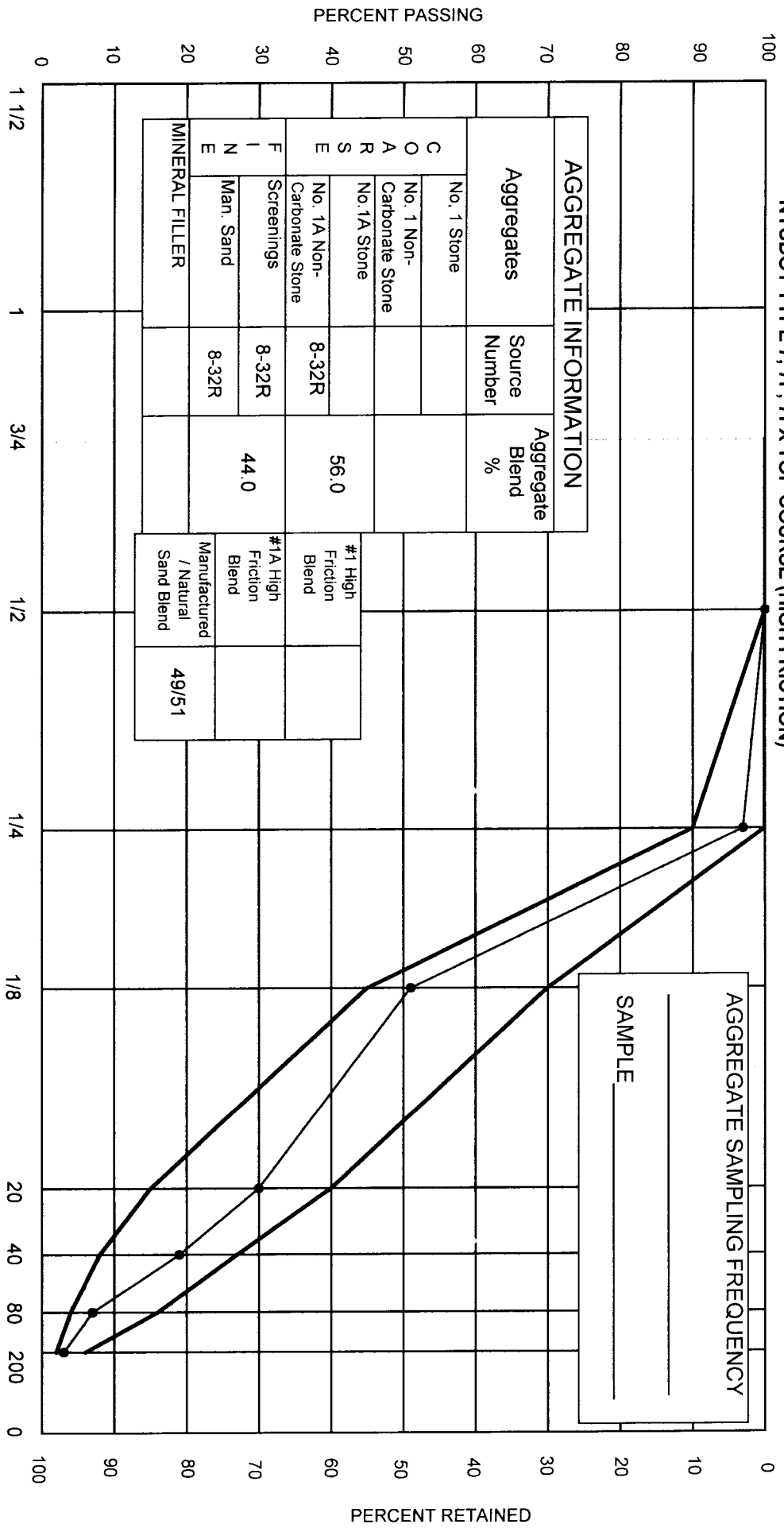


NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
MATERIALS BUREAU
JOB MIX FORMULA

Facility No. _____ Formula No. _____
Plant _____ **Willels Point Asphalt** Region _____ **11**
Plant Location **Flushing, NY**
Submitted _____ **Willels Point Asphalt** Date **9/1/2011**

NYS DOT TYPE 7, 7F, 7FX TOP COURSE (HIGH FRICTION)



U.S. STD. - SIZES RAISED TO 0.45 POWER

Sieve Size	1 1/2"	1"	3/4"	1/2"	1/4"	1/8"	No. 20	No. 40	No. 80	No. 200	Asphalt Content (Percent)
1. General Limits				100	90-100	45-70	15-40	8-27	4-16	2-6	6.0-8.0
2. JMF Range				100	90-100	44-58	22-37	12-26	3-11	1-5	6.0-6.4
3. Target Value				100	97	51	30	19	7	3	6.0

