

Booker
Booker Associates, Inc. of Kansas
Final Pg. No. _____

Client: BILL MORRIS Proj. No: K9544 Prel. Pg. No: 1052
 Location: 47TH TURNPIKE Calc: J.W. Date: 5-13-94
 Subject: DRAINAGE PLAN Chkd: NLR Date: 5-16-94
SHERWOOD ACRES MOBILE HOME ADDITION Bkchkd: _____ Date: _____

NOTE: WATER FROM THE SITE WILL DRAIN TO EXISTING STORM DRAIN NO. 275. THERE ARE DRAINAGE STRUCTURES LOCATED AT THE SW AND SE CORNERS. DESIGN BASED ON 24R STORM.

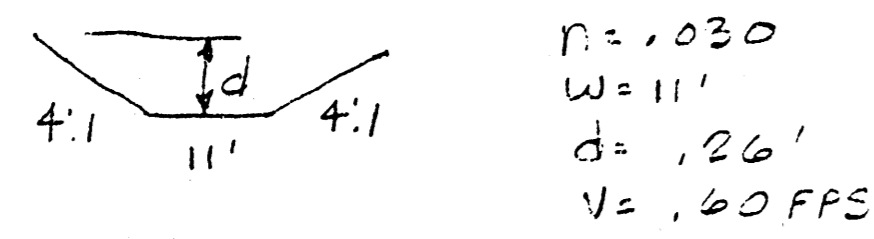
NODE A1

A = 2.34 AC C = .5 SLOPE = .1%
OVERLAND FLOW = .35 FPS (GRASSED CHANNEL)

$T_c = \frac{1332.25}{.35} = 3806 \text{ SEC OR } 63 \text{ MIN.}$

$I_2 = 1.63 \quad Q = CIA = 1.5 \times 1.63 \times 2.34 = 1.9 \text{ CFS}$

SWALE DEPTH



NODE B1

A = 4.53 C = .5 SLOPE = .2% (STREET)
OVERLAND FLOW = .77 FPS

$T_c = \frac{1220}{.77} = 1584 \text{ SEC OR } 27 \text{ MIN.}$

$I_2 = 2.84 \quad Q = 1.5 \times 2.84 \times 4.53 = 6.4 \text{ CFS}$
CHECKING EXISTING 18" RCP
A = 1.767 R = .375 R^{2/3} = .523 S^{1/2} = .054
Q = 6.2 CFS WITH HEAD PIPE WILL WORK

Mickey
Drainage Calc
1- Blue line of Drainage
Plan

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Final Pg. No. _____

Client: BILL MORRIS Proj. No: K9544 Prel. Pg. No: 2052
 Location: 47TH TURNPIKE Calc: J.W. Date: 5-13-94
 Subject: DRAINAGE PLAN Chkd: NLR Date: 5-16-94
SHERWOOD ACRES MOBILE HOME ADDITION Bkchkd: _____ Date: _____

NODE C1

A = 12 AC C = .5 SLOPE = .1%
OVERLAND FLOW = .35 FPS (GRASS WATERWAY)

$T_c = \frac{1350}{.35} = 3857 \text{ SEC OR } 64 \text{ MIN.}$

$I_2 = 1.61 \quad Q = 1.5 \times 1.61 \times 12 = 9.66$

COMBINED FLOW AREA "B" & "C"

$\Sigma A = 16.53 \text{ AC} \quad \Sigma = .5 \quad T_c = 64 \text{ MIN} \quad I_2 = 1.61$

