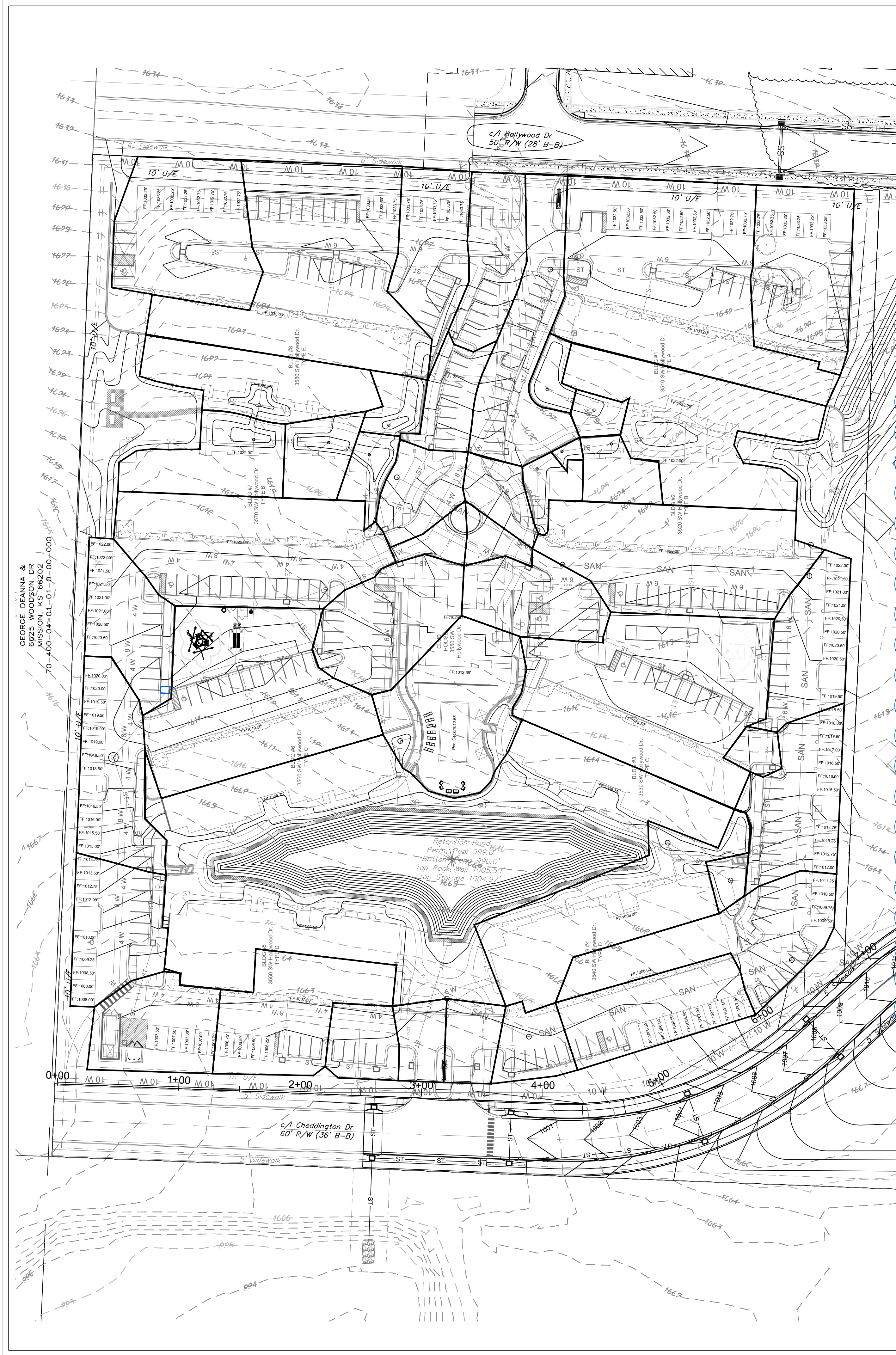


APWA STORM DRAINAGE "TC" COMPUTATIONS FOR : Residences of Echelon																										
AREA ID		yellow areas are self computing overwrite if necessary				Surface types: Asphalt/Conc/Bus/Com Dirt Grass/Park Lake MultFam SnglFam Undev Other										TC COMPUTATION					AREA ID					
		SURFACE CODES				"C" Values					SURFACE CODE					P=Paved U=Unpaved						Overwrite Slope or Elevations if necessary				
		TOTAL WATERSHED				OVERLAND FLOW - 100' MAX					CHANNEL FLOW - FIRST REACH															
TOTAL ACRES	WTRSHD LENGTH	UP ELEV	DN ELEV	SURFACE CODE	"C" VALUE	OVR/LND LENGTH	UP ELEV	DN ELEV	SLOPE %	SURFACE CODE	CHANNEL LENGTH	UP ELEV	DN ELEV	SLOPE %	VELOCITY F/S	Cal Overland Flow (T(I))	Used Min 5 Max 15 T(I)	Cal Channel One T(T)	Cal Channel Two T(T)	Total T(I) 10						
1	0.29	87.3	1034.0	1031.0	M	0.72	87.3	1034.0	1031.0	3.4							4.2	5.0	0.0	0.0	5.0					
2	0.55	135.0	1034.0	1031.0	M	0.69	100.0	1034.0	1031.5	2.5	P	35.0	1031.5	1031.0	1.43	2.4	5.4	5.4	0.2	0.0	5.7					
3	0.17	105.9	1034.0	1031.0	M	0.67	100.0	1034.0	1031.8	2.3	P	5.9	1031.8	1031.0	12.69	7.2	5.9	5.9	0.0	0.0	5.9					
4	0.15	148.5	1034.6	1028.7	M	0.66	100.0	1034.6	1031.3	3.3	P	48.5	1031.3	1028.7	5.28	4.7	5.3	5.3	0.2	0.0	5.5					
5	0.24	231.5	1034.8	1024.8	M	0.66	100.0	1034.8	1032.7	2.1	P	131.5	1032.7	1024.8	6.05	5.0	6.2	6.2	0.4	0.0	6.6					
6	0.60	111.1	1033.0	1030.0	M	0.76	100.0	1033.0	1031.2	1.8	P	11.1	1031.2	1030.0	10.77	6.7	5.0	5.0	0.0	0.0	5.1					
7	0.26	93.8	1033.0	1030.0	M	0.75	93.8	1033.0	1030.0	3.2							4.1	5.0	0.0	0.0	5.0					
8	0.20	117.9	1022.3	1019.8	M	0.75	100.0	1022.3	1021.1	1.2	P	17.9	1021.1	1019.8	7.33	5.5	5.9	5.9	0.1	0.0	6.0					
9	0.05	49.9	1023.7	1019.8	M	0.48	49.9	1023.7	1019.8	8.0							3.9	5.0	0.0	0.0	5.0					
10	0.09	102.0	1029.5	1024.8	M	0.71	100.0	1029.5	1025.0	4.5	P	2.0	1025.0	1024.8	10.89	6.7	4.3	5.0	0.0	0.0	5.0					
11	0.04	46.3	1021.5	1020.5	M	0.30	46.3	1021.5	1020.5	2.2							7.6	7.6	0.0	0.0	7.6					
12	0.03	29.2	1021.5	1020.8	M	0.30	29.2	1021.5	1020.8	2.6							5.7	5.7	0.0	0.0	5.7					
