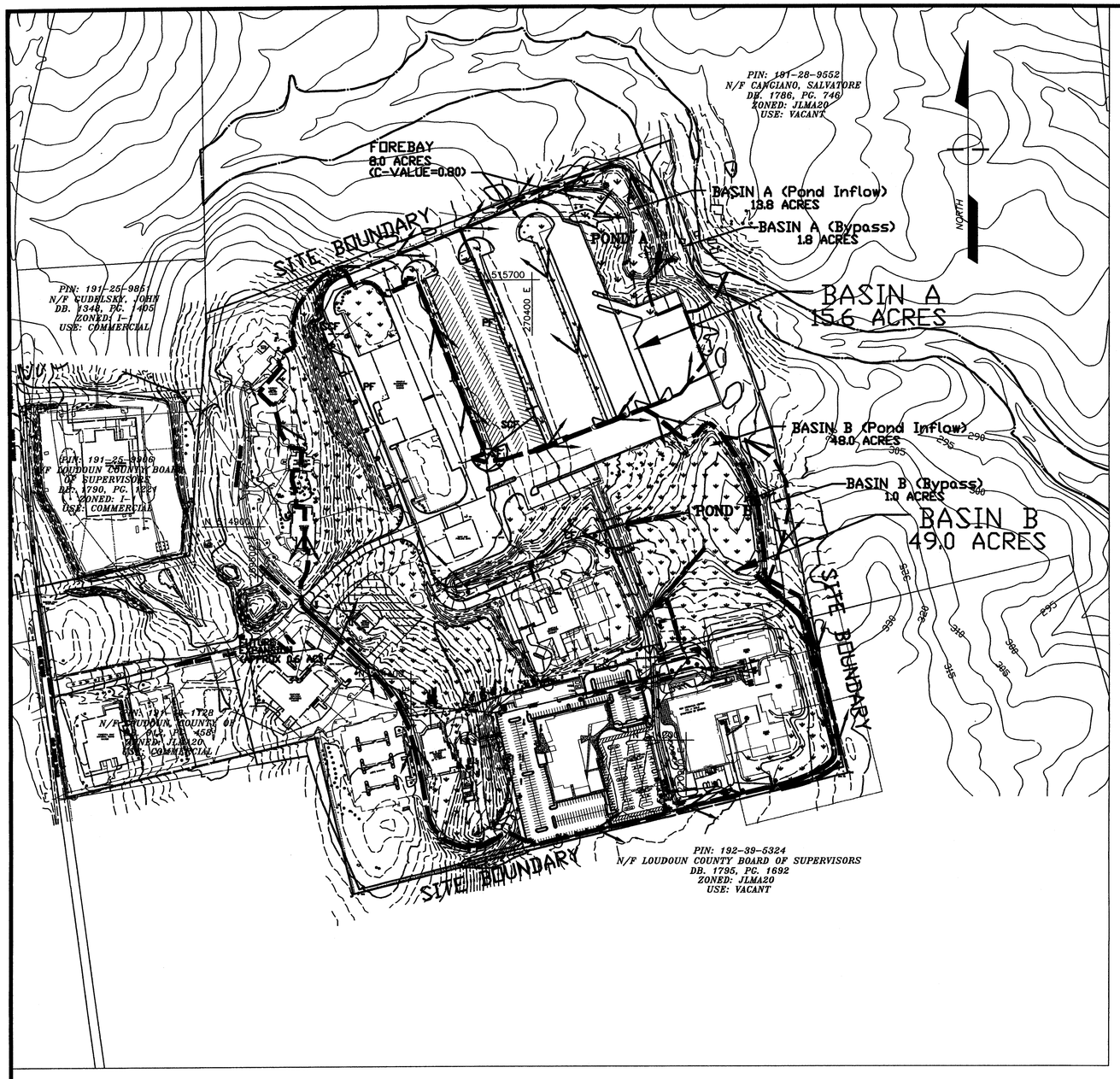

C-VALUES				
Ultimate Conditions				
BASIN A				
	AREA (ACRES)	C-Value	PRODUCT AREA x C-Value	Basin C-Value
Basin A (POND INFLOW)				
Open Space	4.20	0.30	1.26	
impervious areas (roads/buildings/parking)	9.60	0.95	9.12	
	13.80		10.38	**0.75**
Basin A (BYPASS)				
unimproved area	1.80	0.30	0.54	
	1.80		0.54	**0.30**

C-VALUES				
Ultimate Conditions				
BASIN B				
	AREA (ACRES)	C-Value	PRODUCT AREA x C-Value	Basin C-Value
Basin B (POND INFLOW)				
Open Space	22.70	0.30	6.81	
impervious areas (roads/buildings/parking)(1)	25.30	0.95	24.04	
	48.00		30.85	**0.64**
Basin B (BYPASS)				
unimproved area	1.00	0.30	0.30	
	1.00		0.30	**0.30**
(1) Includes for future expansion of the Work Release facility				

