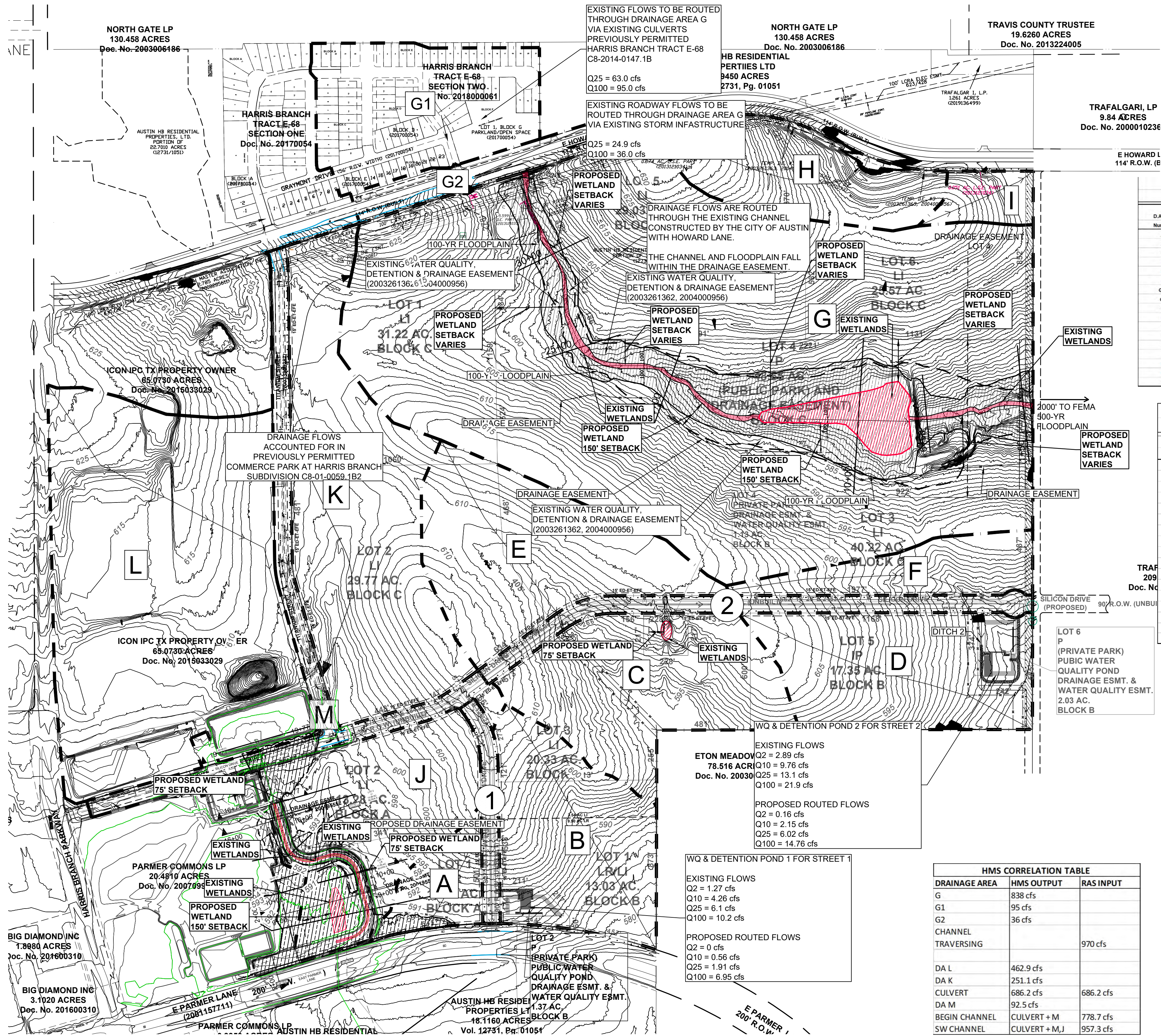




HARRIS BRANCH COMMERCE PARK

SCS CN Calculations - Existing (Atlas 14 Basis)

