CHESTNUT CREEK SUBDIVISION

DRAINAGE CALCULATIONS

SIZING OF PIPE AT INTERSECTION OF Pipe #1 Total Area, Acres

JONES FERRY ROAD AND CHESTNUT CREEK WAY

Total Drainage Area:		0.09	Acres
C -Average		0.35	
5 Minutes concentration, 25 years Storm		8.19	In-hr
Q-25		0.26	CFS
Size pipe		18.00	inch
For 18" RCP		0.20	Hw/D
Use 18" RCP Class IV		0.3'	Hw
Pipe Velocity	V= Q/A	0.1	F/Sec

Velicity is not erosive. Propsed dissipater 6'x12' over filter fabric

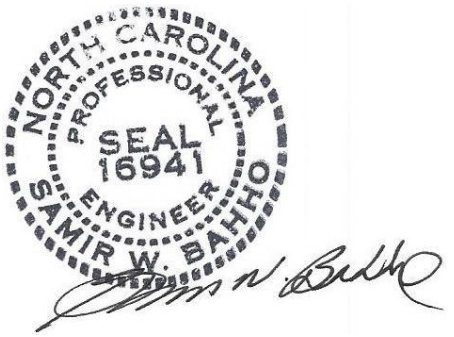
18" RCP @ station 1+07 Meandering Way Court. Pipe # 2

Total Drainage Area:		0.89	Acres
C -Average		0.35	
5 Minutes concentration, 25 years Storm		8.19	In-hr
Q-25		2.56	CFS
Size pipe		18.00	inch
For 18" RCP		0.33	Hw/D
		0.50	Hw
Use 18" RCP Class IV			
Pipe Velocity	V= Q/A	1.5	F/Sec

Velocity is not erosive: proposed dissipater 6'x12' over filter fabric

18" RCP @ station 2+60 Walnut Branch. Pipe # 3

Total Drainage Area:		1.58	Acres
C -Average		0.35	
5 Minutes concentration, 25 years Storm		8.19	In-hr
Q-25		4.51	CFS
Size pipe		18.00	inch
For 18" RCP		0.56	Hw/D
		0.84'	Hw
Use 18" RCP Class IV			
Pipe Velocity	V= Q/A	2.6	F/Sec



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Use class B rip rap over filter fabric: 6'x12' Velocity is not erosive

Design of Side Ditches

Q-10, (Station 00+50 to Station 2+70- Left) Chestnut Creek Way

DrainageArea		0.19	Ac					
C		0.5		calculated slope=		0.039		
I-2		6.00						
I-10		7.22						
Q-10		0.69	Cu Ft/Sec	Q-2		0.57 Cuft/sec		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.2	1.8	0	0.24	0.03	0.17	0.039	0.72	3.00
Velocity is ft/sec		3.00	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10, (Station 2+70-7+50- Left) Chestnut Creek Way

DrainageArea		0.47	Ac					
C		0.5		Q-2		1.41 Cuft/sec		
I-10		7.22		Calculated slope=		0.052		
Q-10		1.70	Cu Ft/Sec					
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.27	2.43	0	0.39015	0.03	0.21	0.052	1.54	3.94
		3.94	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10, (Station 00+50 to Station 1+90- Right) Chestnut Creek Way

DrainageArea		0.19	Ac					
C		0.5						
I-10		7.22		Calculated slope =		0.050		
Q-10		0.69	Cu Ft/Sec	Q-2		0.57 Cuft/sec		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.2	1.8	0	0.24	0.03	0.17	0.050	0.82	3.41
Velocity is ft/sec		3.41	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10, (Station 2+85 to Station 7+50- Right) Chestnut Creek Way

DrainageArea		0.36	Ac					
C		0.5						
I-10		7.22		Calculated slope=		0.054		
Q-10		1.30	Cu Ft/Sec	Q-2	1.08	Cuft/sec		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.25	2.25	0	0.34375	0.03	0.20	0.054	1.33	3.87
Velocity is ft/sec		3.87	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10, (Station 00+30 to Station 1+10- Left) Meandering Way Court

DrainageArea		0.58	Ac					
C		0.5						
I-10		7.22		Q-2	1.74			
Q-10		2.09	Cu Ft/Sec	Calculated slope=		0.025		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.4	3.6	0	0.76	0.03	0.27	0.025	2.49	3.28
Velocity is ft/sec		3.28	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10, (Station 1+10 to Station 2+50- Left) Meandering Way Court

