos Date Tested: 11/12/2023



# QA & CONSTRUCTION SAFETY BUREAU

## MIX VOLUMETRIC PROPERTIES WORKSHEET - 6F RA TOP MIX

PLANT:	Green Asphalt	NYSDOT FACILITY #:	H0385	MIX DESIGN DATE:	11/13/2023
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Agg. Blend %	37-98 Railroad Ave	NYSDOT Source	G <sub>sa</sub>	G <sub>sb</sub>	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%
50.0%	#8 Stone	1-48R	2.723	2.686	47.8%	47.5%	47.3%	47.0%	46.8%
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%
50.0%	Fine RAP		2.740	2.716	50.9%	50.6%	50.3%	50.1%	49.8%
	Virgin Asphalt				1.4%	1.9%	2.4%	2.9%	3.5%
100.0%					100.0%	100.0%	100.0%	100.0%	100.0%

Mix General Properties		Trial Batch				
		1	2	3	4	5
P <sub>b</sub>	Percent Total Asphalt Binder, %	4.5%	5.0%	5.5%	6.0%	6.5%
P <sub>ba</sub>	Percent Absorbed Asphalt Binder, %	0.71%	0.68%	0.79%	0.87%	0.82%
P <sub>be</sub>	Percent Effective Asphalt Binder, %	3.82%	4.35%	4.75%	5.18%	5.74%
DP	Dust Proportion (0.6 - 1.2 desired)	0.8	0.9	1.0	1.0	1.1
G <sub>mm</sub>	Mix Maximum Specific Gravity	2.560	2.538	2.525	2.511	2.489
G <sub>mb</sub>	Mix Bulk Specific Gravity	2.385	2.399	2.413	2.427	2.436
G <sub>sb</sub>	Aggregate Bulk Gravity	2.701	2.701	2.701	2.701	2.701
G <sub>se</sub>	Aggregate Effective Gravity	2.752	2.750	2.758	2.764	2.760
G <sub>sa</sub>	Aggregate Apparent Specific Gravity	2.731	2.731	2.731	2.731	2.731

Mix Acceptance Properties		Low Limit	High Limit	Trial Batch				
				1	2	3	4	5
VMA	Voids in Mineral Aggregate, %	15.5%		✓ 15.7%	✓ 15.6%	✓ 15.6%	✓ 15.5%	✓ 15.7%
<i>Note: All five trial batches must meet the minimum VMA requirement.</i>								
VFA	Voids Filled with Asphalt, %	65%	75%	✗ 56.4%	✗ 64.9%	✓ 71.5%	✗ 78.4%	✗ 86.4%
P <sub>a</sub>	Percent Air Voids, %	3.0%	5.0%	✗ 6.8%	✗ 5.5%	✓ 4.4%	✓ 3.4%	✗ 2.1%
---	Marshall Stability (Corrected), lb	1500		✓ 3290	✓ 3330	✓ 3560	✓ 3520	✓ 3510
---	Marshall Flow, 0.01"	8	12	✓ 8.3	✓ 10.0	✓ 11.3	✗ 12.4	✗ 12.9
---	Marshall Quotient, lb/0.01"	150		✓ 397	✓ 332	✓ 314	✓ 283	✓ 272