Hydrograph Calculations						
Basin A (POND INFLOW)						
Drainage Area =	13.8	ac				
C-Vaule =	0.75					
CA =	10.35					
C_f =	1.25	(100-Yr)				
Tc =	5	Minutes				
Time	I_2	Q_2	I_{10}	Q_{10}	I_{100}	Q_{100}
(min)	(in/hr)	(cfs)	(in/hr)	(cfs)	(in/hr)	(cfs)
0	0.00	0.0	0.00	0.0	0.00	0.0
5	5.75	**59.5**	7.27	**75.2**	9.84	**127.3**
10	3.51	36.3	4.68	48.4	6.37	82.4
15	2.60	26.9	3.46	35.8	4.73	61.2
20	2.08	21.5	2.77	28.7	3.74	48.4
25	1.72	17.8	2.29	23.7	3.13	40.5
30	1.46	15.1	1.94	20.1	2.65	34.3
35	1.28	13.2	1.68	17.4	2.33	30.1
40	1.10	11.4	1.47	15.2	2.07	26.8
45	1.00	10.4	1.31	13.6	1.88	24.3
50	0.89	9.2	1.18	12.2	1.69	21.9
55	0.82	8.5	1.08	11.2	1.55	20.1
60	0.74	7.7	0.99	10.2	1.42	18.4
65	0.68	7.0	0.91	9.4		
70	0.62	6.4	0.83	8.6		
75	0.56	5.8	0.74	7.7		
80	0.49	5.1	0.66	6.8		
85	0.43	4.5	0.58	6.0		
90	0.37	3.8	0.50	5.2		
95	0.31	3.2	0.41	4.2		
100	0.25	2.6	0.33	3.4		
105	0.19	2.0	0.25	2.6		
110	0.12	1.2	0.17	1.8		
115	0.06	0.6	0.08	0.8		
120	0.00	0.0	0.00	0.0		

Hydrograph Calculations						
Basin B (POND INFLOW)						
Drainage Area =	48	ac				
C-Vaule =	0.64					
CA =	30.72					
C_f =	1.25	(100-Yr)				
Tc =	10	Minutes				
Time	I_2	Q_2	I_{10}	Q_{10}	I_{100}	Q_{100}
(min)	(in/hr)	(cfs)	(in/hr)	(cfs)	(in/hr)	(cfs)
0	0.00	0.0	0.00	0.0	0.00	0.0
5	2.57	79.0	3.25	99.8	3.68	141.3
10	4.60	**141.3**	5.92	**181.9**	8.10	**311.0**
15	3.40	104.4	4.53	139.2	6.47	248.4
20	2.36	72.5	3.14	96.5	4.44	170.5
25	1.82	55.9	2.43	74.6	3.50	134.4
30	1.49	45.8	1.99	61.1	2.86	109.8
35	1.25	38.4	1.67	51.3	2.43	93.3
40	1.06	32.6	1.41	43.3	2.17	83.3
45	0.91	28.0	1.21	37.2	1.93	74.1
50	0.78	24.0	1.04	31.9	1.78	68.4
55	0.69	21.2	0.92	28.3	1.67	64.1
60	0.60	18.4	0.80	24.6	1.58	60.7
65	0.55	16.9	0.73	22.4		
70	0.50	15.4	0.67	20.6		
75	0.45	13.8	0.60	18.4		
80	0.40	12.3	0.53	16.3		
85	0.35	10.8	0.47	14.4		
90	0.30	9.2	0.40	12.3		
95	0.25	7.7	0.33	10.1		
100	0.20	6.1	0.27	8.3		
105	0.15	4.6	0.20	6.1		
110	0.05	1.5	0.13	4.0		
115	0.06	1.8	0.07	2.2		
120	0.00	0.0	0.00	0.0		

TIME OF CONCENTRATION																						
Ultimate Conditions																						
Drainage Area	Sheet Flow (1)				Shallow Concentrated Flow (2)			Pipe Flow			Channel Flow								Tc		
	Length (ft)	Slope (ft/ft)	n	Tt (hr)	Length (ft)	Slope (ft/ft)	Tt (hr)	Length (ft)	Velocity (ft/sec)	Tt (hr)	Length (ft)	Slope	Width	SS	Depth (ft)	n	Velocity (fps)	Tt (hr)	(hr)	(min)	
Basin A	50	0.040	0.130	0.06	200	0.030	0.02	1000	8.000	0.03									0.11	7	use 5 minutes
Basin B	40	0.100	0.130	0.04	275	0.010	0.04	930	8.000	0.03	800	0.030	4	3:1	1.0	0.050	4.0	0.06	0.16	10	use 10 minutes
(1) 2-Yr 24-Hr Rainfall = 3.5 in																					
(2) All surfaces are paved																					

LEGEND

PROPOSED WATERSHED DRAINAGE DIVIDE

PROPOSED FOREBAY DRAINAGE DIVIDE

PROPOSED Tc FLOW PATH

PAVEMENT/IMPERVIOUS AREA

OPEN SPACE

REVISIONS

SURVEY COUNTY/WHGA

DESIGN SCP

DRAWN SCP

CHECKED JEM

ENGINEERS · SURVEYORS · LAND PLANNERS · LANDSCAPE ARCHITECTS
William H. Gordon Associates, Inc.
44084 Riverside Pky, Suite 100, Leesburg, Virginia 20176
(703) 729-9009 METRO (703) 478-8888 FAX (703) 478-8517

DATE 2/2004

SCALE HORZ: 1"=200'
VERT: N/A

SEAL COMMONWEALTH OF VIRGINIA JOHN E. MORRIS No. 7964 PROFESSIONAL ENGINEER

ULTIMATE CONDITIONS WATERSHED DIVIDES/HYDROLOGY

PROJECT
FINAL CONVERSION OF EXISTING SWM FACILITIES
LOUDOUN COUNY GOVERNMENT CENTER
CATOCTIN ELECTION DISTRICT
LOUDOUN COUNTY, VIRGINIA

JOB 2000-0501

CADD 04plt-da-ULT.dwg

SHEET 4 OF 10

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