DrainageArea		0.08	Ac					
C		0.5						
I-10		7.22	Q-2	0.24	Cuft/sec			
Q-10		0.29	Cu Ft/Sec	Calculated slope=		0.014		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.17	1.53	0	0.18615	0.03	0.16	0.014	0.32	1.71
Velocity is ft/sec		1.71	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10, (Station 00+00 to Station 1+07- Right) Meandering Way Court

DrainageArea		0.08	Ac					
C		0.5						
I-10		7.22						
Q-10		0.29	Cu Ft/Sec	Q-2	0.24	Cuft/sec		

Road side ditches Calculations

Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.15	1.35	0	0.15375	0.03	0.15	0.024	0.33	2.12

Velocity is ft/sec 2.12 Non Erosive for grass chanel

Use Jute matting 9' wide total length of side ditch

Design of Side Ditches

Q-10, (Station 1+07 to Station 2+50- Right) Meandering Way Court

DrainageArea 0.15 Ac

C 0.5

I-10 7.22

Q-10 0.54 Cu Ft/Sec Q-2 0.45 Cuft/sec

Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.2	1.8	0	0.24	0.03	0.17	0.024	0.57	2.36

Velocity is ft/sec 2.36 Non Erosive for grass chanel

Use Jute matting 9' wide total length of side ditch

Design of Side Ditches

Q-10, (Station 0+00 to Station 2+70- Right) Walnut Branch

DrainageArea 10200 0.23 Ac

C 0.5

I-10 7.22 Q-2 0.70 Cuft/sec

Q-10 0.85 Cu Ft/Sec S 0.04

Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.22	1.98	0	0.2794	0.03	0.18	0.044	0.93	3.34

Velocity is ft/sec 3.34 Non Erosive for grass chanel

Use Jute matting 9' wide total length of side ditch

Design of Side Ditches

Q-10&Q-2(Station 0+00 to Station 2+75- Lef Walnut Branch

DrainageArea 9500 0.22 Ac

C 0.5

I-10 7.22 Q-2 0.65 Cuft/sec

Q-10 0.79 Cu Ft/Sec S 0.044

Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.2	1.8	0	0.24	0.03	0.17	0.044	0.76	3.18

Velocity is ft/sec 3.18 Non Erosive for grass chanel

Use Jute matting 9' wide total length of side ditch

Road side ditches Calculations

Design of Side Ditches

Q-10&Q-2 (Station 2+70 to Station5+50 Rig| Walnut Branch

DrainageArea	8100	0.19	Ac					
C		0.5						
I-10		7.22		Q-2		0.56	Cuft/sec	
Q-10		0.67	Cu Ft/Sec	S		0.021		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.23	2.07	0	0.30015	0.03	0.19	0.021	0.71	2.36
Velocity is ft/sec		2.36	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10&Q-2 (Station 2+75 to Station6+00 Left Walnut Branch

DrainageArea	10720	0.25	Ac					
C		0.5						
I-10		7.22		Q-2		0.74	Cuft/sec	
Q-10		0.89	Cu Ft/Sec	S		0.018		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.27	2.43	0	0.39015	0.03	0.21	0.018	0.91	2.34
Velocity is ft/sec		2.34	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10 & Q-2(Station 5+50 to Station12+00 Ri| Walnut Branch

DrainageArea	27350	0.63	Ac					
C		0.5						
I-10		7.22		Q-2		1.88	Cuft/sec	
Q-10		2.27	Cu Ft/Sec	S		0.037		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.35	3.15	0	0.60375	0.03	0.25	0.037	2.25	3.73
Velocity is ft/sec		3.73	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10 & Q-2 (Station 6+00 to Station10+50 L| Walnut Branch

DrainageArea	24220	0.56	Ac
C		0.5	

Road side ditches Calculations

I-10		7.22		Q-2		1.668	Cuft/sec	
Q-10		2.01	Cu Ft/Sec	S		0.044		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.32	2.88	0	0.5184	0.03	0.23	0.044	2.04	3.93
Velocity is ft/sec		3.93	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Q-10 & Q-2 (Station 12+00 to Station17+00 I Walnut Branch

DrainageArea	35850	0.82	Ac					
C		0.5						
I-10		7.22		Q-2		2.47	Cuft/sec	
Q-10		2.97	Cu Ft/Sec	S		0.027		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.43	3.87	0	0.86215	0.03	0.29	0.027	3.03	3.51
Velocity is ft/sec		3.51	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Design of Side Ditches