Asphalt Grade	AC 20
	PG 64-22

Recommended for Approval by Regional Director _____
Approved by Director, Materials Bureau _____
Date: _____
Remarks: _____

**NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
MATERIALS BUREAU
MARSHALL GRADATION ANALYSIS WORKSHEET**

NO. OF COMPOSITE/STOCKPILES AVERAGED 10

REGION 11
ITEM 7, 7F, 7FX
MIX TYPE Williets Point Asphalt
PRODUCER Flushing, NY
LOCATION

AGGREGATE INFORMATION			
AGGREGATES	SOURCE NUMBER	AGGREGATE BLEND %	
COARSE	No. 2 Stone		# 1 High
	No. 1 Stone		Friction
	No. 1 Non-Carbonate Stone		Blend
FINE	No. 1A Stone		# 1A High
	No. 1A Non-Carbonate Stone	56.0	Friction
	Screenings	44.0	Blend
MINERAL FILLER	Man. Sand		Manuf./ Nat. Sand
	R.A.P.		50/50

COMBINED AVERAGE GRADATION

BIN	Batched	% PASSING SIEVE					
		1 1/2"	1"	3/4"	1/2"	1/4"	1/8"
-	0.0						
3/4"	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/8"	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/4"	0.0	0.0	0.0	0.0	0.0	0.0	0.0
composite	100.0	100.0	100.0	100.0	97.3	51.3	3.0
MF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	100.0	100.0	100.0	100.0	97.3	51.3	3.0
Specification Limits		100	100	100	100	90-100	45-70

Sieve Size	BIN NO. 5		BIN NO. 4		BIN NO. 3		BIN NO. 2		BIN NO. 1		MF	
	ret.	pass.	ret.	pass.	ret.	pass.	ret.	pass.	ret.	pass.	ret.	pass.
1 1/2"												
1"												
3/4"												
1/2"												
1/4"												
1/8"												
20												
40												
80												
200												
PAN												
Totals												

REMARKS

TESTED BY Williets Point Asphalt ON 9/1/2011

COMPUTATION OF MARSHALL MIX PROPERTIES

NEW YORK STATE DEPARTMENT OF TRANSPORTATION MATERIALS BUREAU

ITEM _____ MIX TYPE **7, 7F, 7FX** REGION **11**
 PRODUCER _____ LOCATION **Flushing, NY**
Willets Point Asphalt

Specimen	Asphalt Content	Weight - Grams			S.S.D.	Volume CC	Bulk Specific Gravity Gmb	Unit Wt. lb/cu Ft.	Stability - Lbs.			Flow 0.01 in	Marshall Quotient lb/0.01 in.
		In Air	In Water						Measured	Correction Factor	Corrected		
a	b	c	d	e	f	g	h	i	j	k	l	m	k/l
A		1202.2	704.4	1204.0	499.6	2.406	150.1	1650	1.04	1716	6.5		
B		1214.7	708.9	1215.9	507.0	2.396	150.1	1500	1.04	1560	7.5		
C		1210.6	707.9	1212.2	504.3	2.401	150.1	1525	1.04	1586	9.0		
AVG.	5.6					2.401	149.8			1621	7.7	211	
A		1208.7	707.8	1210.0	502.2	2.407	150.2	1850	1.04	1924	10.0		
B		1205.9	706.4	1206.7	500.3	2.410	150.2	1700	1.04	1768	10.0		
C		1198.7	701.5	1200.1	498.6	2.404	150.2	1725	1.04	1794	9.0		
AVG.	6.0					2.407	150.2			1829	9.7	189	
A		1200.6	704.3	1201.4	497.1	2.415	150.4	1990	1.04	2070	11.0		
B		1194.5	700.1	1195.4	495.3	2.412	150.4	1750	1.09	1908	12.0		
C		1196.0	699.1	1196.8	497.7	2.403	150.4	1730	1.04	1799	10.0		
AVG.	6.4					2.410	150.4			1926	11.0	175	
A		1197.0	701.0	1197.9	496.9	2.409	150.3	1700	1.04	1768	13.0		
B		1206.2	706.8	1207.0	500.2	2.411	150.3	1875	1.04	1950	13.5		
C		1201.5	702.2	1202.0	499.8	2.404	150.3	1700	1.04	1768	13.5		
AVG.	6.8					2.408	150.3			1829	13.3	138	
A		1199.9	700.6	1200.6	500.0	2.400	150.1	1575	1.04	1638	17.0		
B		1207.4	704.6	1208.1	503.5	2.398	150.1	1550	1.04	1612	16.5		
C		1211.6	710.5	1212.0	501.5	2.416	150.1	1700	1.04	1768	15.5		
AVG.	7.2					2.405	150.1			1673	16.3	103	

