

INLET COMPUTATIONS ADDISON GROVES

SHEET 10 - PEARSON / BLOCK B / BLOCK A

INLET #	INLET LOCATION				AREA (AC)	C	Tc (MIN)	I <sub>10</sub> (IN/HR)	Q <sub>10</sub> (CFS)	STREET SLOPE (%)	STREET XSLOPE (%)	STREET WIDTH (FT)	INLET DEPRESSION (FT)	INLET CAPACITY (CFS/FT)	INLET LENGTH (FT)	INLET CAPACITY* (CFS)
	INLET TYPE	NORTHING	EASTING													
100	Grate	7033366.5	2476756.66	0.13	0.88	10.00	6.54	0.73	0.50	2.80	24.00	0.34	0.89	5.19	4.63	
102	Grate	7033366.5	2476852.15	0.46	0.88	10.00	6.54	2.67	0.72	3.72	24.00	0.45	1.36	5.19	7.05	
104	Grate	7033366.95	2476958.66	0.00	0.88	10.00	6.54	0.00	0.40	0.36	24.00	0.02	0.01	5.19	0.07	
128	Grate	7033462.81	2476911.66	0.57	0.88	10.00	6.54	3.28	2.86	2.86	PARK	0.50	1.59	5.19	8.25	
144	Grate	7033431.53	2476710.81	1.93	0.88	10.00	6.54	11.11	GRADE	EX	PARK	0.50	1.59	8.88	14.12	
146	Grate	7033433.53	2476742.15	0.13	0.88	10.00	6.54	0.77	0.40	1.98	24.00	0.22	0.46	5.19	2.41	
148	Grate	7033643.53	2476742.16	1.03	0.88	10.00	6.54	5.96	0.55	3.37	24.00	0.42	1.22	5.19	6.35	
150	Grate	7033696.53	2476742.16	0.00	0.88	10.00	6.54	0.00	0.30	0.36	24.00	0.02	0.01	5.19	0.07	
156	Grate	7033685.53	2476901.66	0.03	0.88	10.00	6.54	0.16	1.98	0.36	24.00	0.02	0.01	5.19	0.07	
158	Grate	7033643.53	2476901.66	0.12	0.88	10.00	6.54	0.67	1.98	2.80	24.00	0.44	1.31	5.19	6.81	
160	Grate	7033612.03	2476901.66	0.06	0.88	10.00	6.54	0.34	0.36	0.93	24.00	0.08	0.10	5.19	0.53	
162	Grate	7033819.03	2476742.16	0.33	0.88	10.00	6.54	1.88	0.62	2.50	24.00	0.30	0.74	5.19	3.84	
164	Grate	7033771.53	2476742.16	0.00	0.88	10.00	6.54	0.00	0.00	0.00	24.00	0.00	0.00	5.19	0.00	
166	Grate	7033822.53	2476901.66	0.33	0.88	10.00	6.54	1.92	0.83	3.33	24.00	0.40	1.14	5.19	5.91	
168	Grate	7033895.03	2476901.67	0.25	0.88	10.00	6.54	1.42	1.01	3.33	24.00	0.40	1.14	5.19	5.91	
170	Grate	7033895.03	2476958.66	0.00	0.88	10.00	6.54	0.00	0.03	0.65	24.00	0.03	0.02	5.19	0.12	
172	Grate	7034031.03	2476910.16	0.35	0.88	10.00	6.54	2.03	0.83	3.33	24.00	0.40	1.14	5.19	5.91	
174	Grate	7034031.03	2476958.66	0.10	0.88	10.00	6.54	0.56	0.03	0.65	24.00	0.03	0.02	5.19	0.12	
I-312	Curb	7033462.81	2477017.16	0.22	0.88	10.00	6.54	1.29	0.59	2.30	43.00	0.50	1.29	6.00	7.73	
I-310	Curb	7033462.81	2476975.16	0.31	0.88	10.00	6.54	1.78	0.59	2.30	43.00	0.50	1.29	8.00	10.31	
I-308	Curb	7033595.67	2477017.16	0.12	0.88	10.00	6.54	0.71	0.59	2.30	43.00	0.50	1.29	4.00	5.15	
I-306	Curb	7033836.75	2477017.16	0.11	0.88	10.00	6.54	0.61	0.97	2.30	43.00	0.50	1.29	4.00	5.15	
I-304	Curb	7033836.75	2476975.16	0.07	0.88	10.00	6.54	0.40	0.97	2.30	43.00	0.50	1.29	4.00	5.15	
I-302	Curb	7033970.55	2477017.16	0.00	0.88	10.00	6.54	0.00	1.53	2.30	43.00	0.50	1.29	4.00	5.15	
I-300	Curb	7033970.55	2476975.16	0.00	0.88	10.00	6.54	0.00	3.53	2.30	43.00	0.50	1.29	4.00	5.15	
I-298	Curb	7034016.25	2477017.16	0.56	0.88	10.00	6.54	3.22	2.50	2.30	43.00	0.50	1.29	12.00	15.46	