Q-10 & Q-2 (Station 10+50 to Station17+00 I Walnut Branch

DrainageArea	37970	0.87	Ac					
C		0.5						
I-10		7.22	Q-2		2.62	Cuft/sec		
Q-10		3.15	Cu Ft/Sec	S		0.025		
Depth	Width Top	W. Bottom	A Sq Ft	n	R	S	Q, CFS	V, F/s
0.45	4.05	0	0.93375	0.03	0.30	0.025	3.27	3.50
Velocity is ft/sec		3.50	Non Erosive for grass chanel					
			Use Jute matting 9' wide total length of side ditch					

Erosion&Sediment Control

Disturbed Area Calculations	Sq. Ft	Ac
1. Meandering Wy Ct and Ch/nut CrWy	102689	2.357
2. Walnut Branch Road	126260	2.899
3. Septic Easement to Lots 4, 5 and 6	32,235	0.740
4. Septic on lot 9	4470	0.103
5. disturbed area of stockpile	13100	0.301
Total Disturbed Area	278754	6.40

Road side ditches Calculations

Drainage Area Calculations/Erosion And Sediment Control

Skimmer Sediment Basin # 1 Temporary	145696	2.810	Drainage area
Skimmer Sediment Basin # 2 Temporary	225415	4.605	Drainage area

Skimmer Sediment Basin #1

E&SCCaculations ,During construction

I-25years	8.28	I-hr	Total Impv.	37600.00	0.86	Ac.
Drainage Area	2.628	Ac.	Disturbed area		1.827	Ac.
Required V	6577.2	Cuft.				
25-y Q	10.88	Cuft./Sec				
Min. surface A	4732.77	Sf.	Area=Q25x435			
Design Surf. A	50x100	5000	SQFT. OK			
Surface at base	35x85	2975	Sq ft	3 to 1 Slope		
Dept	2.5'	Ft				
Calculated V	Cuft.	9968.75	> 6577.2Cft. OK			
Skimmer # for basin #21Desigr During Constuction						
Qd	3 days	3323	Cuft/Day			
D=(Qd/(2310*H^0.5)^0.5(Assume 2" Orifice			1.876	Inches		
Use 2.0" orifice skimmer						
Qd-2.0" orifice	3775.98	2.64	Days using 2" skimmer orifice OK			

Skimmer Sediment Basin #2

E&SCCaculations, During Construction

Drainage Area	4.60	Ac.	2.288	Acres	Disturbed
Required V.	8237	Cuft.			
25-y Q	19.04	Cuft./Sec			
Min. surface A	8284	Sf.			
Design Surf. A	65x130	8450	SQFT. OK		
A at the base	45x105	5750	3 to 1 Slope		
Dept	2.5'	Ft			
Calculated V	Cuft.	17750	>8237 cuft. OK		
Skimmer # for basin #2Design During Constuction					
Qd	3 days	5917	Cuft/Day		
D=(Qd/(2310*H^0.5)^0.5(try 2.5" Orifice)			2.370	Inches	Calculated
Use 2.5" orifice					
Qd -2.5" orifice	6584.51		2.70	Days using 2.5" skimmer orifice, OK	

Skimmer Basin
Calculations

Retention Volume

Reference: Stat of NCDENR Stormwater Design Manual

And Elements of Urban Stormwater Design

Retention Basin # 1

Drainage Basin Area	2.628	Ac.	

Concentration	24-h storm	1-y, 2-y, 5-y, 10-y, 25-y		
C-before	0.3			
C-after	0.45			
Imperv. A-Ac.	0.86	Q-Pro-D		
I-oneyear	2.96	3.50	Vol Q-1	9728
I-2 years	3.57	4.22	Vol Q-2	11733
I-5 years	4.47	5.29	VolQ-5	14691
I-10 years	5.18	6.13	Vol Q-10	17025
I-25 years	6.13	7.25	Vol Q-25	20147
I-50 years	6.89	8.15	Vol Q-50	22645
Vol -50year S	24232	Cuft		
V=3630*Rd*Rv*A				
Volume of 1"	1			3287
Ia	0.33			
Rv=0.05+0.9*Ia	0.34			
Rd=2"	6.13			

