



Temporary Std. C-Values	Permanent Std. C-Values
Disturbed 0.5	Woods 0.25
Woods 0.25	Paved 0.9
Paved 0.9	Grassed 0.35
Grassed 0.35	

Project Name: Chapel Oaks
Project Number: 215-018
Date: 8/4/2022
Location:
Design Storm Return Year: 25
Rainfall Intensity: 8.28
Designer: BCS

Project Name: Chapel Oaks
Project Number: 215-018
Date: 8/4/2022
Location: 0
Design Storm Return Year: 25
Rainfall Intensity: 8.28
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Temporary Swale Calculations																				Swale Calculations											
Drainage Area Data					Swale Data										Additional Flow					Swale Linings											
Swale ID	Disturbed (AC)	Woods (AC)	Paved (AC)	Grass (AC)	C	Upper Elev.	Lower Elev.	Ditch Length (ft)	Slope	Bottom Width (ft)	Side Slope (x:1)	Depth d (ft)	D (ft)	A (sf)	P (ft)	R = A/P	Velocity (fps)	W (ft)	Q (CIA) (cfs)	Q (Compare) (cfs)	Ditch/Pipes	Flow (cfs)	Lining Type (or equal)	Mannings n	Shear Stress (Max)	Velocity (Max)	Check Shear Stress (T=yds)	Shear OK?	Velocity OK?		
TDS-A13L	0.05	0.49			0.50	543.75	539.00	68.00	6.99%	0	2	0.4320	1.0	0.373	1.932	0.193	6.0	4.0	2.24	2.23			Bionet C125BN	0.022	2.35	10.00	1.88	YES	YES		
TDS-A14L	0.05	1.03			0.50	541.00	539.00	116.00	1.72%	0	2	0.7150	1.2	1.022	3.198	0.320	4.4	4.8	4.47	4.45			Bionet S150BN	0.021	1.85	6.00	0.77	YES	YES		
TDS-A17L	0.05	2.19			0.50	550.00	537.00	329.00	3.95%	0	2	0.6920	1.2	0.958	3.095	0.309	9.7	4.8	9.27	9.27			Bionet C125BN	0.014	2.35	10.00	1.71	YES	YES		
TDS-A18L	0.05	0.70			0.50	550.00	543.00	115.00	6.09%	0	2	0.5020	1.0	0.504	2.245	0.225	6.2	4.0	3.11	3.11			Bionet C125BN	0.022	2.35	10.00	1.91	YES	YES		
TDS-A21L	0.42	2.73			0.50	553.50	543.00	283.00	3.71%	0	2	1.1800	1.7	2.785	5.277	0.528	4.7	6.8	13.04	13.05			VMax SC250	0.04	10.00	15.00	2.73	YES	YES		
TDS-A22L	0.20	0.16			0.50	553.50	531.00	422.00	5.33%	0	2	0.3900	1.0	0.304	1.744	0.174	4.9	4.0	1.49	1.48			Bionet C125BN	0.022	2.35	10.00	1.30	YES	YES		
TDS-A26L	0.05	1.08			0.50	531.00	517.50	237.00	5.70%	0	2	0.5930	1.1	0.703	2.652	0.265	6.7	4.4	4.68	4.69			Bionet C125BN	0.022	2.35	10.00	2.11	YES	YES		
TDS-A30L	0.05	1.07			0.50	529.00	517.50	128.00	8.98%	0	2	0.6780	1.2	0.919	3.032	0.303	5.0	4.8	4.64	4.63			VMax SC250	0.04	10.00	15.00	3.80	YES	YES		
TDS-A17R	0.17	0.00			0.50	544.50	535.75	201.00	4.35%	0	2	0.4300	1.0	0.370	1.923	0.192	1.9	4.0	0.70	0.70			Bionet S150BN	0.055	1.85	6.00	1.17	YES	YES		