SHEET 11 & 12 - RUNYON

INLET #	INLET LOCATION				AREA (AC)	C	Tc (MIN)	I <sub>10</sub> (IN/HR)	Q <sub>10</sub> (CFS)	STREET SLOPE (%)	STREET XSLOPE (%)	STREET WIDTH (FT)	INLET DEPRESSION (FT)	INLET CAPACITY (CFS/FT)	INLET LENGTH (FT)	INLET CAPACITY (CFS)
	INLET TYPE	NORTHING	EASTING													
I-324	Curb	7033721.03	2476680.67	0.09	0.88	10.00	6.54	0.53	1.41	2.30	43.00	0.50	1.29	4.00	5.15	
I-322	Curb	7033747.03	2476680.67	0.09	0.88	10.00	6.54	0.53	1.41	2.30	43.00	0.50	1.29	4.00	5.15	
I-320	Curb	7033713.03	2476803.16	0.13	0.88	10.00	6.54	0.77	1.09	2.30	43.00	0.50	1.29	4.00	5.15	
I-318	Curb	7033755.03	2476803.16	0.16	0.88	10.00	6.54	0.94	1.09	2.30	43.00	0.50	1.29	4.00	5.15	
I-316	Curb	7033712.04	2477033.16	0.15	0.88	10.00	6.54	0.85	1.40	2.30	43.00	0.50	1.29	4.00	5.15	
I-314	Curb	7033738.04	2477033.16	0.37	0.88	10.00	6.54	2.14	1.40	2.30	43.00	0.50	1.29	8.00	10.31	

Detention Calculations

Modified Rational Method  
100-Year Event

SAM'S CLUB SITE = 17.4 AC  
OFFSITE AREA (to Bellline) = 12.3 AC  
TOTAL DRAINAGE STUDY AREA = 29.7 AC

Ex Sam's Pond	
Area	15.00 acres
Time (T <sub>c</sub> )	10.0 minutes
C value	0.78
I	9.27 in/hr
Q <sub>release</sub>	104.33 cfs

Ex Bypass (Sam's + Offsite)	
Area	14.70 acres
Time (T <sub>c</sub> )	10.0 minutes
C value	0.84
I	9.27 in/hr
Q <sub>25</sub>	114.6 cfs

Q<sub>total</sub> = 218.9 cfs

Proposed to Pond (Addison Grove)	
Area	16.11 acres
Time (T <sub>c</sub> )	10.0 minutes
C value	0.88
I <sub>100</sub>	9.27 in/hr
Q <sub>100</sub>	132.00 cfs

Proposed Bypass (Addison Grove + Off-site)	
Area	13.59 acres
Time (T <sub>c</sub> )	10.0 minutes
C value	0.90
I <sub>100</sub>	9.27 in/hr
Q <sub>100</sub>	113.41 cfs

Q<sub>release</sub> = 105.5 cfs

Runoff per Storm Event - Proposed					INFLOW			OUTFLOW			STORAGE
Storm Event Time (min.)	I <sub>100</sub>	C value	Area (ac)	Runoff (cfs)	Inflow (ft <sup>3</sup> )	Time	Release	Outflow (ft <sup>3</sup> )	Storage (ft <sup>3</sup> )		
10	9.27	0.88	16.11	132.00	79,202	20.0	105.49	63,292	15,910		
15	7.99	0.88	16.11	113.70	102,332	25.0	105.49	79,115	23,217		
20	7.05	0.88	16.11	100.38	120,452	30.0	105.49	94,938	25,513		
30	5.77	0.88	16.11	82.11	147,805	40.0	105.49	126,585	21,220		
40	4.92	0.88	16.11	70.07	168,164	50.0	105.49	158,231	9,933		
50	4.32	0.88	16.11	61.46	184,370	60.0	105.49	189,877	(5,507)		
60	3.86	0.88	16.11	54.96	197,846	70.0	105.49	221,523	(23,677)		
70	3.50	0.88	16.11	49.86	209,399	80.0	105.49	253,169	(43,771)		
80	3.21	0.88	16.11	45.73	219,524	90.0	105.49	284,815	(65,291)		
90	2.97	0.88	16.11	42.32	228,551	100.0	105.49	316,462	(87,911)		
100	2.77	0.88	16.11	39.45	236,706	110.0	105.49	348,108	(111,402)		
110	2.60	0.88	16.11	36.99	244,153	120.0	105.49	379,754	(135,601)		
120	2.45	0.88	16.11	34.86	251,012	130.0	105.49	411,400	(160,388)		
130	2.32	0.88	16.11	33.00	257,377	140.0	105.49	443,046	(185,669)		
140	2.20	0.88	16.11	31.35	263,319	150.0	105.49	474,692	(211,373)		