13	0.35	147.6	1022.3	1020.8	M	0.74	100.0	1022.3	1021.4	0.9	P	47.6	1021.4	1020.8	1.36	2.4	6.8	6.8	0.3	0.0	7.1					
14	0.16	125.1	1022.0	1019.8	M	0.71	100.0	1022.0	1021.2	0.8	P	25.1	1021.2	1019.8	5.78	4.9	7.6	7.6	0.1	0.0	7.6					
15	0.08	59.3	1022.0	1019.8	M	0.55	59.3	1022.0	1019.8	3.8							4.9	5.0	0.0	0.0	5.0					
16	0.05	62.4	1022.0	1019.8	M	0.47	62.4	1022.0	1019.8	3.6							5.8	5.8	0.0	0.0	5.8					
17	0.10	97.4	1026.2	1021.7	M	0.55	97.4	1026.2	1021.7	4.6							5.9	5.9	0.0	0.0	5.9					
18	0.06	88.7	1026.2	1021.6	M	0.67	88.7	1026.2	1021.6	5.2							4.2	5.0	0.0	0.0	5.0					
19	0.05	52.3	1022.5	1020.5	M	0.55	52.3	1022.5	1020.5	3.8							4.6	5.0	0.0	0.0	5.0					
20	0.01	17.8	1021.5	1020.5	M	0.30	17.8	1021.5	1020.5	5.6							3.4	5.0	0.0	0.0	5.0					
21	0.07	69.3	1022.0	1020.5	M	0.73	69.3	1022.0	1020.5	2.2							4.3	5.0	0.0	0.0	5.0					
22	0.41	173.5	1022.0	1017.8	M	0.85	100.0	1022.0	1021.0	1.0	P	73.5	1021.0	1017.8	4.42	4.3	4.5	5.0	0.3	0.0	5.3					
23	0.04	74.2	1025.0	1021.7	M	0.79	74.2	1025.0	1021.7	4.5							2.2	5.0	0.0	0.0	5.0					
24	0.04	74.0	1025.0	1021.5	M	0.79	74.0	1025.0	1021.5	4.7							2.9	5.0	0.0	0.0	5.0					
25	0.40	151.7	1022.0	1018.3	M	0.85	100.0	1022.0	1021.0	1.0	P	51.7	1021.0	1018.3	5.32	4.7	4.5	5.0	0.2	0.0	5.2					
26	0.16	136.1	1021.8	1017.0	M	0.80	100.0	1021.8	1019.8	2.0	P	36.1	1019.8	1017.0	7.61	5.6	4.3	5.0	0.1	0.0	5.1					
27	0.22	134.9	1023.7	1018.5	M	0.57	100.0	1023.7	1020.0	3.7	P	34.9	1020.0	1018.5	4.30	4.2	6.2	6.2	0.1	0.0	6.3					
28	0.15	126.8	1023.7	1018.3	M	0.57	100.0	1023.7	1020.1	3.6	P	26.8	1020.1	1018.3	6.91	5.3	6.2	6.2	0.1	0.0	6.3					
29	0.17	150.4	1021.7	1017.3	M	0.86	100.0	1021.7	1019.5	2.2	P	50.4	1019.5	1017.3	4.46	4.3	3.3	5.0	0.2	0.0	5.2					
30	0.21	185.6	1020.0	1017.0	M	0.82	100.0	1020.0	1017.9	2.1	P	85.6	1017.9	1017.0	0.99	2.0	3.9	5.0	0.7	0.0	5.7					
31	0.47	163.5	1019.5	1015.8	M	0.72	100.0	1019.5	1018.1	1.4	P	63.5	1018.1	1015.8	3.70	3.9	6.1	6.1	0.3	0.0	6.4					
32	0.53	140.6	1021.0	1016.9	M	0.67	100.0	1021.0	1019.3	1.8	P	40.6	1019.3	1016.9	5.92	4.9	6.4	6.4	0.1	0.0	6.6					