TDS-A18R	0.07	0.00			0.50	541.50	536.50	129.00	3.88%	0	2	0.3200	1.0	0.205	1.431	0.143	1.4	4.0	0.29	0.30			Bionet S150BN	0.055	1.85	6.00	0.77	YES	YES		
TDS-A19R	0.42	0.00			0.50	541.50	531.50	203.00	4.93%	0	2	1.2590	1.8	3.170	5.630	0.563	5.6	7.2	17.88	17.87	TDS-A18L	TDS-A21L	3.11	13.04	VMax SC250	0.04	10.00	15.00	3.87	YES	YES
TDS-A22R	0.27	0.00			0.50	551.75	524.00	441.00	6.29%	0	2	0.4630	1.0	0.429	2.071	0.207	2.6	4.0	1.12	1.12			Bionet SC150BN	0.05	2.10	8.00	1.82	YES	YES		
TDS-A26R	0.16	0.00			0.50	526.50	524.00	103.00	2.43%	0	2	0.3350	1.0	0.224	1.498	0.150	3.0	4.0	0.66	0.67			Bionet C125BN	0.022	2.35	10.00	0.51	YES	YES		
TDS-B10L	0.60	0.31			0.50	541.50	540.00	51.00	2.94%	0	2	0.6080	1.1	0.739	2.719	0.272	5.1	4.4	3.77	3.78			Bionet S150BN	0.021	1.85	6.00	1.12	YES	YES		
TDS-B12L	0.40	0.70			0.50	540.75	540.00	115.00	0.65%	0	2	0.8650	1.4	1.496	3.868	0.387	3.0	5.6	4.55	4.55			Bionet S150BN	0.021	1.85	6.00	0.35	YES	YES		
TDS-B13L	0.39	0.00			0.50	542.75	534.75	487.00	1.64%	0	2	0.7070	1.2	1.000	3.162	0.316	1.6	4.8	1.61	1.61			Bionet S150BN	0.055	1.85	6.00	0.72	YES	YES		
TDS-B17L	0.31	0.22			0.50	534.75	518.50	263.00	6.18%	0	2	0.5400	1.0	0.583	2.415	0.241	6.5	4.0	3.81	3.81	TDS-B13L		1.61		Bionet C125BN	0.022	2.35	10.00	2.08	YES	YES
TDS-B20L	0.40	0.57			0.50	518.50	509.50	501.00	1.80%	0	2	0.6830	1.2	0.933	3.054	0.305	4.3	4.8	4.02	4.02			Bionet S150BN	0.021	1.85	6.00	0.77	YES	YES		
TDS-B25L	0.13	0.03			0.50	509.50	502.50	162.00	4.32%	0	2	0.4190	1.0	0.351	1.874	0.187	1.9	4.0	0.66	0.65			Bionet S150BN	0.055	1.85	6.00	1.13	YES	YES		
TDS-B13R	0.29	0.00			0.50	545.00	537.50	417.00	1.80%	0	2	0.6230	1.1	0.776	2.786	0.279	1.5	4.4	1.20	1.20			Bionet S150BN	0.055	1.85	6.00	0.70	YES	YES		
TDS-B17R	0.22	0.00			0.50	537.50	513.00	378.00	6.48%	0	2	0.4270	1.0	0.365	1.910	0.191	2.5	4.0	0.91	0.92			Bionet SC150BN	0.05	2.10	8.00	1.73	YES	YES		
TDS-B25R	0.17	0.00			0.50	508.00	502.50	150.00	3.67%	0	2	0.4450	1.0	0.396	1.990	0.199	1.8	4.0	0.70	0.70			Bionet S150BN	0.055	1.85	6.00	1.02	YES	YES		

Permanent Swale Calculations																				Swale Calculations								
Drainage Area Data					Swale Data										Additional Flow					Swale Linings								
Swale ID	Woods (AC)	Paved (AC)	Grass (AC)	C	Upper Elev.	Lower Elev.	Ditch Length (ft)	Slope	Bottom Width (ft)	Side Slope (x:1)	Depth d (ft)	D (ft)	A (sf)	P (ft)	R = A/P	Velocity (fps)	W (ft)	Q (CIA) (cfs)	Q (Compare) (cfs)	Ditch/Pipes	Flow (cfs)	Lining Type	Mannings n	Shear Stress (Max)	Velocity (Max)	Check Shear Stress (T=yds)	Shear OK?	Velocity OK?