D.A. Lot	Drainage Area (SF)	Drainage Area (Ac)	Lot I.C. (SF)	Impervious DA (Ac)	TOTAL I.C. (%)	Comp. SCS CN
A	202,220	4.64	-	0.00	0%	61.00
B	748,930	17.19	-	0.00	0%	61.00
C	889,363	19.96	34,144	0.78	4%	62.45
D	791,335	18.17	-	0.00	0%	61.00
E	888,837	20.40	-	0.00	0%	61.00
F	324,225	7.44	-	0.00	0%	61.00
G1*						
G2	230,448	5.29	144,688	3.32	63%	84.23
H	5,735,783	131.68	164,044	3.77	3%	62.06
G	556,903	12.78	-	0.00	0%	61.00
I	129,523	2.97	-	0.00	0%	61.00
J	104,165	2.39	-	0.00	0%	61.00
K	267,940	6.15	-	0.00	0%	61.00
J	891,997	20.48	-	0.00	0%	61.00
K	1,355,460	31.12	-	0.00	0%	61.00
L	2,119,772	48.66	-	0.00	0%	61.00
M	432,120	9.92	-	0.00	0%	61.00

HARRIS BRANCH COMMERCE PARK						
SCS CN Calculations - Developed (Atlas 14 Basis)						
D.A. Lot	Drainage Area (Sf)	Drainage Area (Ac)	Lot I.C. (Sf)	Impervious DA (Ac)	TOTAL I.C.	Comp. SCS CN
A	202.220	4.64	161.776	3.71	80%	90.60
B	748.930	17.19	599.144	13.75	80%	90.60
C	889.363	19.96	695.490	15.87	80%	90.60
D	791.335	18.17	633.068	14.53	80%	90.60
E	888.837	20.40	711.070	16.32	80%	90.60
F	324.225	7.44	259.380	5.95	80%	90.60
G1						
G2	230.448	5.29	144.688	3.32	63%	84.23
H	5,735.783	131.68	4,588.026	105.34	80%	90.60
G	556.903	12.78	445.522	10.23	80%	90.60
I	129.523	2.97	103.618	2.38	80%	90.60
J	104.165	2.39	88.748	1.58	66%	85.42
K	267.940	6.15	179.519	4.12	67%	85.79
L	891.997	20.48	713.597	16.38	80%	90.60
M	1,355.460	31.12	1,084.368	24.89	80%	90.60
N	2,119.772	48.66	1,695.818	38.53	80%	90.60
L	432.120	9.92	292.977	6.73	68%	86.09

HARRIS BRANCH COMMERCE PARK
"Tc" Value Calculations - Existing (Atlas 14 Basis)

D.A. Number	Area (Ac)	Length (ft)	Slope	n	Tc (min)	Shallow Concentrated Flow (Unpaved) Length (ft)	Slope	Velocity (ft/s)	Tc (min)	Channel/Pipe Flow Length (ft)	Slope	Velocity (ft/s)	Tc (min)	Total Tc (min)
A	4.64	100	2.25%	0.24	13.13	815	2.25%	3.0492	4.45	0	0.00%	0.0	0.00	17.6
B	17.19	100	2.30%	0.24	13.02	1389	2.30%	3.0829	7.51	0	0.00%	0.0	0.00	20.5
C	19.86	100	2.50%	0.24	12.59	350	2.50%	3.2142	1.81	350	2.50%	3.2	1.81	16.2
D	18.17	100	2.50%	0.24	12.59	1525	2.50%	3.2142	7.91	0	2.50%	3.2	0.00	20.5
E	20.40	100	1.40%	0.24	15.87	465	1.40%	2.4053	3.22	450	1.40%	2.4	3.12	22.2
F	7.44	100	2.75%	0.24	12.12	610	2.75%	3.3711	3.02	540	2.75%	3.4	2.67	17.8
G1*	5.29	125	3.00%	0.24	13.99	50	1.50%	2.4897	0.33	125	3.00%	3.5	0.59	14.9
G2	131.68	100	1.50%	0.24	15.44	1900	1.50%	2.4897	12.72	1200	1.50%	2.5	8.03	36.2
H	12.78	100	3.75%	0.24	10.70	1098	3.75%	3.9365	4.65	0	3.75%	3.9	0.00	15.4
I	2.97	100	4.00%	0.24	10.43	549	4.00%	4.0656	2.25	0	4.00%	4.1	0.00	12.7
J	2.39	100	1.75%	0.24	14.52	1057	1.75%	2.6892	6.55	0	1.50%	2.5	0.00	21.1
K	6.15	100	2.00%	0.24	13.76	2832	2.00%	2.8748	16.42	0	1.75%	2.7	0.00	30.2
L	20.48	100	1.50%	0.24	15.44	1114	1.75%	2.6892	6.90	708	0.48%	1.4	8.38	30.7
M	31.12	100	4.00%	0.24	10.43	1598	0.75%	1.7605	15.13	852	0.70%	1.7	8.35	33.9
N	48.66	100	1.33%	0.24	16.20	2365	0.89%	1.9178	20.55	461	1.30%	2.3	3.31	40.1
O	9.92	100	1.00%	0.24	18.16	50	1.00%	2.0328	0.41	2557	3.00%	3.5	12.10	30.7