33	0.03	41.3	1019.5	1017.2	M	0.81	41.3	1019.5	1017.2	5.5							1.9	5.0	0.0	0.0	5.0					
34	0.21	161.0	1019.0	1010.8	M	0.82	100.0	1019.0	1013.2	5.8	P	61.0	1013.2	1010.8	3.87	4.0	2.8	5.0	0.3	0.0	5.3					
35	0.18	93.9	1014.0	1008.2	M	0.79	93.9	1014.0	1008.2	6.2							2.9	5.0	0.0	0.0	5.0					
36	0.17	85.6	1007.5	1006.7	M	0.75	85.6	1007.5	1006.7	1.0							5.8	5.8	0.0	0.0	5.8					
37	0.23	144.1	1007.5	1004.7	M	0.82	100.0	1007.5	1005.8	1.7	P	44.1	1005.8	1004.7	2.61	3.3	4.2	5.0	0.2	0.0	5.2					
38	0.08	61.4	1007.5	1004.5	M	0.74	61.4	1007.5	1004.5	4.9							3.0	5.0	0.0	0.0	5.0					
39	0.06	60.1	1006.2	1002.0	M	0.71	60.1	1006.2	1002.0	7.0							2.8	5.0	0.0	0.0	5.0					
40	0.07	58.7	1006.2	1003.0	M	0.71	58.7	1006.2	1003.0	5.5							3.1	5.0	0.0	0.0	5.0					
41	0.08	66.7	1007.0	1004.0	M	0.77	66.7	1007.0	1004.0	4.5							2.9	5.0	0.0	0.0	5.0					
42	0.20	124.1	1007.0	1003.8	M	0.84	100.0	1007.0	1005.5	1.5	P	24.1	1005.5	1003.8	7.25	5.5	4.1	5.0	0.1	0.0	5.1					
43	0.26	122.1	1011.5	1006.0	M	0.82	100.0	1011.5	1006.2	5.4	P	22.1	1006.2	1006.0	0.90	1.9	2.9	5.0	0.2	0.0	5.2					
44	0.33	81.7	1008.8	1006.8	M	0.63	81.7	1008.8	1005.5	4.0							4.8	5.0	0.0	0.0	5.0					
45	0.03	28.8	1007.0	1005.3	M	0.30	28.8	1007.0	1005.2	2.9							5.4	5.4	0.0	0.0	5.4					
46	0.29	116.3	1012.7	1008.0	M	0.85	100.0	1012.7	1010.5	2.1	P	16.3	1010.5	1008.0	15.34	8.0	3.5	5.0	0.0	0.0	5.0					
Retention Pond	2.10	161.1	1012.7	1005.5	Z	0.77	100.0	1012.7	1005.5	3.1	P	61.1	1009.5	1005.5	6.55	5.2	4.7	5.0	0.0	0.0	5.0					
Entire Site	10.69	825.0	1034.0	1000.8	Z	0.66	100.0	1034.0	1032.0	2.0	P	725.0	1032.0	1000.8	4.31	4.2	6.3	2.9	0.0	0.0	5.2	Retention Pond Entire Site				
* Velocity = 16.1345 x SQRT(slope) [Unpaved] Velocity = 20.3282 x SQRT(slope) [Paved] Formula taken from "Urban Hydrology for Small Watersheds - Technical Release 55", Appendix F, Figure 3-1. ** T(I) = 1.8 x (1.1-C) x SQRT(overland length) / (slope)**3 Formula taken from American Public Works Association 5602.5. *** T(T) = Channel Length / Velocity Formula taken from "Urban Hydrology for Small Watersheds - Technical Release 55", Eq. 3-1.																										