Impervious @ C = 1.00	13.61	Ac
Pervious (0% - 3% Slope) C = 0.25	2.50	Ac
C <sub>weighted</sub> =	0.88	

0.59 ac-ft

UNDERGROUND DETENTION

ADDITIONAL VOLUME IN STORM PIPES

DRAINAGE SYSTEM "A" 3136 CF  
DRAINAGE SYSTEM "B" 7224 CF  
(including Box Culvert)  
TOTAL IN PIPES AND BOXES 10360 CF

VOLUME PROVIDED IN STRUCTURAL SOIL

LENGTH 4150 FT  
WIDTH 5 FT  
DEPTH 3 FT  
62250 CF

Per Using Porous Asphalt and CU-Structural Soil\*

Urban Horticulture Institute, Cornell University

"Reservoir depths of CU Structural Soil\* between 24" to 36" will mitigate between 6.25" and 9.36" of rain in a 24 hour period" (26%)

VOLUME MITIGATED 62250 CF \* 26% = 16185 CF

TOTAL DETENTION VOLUME PROVIDED (CF) 9529 + 16185 = 26545 CF

INLET COMPUTATIONS ADDISON GROVES

SHEET 13 - SMITH

INLET #	INLET LOCATION				AREA (AC)	C	Tc (MIN)	I <sub>10</sub> (IN/HR)	Q <sub>10</sub> (CFS)	STREET SLOPE (%)	STREET XSLOPE (%)	STREET WIDTH (FT)	INLET DEPRESSION (FT)	INLET CAPACITY (CFS/FT)	INLET LENGTH (FT)	INLET CAPACITY (CFS)
	INLET TYPE	NORTHING	EASTING													
200	Grate	7033366.5	2477182.66	0.23	0.88	10.00	6.54	1.33	1.44	3.05	24.00	0.52	1.69	5.19	8.75	
202	Grate	7033366.5	2477232.67	0.00	0.88	10.00	6.54	0.00	0.67	0.42	24.00	0.05	0.05	5.19	0.26	
122	Grate	7033417.54	2477086.66	0.08	0.88	10.00	6.54	0.44	0.47	2.17	24.00	0.26	0.60	5.19	3.09	
124	Grate	7033366.5	2477086.66	0.29	0.88	10.00	6.54	1.66	0.94	4.17	24.00	0.50	1.59	5.19	8.25	
126	Grate	7033366.71	2477033.66	0.00	0.88	10.00	6.54	0.00	0.00	0.00	24.00	0.00	0.00	5.19	0.00	
130	Grate	7033469.54	2477086.66	0.04	0.88	10.00	6.54	0.22	0.46	1.50	24.00	0.18	0.34	5.19	1.78	
132	Grate	7033529.52	2477086.66	0.00	0.88	10.00	6.54	0.00	0.46	3.07	24.00	0.46	1.40	5.19	7.28	
134	Grate	7033538.52	2477086.66	0.28	0.88	10.00	6.54	1.61	0.94	4.17	24.00	0.50	1.59	5.19	8.25	
136	Grate	7033538.52	2477033.66	0.00	0.88	10.00	6.54	0.00	0.00	0.00	24.00	0.00	0.00	5.19	0.00	
138	Grate	7033576.51	2477134.66	0.03	0.88	10.00	6.54	0.17	0.00	0.00	24.00	0.50	1.59	5.19	8.25	
140	Grate	7033529.52	2477134.66	0.08	0.88	10.00	6.54	0.47	0.00	0.00	24.00	0.50	1.59	5.19	8.25	
232	Grate	7033538.54	2477182.66	0.44	0.88	10.00	6.54	2.53	PARK	PARK	24.00	0.62	2.20	5.19	11.40	
234	Grate	7033538.54	2477235.66	0.00	0.88	10.00	6.54	0.00	PARK	PARK	24.00	0.03	0.02	5.19	0.12	
236	Grate	7033649.29	2477081.65	0.24	0.88	10.00	6.54	1.36	PARK	PARK	24.00	0.50	1.59	5.19		