PREPARED BY

Willets Point Asphalt

DATE

9/1/2011

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
MATERIALS BUREAU

MIX TYPE 7, 7F, 7FX REGION 11PRODUCER Willets Point AsphaltLOCATION Flushing, NY

MAXIMUM SPECIFIC GRAVITY OF HOT MIX ASPHALT
AASHTO T209

Gmm = Maximum Specific Gravity of Hot Mix Asphalt
 A = Weight of sample in air (grams)
 D = Weight of pycnometer filled with airless water at 25 C (grams)
 E = Weight of pycnometer filled with water and sample at 25 C (grams)
 Gmm = $\frac{A}{A+D-E}$

ASPHALT CONTENT	5.6 %		6.0 %		6.4 %		6.8 %		7.2 %	
	TEST NO.	1	2	1	2	1	2	1	2	
A	1307.6	1393.6	1196.8	1255.7	1879.1	1841.1	1279.6	1347.2	1408.7	1312.7
D	7414.0	7414.0	7414.0	7414.0	7414.0	7414.0	7414.0	7414.0	7414.0	7417.0
E	8205.7	8257.4	8133.0	8172.9	8540.8	8516.7	8179.8	8220.3	8253.8	8195.2
A+D-E	515.9	550.2	477.8	496.8	752.3	738.4	513.8	540.9	568.9	534.5
Gmm	2.535	2.533	2.505	2.528	2.498	2.493	2.490	2.491	2.476	2.456
Average Gmm	2.534		2.517		2.496		2.491		2.466	

TESTED BY Willets Point AsphaltON 9/1/2011

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
MATERIALS BUREAU

WORKSHEET FOR ANALYSIS OF
COMPACTED PAVING MIXTURE

(Analysis by weight of total mixture)
COMPOSITION OF PAVING MIXTURE

ITEM	REGION	MIX TYPE	PRODUCER	LOCATION	COMPACTION
	11	7, 7F, 7FX	Williets Point Asphalt	Flushing, NY	50 BLOWS PER SIDE

CONSTITUENT	NYS DOT	Specific Gravity	Source		Region	Verification	Mix Composition, % by weight of Total Mix, P	Mix or Trial Number	MATERIAL		
			Apparent	Bulk					No. 2 Stone	No. 1 Stone	
CA					P1					No. 2 Stone	
					P2					No. 1 Stone	
					P3					No. 1 Non-Carbonate Stone	
					P4					No. 1A Stone	
					P5					No. 1A Non-Carbonate Stone	
					P6					Screenings	
					P7					Manufactured Sand	
FA					P8					R.A.P.	
					P9						
MINERAL FILLER											
TOTAL AGGREGATE											
ASPHALT CEMENT @ 25 C											
Gmm	Max Sp. Gr. of Paving Mix (AASHTO T209)						2.534	2.517	2.496	2.491	2.466
Gmb	Bulk Sp. Gr. of compacted mix (AASHTO T166)						2.401	2.407	2.410	2.408	2.405
Gsb	Bulk Sp. Gr. of total aggregate*						2.743	2.743	2.743	2.743	2.743
Gse	Effective Sp. Gr. of total aggregate*						2.779	2.777	2.770	2.784	2.771
Gsa	Apparent Sp. Gr. of total aggregate						2.788	2.788	2.788	2.788	2.788
VMA	100 - (Gmb x Ps/Gsb)						17.37	17.51	17.76	18.18	18.64
Pa	Pa = 100[(Gmm - Gmb)/Gmm]						5.25	4.37	3.45	3.33	2.47
VFA	VFA = 100 [(VMA - Pa)/VMA]						69.78	75.04	80.57	81.68	86.75
Pbe	Effective Asphalt Content = Gb(VMA - Pa)/Gmb						5.15	5.57	6.06	6.29	6.86
Stability (CORRECTED)							1621	1829	1926	1829	1673
Flow							7.7	9.7	11.0	13.3	16.3
Marshall Quotient = Stability(corrected)/Flow							211	189	175	138	103
Unit Weight							149.8	150.2	150.4	150.3	150.1