Storm Routing

Q-1"	Time of concer	5	1.18	CFS		
Q-1 Pre-dev	3.17	Q-1 Pro-dev	4.75	CFS	I-y	4.02
Q-2 Pre-dev	3.74	Q-2 Pro-dev	5.61	CFS	I-2	4.74
Q-5 Pre-dev	4.35	Q-5 Pro-dev	6.53	CFS	I-5	5.52
Q-10 Pre-dev	4.78	Q-10 Pro-dev	7.17	CFS	I-10	6.06
Q-25 Pre-dev	5.20	Q-25 Pro-dev	7.81	CFS	I-25	6.6
Q-50 Pre-dev	5.53	Q-50-Pro-dev	8.30	CFS	I-50	7.02

Discharge from control box outlet - Q

Calculated pre-Development Q

Calculated Post-Development Q

Pond Volume as a function Depth **Routing with 10" orifice opening**

		Main Orifice Size		10.0"		H"	Q,	Pre-D	Pro-D	St-Y V.	Elev.	Y-Event
Elevation	Length	Width	Area	Volume	Cu. Volume	ToCL-Or.)	cuft/S	Cuft/S	Cuft/S	CuFt.	Ft.	
5.00	154	64	9856	2423	34780	3.65	5.01					
4.75	152.5	62.5	9531.3	2343	32357	3.4	4.84					
4.50	151	61.0	9211.0	2263	30014	3.15	4.66					
4.25	149.50	59.5	8895.3	2185	27751	2.9	4.47					
4.00	148.00	58.0	8584	2108	25566	2.65	4.27					
3.95	147.7	57.7	8522.3	425	25138	2.6	4.23					
3.90	147.4	57.4	8460.8	422	24714	2.55	4.19	**5.53**	**8.3**	24160	494.9	50-Y
3.85	147.1	57.1	8399.41	418	24292	2.5	4.15					
3.8	146.8	56.8	8338.24	415	23874	2.45	4.11					
3.75	146.50	56.5	8277.25	2032	23458	2.4	4.07					
3.50	145.00	55.0	7975.0	1957	21427	2.15	3.85	**5.2**	**7.81**	21495	494.5	25-Y
3.25	143.50	53.5	7677.3	1883	19470	1.9	3.62					
3.20	143.2	53.2	7618.2	379	19088	1.85	3.57					
3.15	142.9	52.9	7559.41	377	18708	1.8	3.52					
3.10	142.6	52.6	7500.76	374	18332	1.75	3.47	**4.78**	**7.17**	18164	494.1	10-Y
3.05	142.3	52.3	7442.29	371	17958	1.7	3.42					
3.00	142.00	52.0	7384.0	1810	17588	1.65	3.37					
2.75	140.50	50.5	7095.3	1782	15778	1.4	3.11	**4.35**	**6.53**	15674	493.75	5-Y
2.50	139.00	51.5	7158.5	1754	13996	1.15	2.81					
2.25	137.50	50.0	6875.0	1684	12242	0.9	2.49	**3.74**	**4.22**	12518	493.25	2-Y
2.00	136.00	48.5	6596.0	1615	10558	0.65	2.12	**3.17**	**3.5**	10379	493.00	1-Y
1.75	134.50	47.0	6321.5	1547	8943	0.4	1.66					
1.50	133.00	45.5	6051.5	1480	7397	0.15	1.02					
1.25	131.50	44.0	5786.0	1414	5917	-0.1						
1.00	130.00	42.5	5525.0	1349	4503							
0.95	129.7	42.2	5473.3	272	4228							
0.90	129.4	41.9	5421.9	270	3956							
0.85	129.1	41.6	5370.56	267	3686					3507	491.85	First-1"
0.80	128.8	41.3	5319.44	265	3419							
0.75	128.50	41.0	5268.5	262	3154							
0.70	128.2	40.7	5217.7	260	3408							

0.65	127.9	40.4	5167.2	257	3149
0.60	127.60	40.1	5116.8	255	2892
0.55	127.3	39.8	5066.5	252	2637
0.50	127.00	39.5	5016.5	1223	2385
0.25	125.50	38.0	4769.0	1162	1162
0.00	124.00	36.5	4526.0	0	

Pond #1

Size Orifice fo Q=Cd*A*(2*g* **3 days release**

Volume in one day	1169	Q: Cuft. /sec	0.014	

3/4" Orifice	1" orifice	2" orifice	3" orifice	4" orifice	5" orifice	6" orivice
0.014	0.023	0.093	0.145	0.257	0.568	0.818