HARRIS BRANCH COMMERCE PARK
"Tc" Value Calculations - Developed (Atlas 14 Basis)

D.A. Number	Area (Ac)	Length (ft)	Slope	n	Tc (min)	Shallow Concentrated Flow (Unpaved) Length (ft)	Slope	Velocity (ft/s)	Tc (min)	Channel/Pipe Flow Length (ft)	Slope	Velocity (ft/s)	Tc (min)	Total Tc (min)
A	4.64	100	2.25%	0.24	13.13	815	2.25%	3.0492	4.45	0	0.00%	0.0	0.00	17.6
B	17.19	100	2.30%	0.24	13.02	1389	2.30%	3.0829	7.51	0	0.00%	0.0	0.00	20.5
C	19.86	100	2.50%	0.24	12.59	350	2.50%	3.2142	1.81	350	2.50%	3.2	1.81	16.2
D	18.17	100	2.50%	0.24	12.59	1525	2.50%	3.2142	7.91	0	2.50%	3.2	0.00	20.5
E	20.40	100	1.40%	0.24	15.87	465	1.40%	2.4053	3.22	450	1.40%	2.4	3.12	22.2
F	7.44	100	2.75%	0.24	12.12	610	2.75%	3.3711	3.02	540	2.75%	3.4	2.67	17.8
G1*	5.29	125	3.00%	0.24	13.99	50	1.50%	2.4897	0.33	125	3.00%	3.5	0.59	14.9
G2	131.68	100	1.50%	0.24	15.44	1900	1.50%	2.4897	12.72	1200	1.50%	2.5	8.03	36.2
H	12.78	100	3.75%	0.24	10.70	1098	3.75%	3.9365	4.65	0	3.75%	3.9	0.00	15.4
I	2.97	100	4.00%	0.24	10.43	549	4.00%	4.0656	2.25	0	4.00%	4.1	0.00	12.7
J	2.39	100	1.75%	0.24	14.52	1057	1.75%	2.6892	6.55	0	1.50%	2.5	0.00	21.1
K	6.15	100	2.00%	0.24	13.76	2832	2.00%	2.8748	16.42	0	1.75%	2.7	0.00	30.2
L	20.48	100	1.50%	0.24	15.44	1114	1.75%	2.6892	6.90	708	0.48%	1.4	8.38	30.7
M	31.12	100	4.00%	0.24	10.43	1598	0.75%	1.7605	15.13	852	0.70%	1.7	8.35	33.9
N	48.66	100	1.33%	0.24	16.20	2365	0.89%	1.9178	20.55	461	1.30%	2.3	3.31	40.1
O	9.92	100	1.00%	0.24	18.16	50	1.00%	2.0328	0.41	2557	3.00%	3.5	12.10	30.7

HMS CORRELATION TABLE

DRAINAGE AREA	HMS OUTPUT	RAS INPUT
G	838 cfs	
G1	95 cfs	
G2	36 cfs	
CHANNEL TRAVERSING		970 cfs
DA L	462.9 cfs	
DA K	251.1 cfs	
CULVERT	686.2 cfs	686.2 cfs
DA M	92.5 cfs	
BEGIN CHANNEL	CULVERT + M	778.7 cfs
SW CHANNEL	CULVERT + M+J	957.3 cfs

HARRIS BRANCH COMMERCE PARK
Runoff (Q) Calculations - Existing (Atlas 14 Basis)