* EQUATIONS FROM CHAPTER V, SECTION E, NY MATERIALS METHOD 5.13

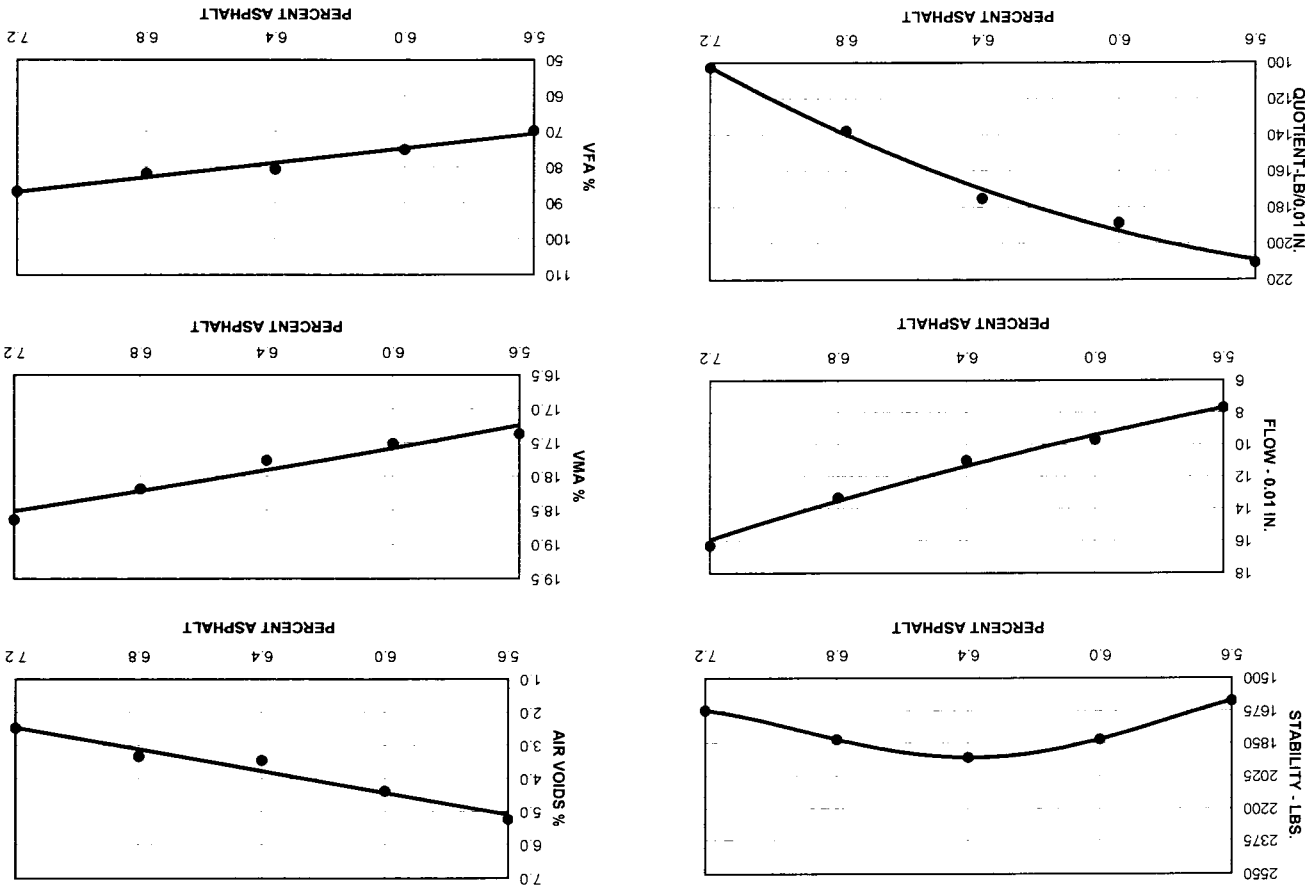
Prepared By

Williets Point Asphalt

On 9/1/2011

ITEM REGION 11 MIX TYPE 7, 7F, 7FX PRODUCER Willets Point Asphalt LOCATION Flushing, NY

MARSHALL TEST PROPERTY CURVES AND RANGE DATA



COMMON OVERLAP RANGE 5.6-6.4
MID POINT 6.0
(OPTIMUM AC CONTENT) 6.0

SUBMITTED BY Willets Point Asphalt
DATE 9/1/2011

VALUES AT OPTIMUM AC CONTENT

PROPERTY	STABILITY	FLOW	QUOTIENT	AIR VOIDS	VMA	VFA
SPECIFICATION	1500 min.	8.0 min	150 min	3.0-5.0	15.5 min.	-
ACTUAL	1829	9.7	188.6	3.8	17.5	-