Use 3/4" Orifice		
total time relea	**3.00**	Days
CD	0.60	

Note: Retention Volume

Reference: Stat of NCDENR Stormwater Design Manual

And Elements of Urban Stormwater Design

Retention Basin # 2

Drnge Basin A	4.605	Ac.		
Distubred A	2.52	Ac.		
Concent.	24-h storm	1-y, 2-y, 5-y, 10-y, 25-y		
C-before	0.3			
C-after	0.45			
Imperv. A	0.86	Ac.	Vol. 1"	9069
I-y, (In-24hr)	2.96		Vol. Q-1	26843
I-2 Y, (in-24 hr)	3.57		Vol. Q-2	32375
I-5 y, In-24hr	4.47		Vol. Q-5	40537
I-10Y In-24hrs	5.18		Vol. Q-10	46976
I-25Y, In-24 hr	6.13		Vol. Q-25	55591
I-50 Y, In-24 hr	6.89		Vol. Q-50	62483

TmeofCenct.		10 min.					
V=3630*Rd*Rv*A							
Vol. of 1"	1			9069			
Ia	0.55						
Rv=0.05+0.9*Ia	0.54						
Rd	6.13						
Storm Routing	Time of conc.	10	Min.				
Q-1"			2.07	CFS			
Q-1 Pre-D	5.55	Q-1 Pro-D	8.33	CFS	I-1-Y	4.02	
Q-2 Pre-D	6.55	Q-2 Pro-D	9.82	CFS	I-2-Y	4.74	
Q-5 Pre-D	7.63	Q-5 Pro-D	11.44	CFS	I-5-Y	5.52	
Q-10 Pre-D	8.37	Q-10 Pro-D	12.56	CFS	I-10-Y	6.06	
Q-25 Pre-D	9.12	Q-25 Pro-D	13.68	CFS	I-25-Y	6.6	
Q-50 Pre-D	9.70	Q-50-Pro-D	14.55	CFS	I-50-Y	7.02	

Discharge from control box outlet - Q

Calculated pre-Development Q

Calculated Post-Development Q

Pond Volume as a function of Depth			Main Orifice Size		14"	H'	Q,	Pre-D.	Pro-D.		Vol.	Elev.
Elevation	Length	Width	Area	Volume		To Or-CL.	cuft/S	Q, cfs	Q, cfs		Cuft.	ft.
5.00	190	90	17100.00	4222.78	66001.52	3.59	9.75					494
4.91	193.4	89.4	17289.96	2717.78	64496.51	3.5	**9.62**	**9.70**	14.55	Y-50	64653	493.91
4.75	188.5	88.5	16682.25	4118.91	61778.73	3.34	9.40					
4.50	187	87.0	16269.00	4016.16	57659.83	3.09	**9.04**	**9.12**	13.68	Y-25	57343	493.5
4.25	185.50	85.5	15860.25	3914.53	53643.67	2.84	8.67					
4.00	184.00	84.0	15456.00	770.79	49729.14	2.59	8.28					
3.95	183.7	83.7	15375.69	766.78	48958.35	2.54	**8.20**	**8.37**	12.56	Y-10	48456	492.95
3.90	183.4	83.4	15295.56	762.78	48191.57	2.49	8.12					
3.85	183.1	83.1	15215.61	758.79	47428.79	2.44	8.04					
3.8	182.8	82.8	15135.84	754.80	46670.00	2.39	7.95					
3.75	182.50	82.5	15056.25	3714.66	45915.20	2.34	7.87					
3.50	181.00	81.0	14661.00	3616.41	42200.54	2.09	**7.44**	**7.63**	11.44	Y-5	41815	492.5
3.25	179.50	79.5	14270.25	711.57	38584.14	1.84	6.98					
3.20	179.2	79.2	14192.64	707.70	37872.56	1.79	6.88					
3.15	178.9	78.9	14115.21	703.83	37164.87	1.74	6.79					
3.10	178.6	78.6	14037.96	699.97	36461.04	1.69	6.69					