D.A. Number	Drainage Area (Ac)	Comp. SCS CN	TOTAL Tc (Min)	Q ₁₅ (cfs)	Q ₁₀₀ (cfs)
A	4.64	61.00	17.6	13.1	21.8
B	17.19	61.00	20.5	45.3	75.1
C	19.86	61.00	16.2	63.8	102.5
D	18.17	61.00	20.5	47.8	79.2
E	20.40	61.00	22.2	51.1	85.3
F	7.44	61.00	17.8	20.7	34.5
G**	131.68	62.06	36.2	356.1	528.7
H	12.78	61.00	15.4	38.7	63.8
I	2.97	61.00	12.7	9.7	16.1
J	2.39	61.00	21.1	6.1	10.2
K	6.15	61.00	30.2	13.1	21.9
L	20.48	61.00	30.7	56.1	93.2
M	31.12	61.00	33.9	82.2	136.1
N	48.66	61.00	40.1	117.5	194.4
O	9.92	61.00	30.7	27.2	45.1

HARRIS BRANCH COMMERCE PARK
Runoff (Q) Calculations - Developed (Atlas 14 Basis)

D.A. Number	Drainage Area (Ac)	Comp. SCS CN	TOTAL Tc (Min)	Q ₁₅ (cfs)	Q ₁₀₀ (cfs)
A	4.64	90.60	17.6	30.3	39.9
B	17.19	90.60	20.5	107.6	141.5
C	19.86	90.60	16.2	133.3	175.4
D	18.17	90.60	20.5	113.6	149.4
E	20.40	90.60	22.2	122.7	161.6
F	7.44	90.60	17.8	48.1	63.3
G**	131.68	90.60	36.2	722.7	970
H	12.78	90.60	15.4	88.6	116.6
I	2.97	90.60	12.7	22.2	29.2
J	2.39	90.60	21.1	19.3	25.6
K	6.15	90.60	30.2	31.6	42.1
L	20.48	90.60	30.7	106.6	258.7
M	31.12	90.60	33.9	150.8	251.1
N	48.66	90.60	40.1	202.0	282.9
O	9.92	90.60	30.7	79.3	92.5

HARRIS BRANCH COMMERCE PARK			
Street 1 WQP Preliminary Design			
Water Quality Pond Drainage Area		104,165 SF	
		2,391 acres	
Impervious Cover	=	68,748 SF	
		1,578 acres	
% Impervious Cover	=	66.0%	
Required Capture Depth	=	0.96 in = 0.5' + (66.6%-20%)*0.1	
Minimum Water Quality Volume	=	8,333 CF	
OVERFLOW WEIR DESIGN			
Provided Overflow Elevation	=	588.00	
Top of Box Elevation	=	590.00	
Total WQ Pond Volume Provided	=	20,168 CF @ overflow (weir)	
Using the weir flow equation:			
$Q = C \cdot L \cdot H^{3/2}$			
Q = 100 year developed flow into splitter box (cfs)			19.8
C = Weir coefficient			3.0
L = Width of weir (feet)			100.0
H = Depth of flow (feet)			0.16
Max. WSE ₁₀₀ in Box	=	588.16	

HARRIS BRANCH COMMERCE PARK

Street 2 WQP Preliminary Design

Water Quality Pond Drainage Area		267,940 SF	
	Impervious Cover	=	179,519 SF
	% Impervious Cover	=	67.0%
	Required Capture Depth	=	0.97 in = 0.5' + (67.0%-20%)*0.1
	Minimum Water Quality Volume	=	21,658 CF

OVERFLOW WEIR DESIGN

	Provided Overflow Elevation	=	581.00
	Top of Box Elevation	=	583.00
	Total WQ Pond Volume Provided	=	35,431 CF @ overflow (weir)

Using the weir flow equation:

$$Q = C \cdot L \cdot H^{3/2}$$

Q = 100 year developed flow into splitter box (cfs)		51.0
C = Weir coefficient		3.0
L = Width of weir (feet)		110.0
H = Depth of flow (feet)		0.29
Max. WSE ₁₀₀ in Box	=	581.29

HARRIS BRANCH COMMERCE PARK
Post Developed Flows (Q) Leaving Pond

POND 1	Q ₂	Q ₁₀	Q ₂₅	Q ₁₀₀
POND 1	0	0.56	1.91	6.95
POND 2	0.16	2.15	6.02	14.8

HARRIS BRANCH COMMERCE PARK				
Runoff (Q) Calculations (Proposed Conditions)				
D.A.	Drainage	Comp.	TOTAL	Q ₁₀₀
Number	Area (Ac)	SCS CN	T _c (Min.)	(cfs)
DRAINAGE AREA E TO DITCH	20.40	90.60	22.2	126.910
DRAINAGE AREA F TO DITCH	7.44	90.60	17.8	50.070