PDS-A10L	0.00	0.10	0.28	0.49	553.00	536.00	391.00	4.35%	0	3	0.4930	1.0	0.729	3.118	0.234	2.1	6.0	1.56	1.56			Bionet S150BN	0.055	1.85	6.00	1.34	YES	YES
PDS-A19L	0.97	0.10	2.29	0.34	544.50	536.00	447.00	1.90%	2	3	0.8850	1.4	4.120	7.597	0.542	2.3	10.4	9.39	9.38			Rip Rap (d50=6")	0.06	2.00	3.50	1.05	YES	YES
PDS-A21L	1.06	0.05	2.46	0.33	550.00	544.50	229.00	2.40%	2	3	0.5190	1.0	1.846	5.282	0.349	6.4	8.0	11.76	11.75	PDS-C15L	2.07	Bionet SC150BN	0.018	2.10	8.00	0.78	YES	YES
PDS-A22L	0.00	0.11	0.82	0.42	550.00	528.00	429.00	5.13%	2	3	0.3700	1.0	1.151	4.340	0.265	2.8	8.0	3.20	3.20			Bionet SC150BN	0.05	2.10	8.00	1.18	YES	YES
PDS-A26L	0.25	0.06	0.60	0.36	528.00	518.50	186.00	5.11%	2	3	0.3380	1.0	1.019	4.138	0.246	2.7	8.0	2.70	2.70			Bionet SC150BN	0.05	2.10	8.00	1.08	YES	YES
PDS-A28L	0.02	0.02	0.19	0.39	518.50	518.00	57.00	0.88%	0	3	0.5040	1.0	0.762	3.188	0.239	1.0	6.0	0.74	0.74			Bionet S150BN	0.055	1.85	6.00	0.28	YES	YES
PDS-A30L	0.42	0.03	0.63	0.33	523.00	518.00	138.00	3.62%	0	3	0.6460	1.1	1.252	4.086	0.306	2.3	6.6	2.92	2.93			Bionet S150BN	0.055	1.85	6.00	1.46	YES	YES
PDS-A10R	0.22	0.10	0.87	0.38	553.00	540.00	357.00	3.64%	0	3	0.7060	1.2	1.495	4.465	0.335	2.5	7.2	3.72	3.73			Bionet S150BN	0.055	1.85	6.00	1.60	YES	YES
PDS-A18R	0.00	0.05	0.07	0.58	542.00	535.00	214.00	3.27%	0	3	0.3580	1.0	0.384	2.264	0.170	1.5	6.0	0.58	0.58			Bionet S150BN	0.055	1.85	6.00	0.73	YES	YES
PDS-A19R	0.00	0.20	0.10	0.72	536.00	531.50	82.00	5.49%	0	3	0.9410	1.4	2.656	5.951	0.446	5.1	8.4	13.54	13.54	PDS-A21L	11.76	VMax SC250	0.04	10.00	15.00	3.22	YES	YES
PDS-A22R	0.00	0.09	0.21	0.52	549.00	523.50	387.00	6.59%	2	3	0.1850	1.0	0.473	3.170	0.149	2.7	8.0	1.28	1.27			Bionet S150BN	0.04	1.85	6.00	0.76	YES	YES
PDS-B12L	0.00	0.03	0.05	0.56	541.00	540.00	109.00	0.92%	0	3	0.3890	1.0	0.454	2.460	0.185	0.8	6.0	0.37	0.38			Bionet S75BN	0.055	1.60	5.00	0.22	YES	YES
PDS-B13L	0.00	0.09	0.32	0.47	541.50	532.50	379.00	2.37%	0	3	0.5580	1.1	0.934	3.529	0.265	1.7	6.6	1.60	1.61			Bionet S75BN	0.055	1.60	5.00	0.83	YES	YES
PDS-B17L	0.00	0.08	0.61	0.41	532.50	514.70	330.50	5.39%	2	3	0.4280	1.0	1.406	4.707	0.299	2.8	8.0	3.96	3.95	PDS-B13L	1.60	Bionet C125BN	0.055	2.35	10.00	1.44	YES	YES
PDS-B20L	0.00	0.11	1.11	0.40	514.70	505.00	485.00	2.00%	0	3	0.7460	1.2	1.670	4.718	0.354	4.8	7.2	8.00	8.00	PDS-B17L	3.96	Bionet C125BN	0.022	2.35	10.00	0.93	YES	YES
PDS-B25L	0.00	0.13	0.08	0.69	505.00	500.00	162.00	3.09%	2	3	0.4760	1.0	1.632	5.010	0.326	5.6	8.0	9.20	9.19	PDS-B20L	8.00	Bionet C125BN	0.022	2.35	10.00	0.92	YES	YES
PDS-B12R	0.13	0.03	0.50	0.36	505.00	500.00	162.00	3.09%	0	3	0.3420	1.0	0.351	2.163	0.162	5.5	6.0	1.94	1.95			Bionet S150BN	0.014	1.85	6.00	0.66	YES	YES
PDS-B13R	0.00	0.09	0.41	0.45	541.50	532.50	417.00	2.16%	0	3	0.3600	1.0	0.389	2.277	0.171	4.8	6.0	1.86	1.87			Bionet S75BN	0.014	1.60	5.00	0.48	YES	YES
PDS-B17R	0.00	0.08	0.29	0.47	532.50	514.70	342.00	5.20%	2	3	0.3940	1.0	1.254	4.492	0.279	2.6	8.0	3.30	3.31	PDS-B13R	1.86	Bionet SC150BN	0.055	2.10	8.00	1.28	YES	YES
PDS-B20R	0.00	0.11	0.40	0.47	514.70	506.00	455.00	1.91%	0	3	0.9080	1.4	2.473	5.743	0.431	2.1	8.4	5.27	5.28	PDS-B17R	3.30	Bionet S75BN	0.055	1.60	5.00	1.08	YES	YES
PDS-B25R	0.00	0.00	0.08	0.35	506.00	496.50	226.0																					