3.05	178.3	78.3	13960.89	696.12	35761.07	1.64	6.59					
3.00	178.00	78.0	13884.00	3423.28	35064.95	1.59	6.49					
2.90	177.4	77.4	13730.76	2042.48	33684.14	1.49	**6.28**	**6.55**	9.82	2-Y	33396	491.9
2.75	176.50	76.5	13502.25	3328.41	31641.66	1.34	5.96					
2.50	175.00	75.0	13125.00	3234.66	28313.26	1.09	**5.37**	**5.55**	8.33	1-Y	27689	491.5
2.45	174.7	74.7	13050.09	2580.23	27658.84	1.04	5.25					
2.25	173.50	73.5	12752.25	3142.03	25078.60	0.84	4.72					
2.00	172.00	72.0	12384.00	3050.53	21936.57	0.59	3.95					
1.75	170.50	70.5	12020.25	2960.16	18886.04	0.34	2.121					
1.50	169.00	69.0	11661.00	2870.91	15925.88	0.09	1.543					
1.25	167.50	67.5	11306.25	2782.78	13054.98	-0.16						
1.00	166.00	66.0	10956.00	546.06	10272.20	-0.41						
0.95	165.7	65.7	10886.49	542.59	9726.13	-0.46						
0.91	165.46	65.5	10831.01	216.48	9400.02	-0.5	First-1"		Volume 1"		9355	489.91
0.90	165.4	65.4	10817.16	539.13	9183.54							
0.85	165.1	65.1	10748.01	535.68	8644.41							
0.80	164.8	64.8	10679.04	532.23	8108.74							
0.75	164.50	64.5	10610.25	528.80	7576.50							
0.70	164.2	64.2	10541.64	525.37	7047.71							
0.65	163.9	63.9	10473.21	521.95	6522.34							
0.60	163.60	63.6	10404.96	518.55	6000.38							
0.55	163.3	63.3	10336.89	515.15	5481.83							
0.50	163.00	63.0	10269.00	2525.16	4966.69							
0.25	161.50	61.5	9932.25	2441.53	2441.53							
0.00	160.00	60.0	9600.00	0.00								

Pont #2

Size Orifice fo Q=Cd*A*(2*g*h)^0.5 **3 days release**

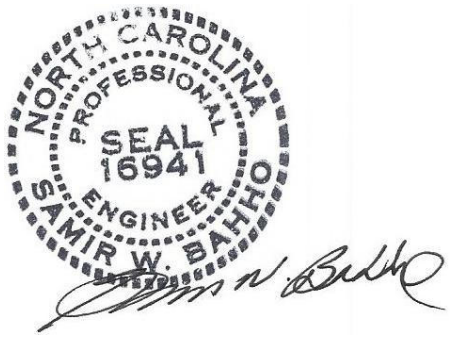
Volume in		Q: Cuft. /sec.				
One Day	3118	0.036				
1" Orifice	1 1/2"	2" orifice	3" orifice	4" orifice	5" orifice	6" orivice
0.017	0.038	0.066	0.145	0.257	0.402	0.579

Use 1.5" Orifice

total time release/1" **2.88** Days

CD	0.60				
Dry Detention F	Size outlet pipe to drain 50-y storm outflow				
Dry Detention Pond # 1					
18" P.line	9.316	CFS	Post-Development Q	**9.26**	CFS
15" P. line	6.576	CFS	Use 18" pipe		
Dry Detention Pond #2					
24" Pipe	16.90	CFS		15.18	CFS
18" Pipe	9.97	CFS	Use 24" Pipe		
18" Pipe Draining out of Pond #1 , Chestnut Creek Way					
Velocity @ outlet Pond #2	V=Q/A	5.24	f/s		
Use Rip Rap class B, 8 tones over filter fabric					
24" Pipe draining outPond #2 West of Walnut Creek Way					
Velocity @ outlet Pond #2	V=Q/A	4.83	f/s		
Use Rip Rap class B, 10 tones over filter fabric					
Slope Draing from forebay to Pond # 1					
25-Y Storm	11.13	CFS			
Q=Cd*A*(2*g*h)^0.5					
	15.12	CFS	Calculated	24" pipe	
Depth of Forebay 3'					
size of slope Drain	24"				
Forebays Pond #2			14.28	CFS	
Slope Drains 1	25-Y Storm			CFS	
	25-Y Storm		7.08	CFS	
24" slope Drain	9.26	CFS	Calculated		
24" Slope Drain	9.26	CFS	Calculated		
Use 24"" Slope Drain					

Slope Drain Calculations
Pond #1 and Pond #2



May 30, 2022
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