# QA & CONSTRUCTION SAFETY BUREAU

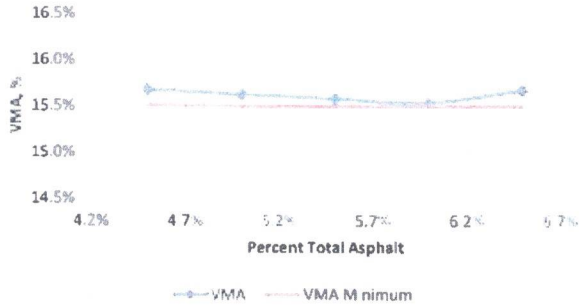
## PROPERTY CURVES & DESIRED ASPHALT CONTENT WORKSHEET - 6F RA TOP MIX

PLANT NAME: **Green Asphalt**

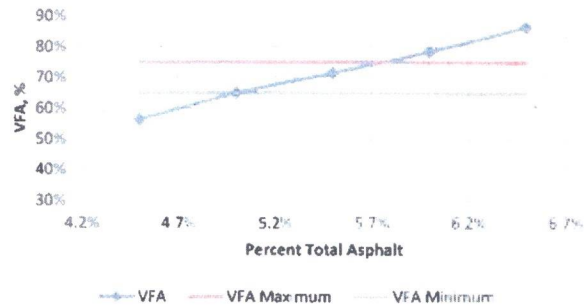
NYSDOT FACILITY #: **H0385**

MIX DESIGN DATE: **11/13/2023**

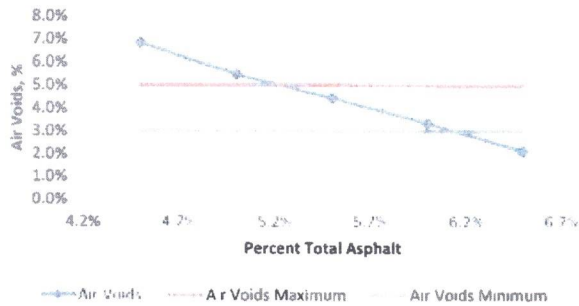
**Voids in Mineral Aggregate (VMA)**



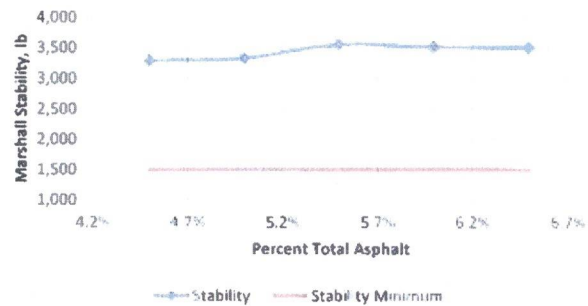
**Voids Filled with Asphalt (VFA)**



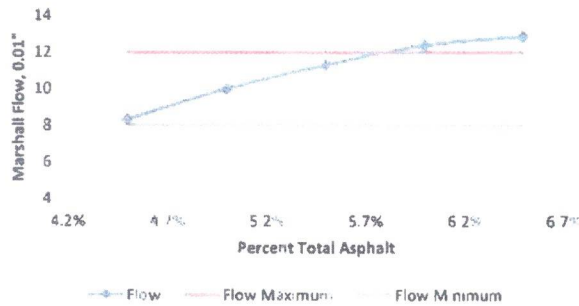
**Air Voids (P<sub>a</sub>)**



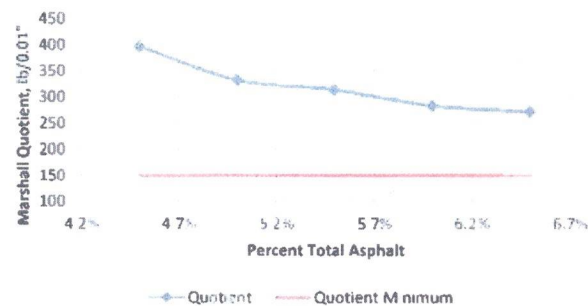
**Marshall Stability**



**Marshall Flow**



**Marshall Quotient**



Property	Low	High
Voids in Mineral Aggregate (VMA), %	4.5%	6.5%
Voids Filled with Asphalt (VFA), %	5.0%	5.8%
Percent Air Voids, (P <sub>a</sub> ) %	5.2%	6.1%
Marshall Stability (Corrected), lb	4.5%	6.5%
Marshall Flow, 0.01"	4.5%	5.8%
Marshall Quotient, lb/0.01"	4.5%	6.5%
Overlap	5.2%	5.8%

Properties at Desired AC%
15.6%
71.5%
4.4%
3560
11.3
319.6

Midpoint	5.5%
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Desired Total Asphalt Content P <sub>t</sub>	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.