$Q = 1.5 \times 1.61 \times 16.53 = 13.30$

CHECK CAP. EXISTING PIPE

A = 3.3 S = .2%
R = .49 R^{2/3} = .324
V = .612

$Q = 1.486 \text{ HR}^{2/3} \text{ S}^{1/2} = 11.4 \text{ CFS}$

EXISTING PIPE CAN HANDLE FLOW WITH HEAD

EQUAL OPPORTUNITY EMPLOYER

ATTACHMENT E
DRAINAGE CRITERIA
CITY OF WICHITA, KANSAS

AVERAGE OVERLAND FLOW VELOCITY FOR USE WITH URBANIZED AREAS

Surface Type	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10.0																																	
Forest with Heavy Ground Cover or Meadow	0.03	0.04	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00																																				
Fallow or Minimum Tillage Cultivation	0.06	0.08	0.10	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00																																									
Short Grass Pasture or Lawns	0.15	0.22	0.28	0.31	0.33	0.35	0.36	0.38	0.41	0.44	0.46	0.48	0.50	0.52	0.54	0.56	0.58	0.60	0.62	0.64	0.66	0.68	0.70	0.72	0.74	0.76	0.78	0.80	0.82	0.84	0.86	0.88	0.90	0.92	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22	1.24	1.26	1.28	1.30	1.32	1.34	1.36	1.38	1.40	1.42	1.44	1.46	1.48	1.50	1.52	1.54	1.56	1.58	1.60	1.62	1.64	1.66	1.68	1.70	1.72	1.74	1.76	1.78	1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	1.96	1.98	2.00																																													
Grassed Waterway	0.35	0.48	0.58	0.67	0.73	0.78	0.84	0.91	0.98	1.05	1.12	1.18	1.24	1.30	1.36	1.42	1.48	1.54	1.60	1.66	1.72	1.78	1.84	1.90	1.96	2.02	2.08	2.14	2.20	2.26	2.32	2.38	2.44	2.50	2.56	2.62	2.68	2.74	2.80	2.86	2.92	2.98	3.04	3.10	3.16	3.22	3.28	3.34	3.40	3.46	3.52	3.58	3.64	3.70	3.76	3.82	3.88	3.94	4.00	4.06	4.12	4.18	4.24	4.30	4.36	4.42	4.48	4.54	4.60	4.66	4.72	4.78	4.84	4.90	4.96	5.02	5.08	5.14	5.20	5.26	5.32	5.38	5.44	5.50	5.56	5.62	5.68	5.74	5.80	5.86	5.92	5.98	6.04																																								
Paved Areas (Sheet Flow) or Shallow Gutter Flow	0.44	0.62	0.77	0.91	1.05	1.12	1.19	1.26	1.33	1.40	1.47	1.54	1.61	1.68	1.75	1.82	1.89	1.96	2.03	2.10	2.17	2.24	2.31	2.38	2.45	2.52	2.59	2.66	2.73	2.80	2.87	2.94	3.01	3.08	3.15	3.22	3.29	3.36	3.43	3.50	3.57	3.64	3.71	3.78	3.85	3.92	3.99	4.06	4.13	4.20	4.27	4.34	4.41	4.48	4.55	4.62	4.69	4.76	4.83	4.90	4.97	5.04	5.11	5.18	5.25	5.32	5.39	5.46	5.53	5.60	5.67	5.74	5.81	5.88	5.95	6.02	6.09	6.16	6.23	6.30	6.37	6.44	6.51	6.58	6.65	6.72	6.79	6.86	6.93	7.00	7.07	7.14	7.21	7.28	7.35	7.42	7.49	7.56	7.63	7.70	7.77	7.84	7.91	7.98	8.05	8.12	8.19	8.26	8.33	8.40	8.47	8.54	8.61	8.68	8.75	8.82	8.89	8.96	9.03	9.10	9.17	9.24	9.31	9.38	9.45	9.52	9.59	9.66	9.73	9.80	9.87	9.94	10.01

April 15, 1986

ATTACHMENT A
DRAINAGE CRITERIA MANUAL
CITY OF WICHITA, KANSAS

RAINFALL INTENSITY TABLE FOR SEDGWICK COUNTY, KANSAS

The following tabulation contains rainfall intensity in inches per hour as derived from ESSA Weather Bureau Technical Paper # Modified to NWS Hydro-35, 1977 During First Hour

DURATION IN MINUTES	RETURN PERIODS OF						
	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
5	4.18	5.57	6.53	7.41	8.52	9.48	10.32
6	3.94	5.32	6.25	7.09	8.16	9.09	9.83
7	3.61	5.09	5.99	6.81	7.84	8.74	9.50
8	3.66	4.89	5.75	6.55	7.55	8.42	9.15
9	3.52	4.70	5.54	6.31	7.28	8.13	8.83
10	3.39	4.52	5.34	6.09	7.04	7.86	8.54
11	3.27	4.36	5.16	5.89	6.81	7.61	8.27
12	3.18	4.21	4.99	5.71	6.60	7.38	8.02
13	3.05	4.08	4.84	5.53	6.41	7.17	7.79
14	2.96	3.95	4.69	5.37	6.23	6.97	7.57
15	2.87	3.83	4.56	5.22	6.06	6.78	7.37
16	2.78	3.72	4.43	5.08	5.90	6.60	7.18
17	2.71	3.61	4.31	4.95	5.75	6.44	7.00
18	2.63	3.51	4.20	4.83	5.61	6.29	6.84
19	2.56	3.42	4.10	4.71	5.47	6.14	6.68
20	2.50	3.33	4.00	4.60	5.35	6.00	6.53
21	2.44	3.25	3.90	4.50	5.23	5.87	6.39
22	2.38	3.17	3.81	4.40	5.12	5.75	6.26
23	2.32	3.10	3.73	4.31	5.01	5.63	6.13
24	2.27	3.03	3.65	4.22	4.91	5.53	6.01
25	2.22	2.96	3.57	4.13	4.81	5.41	5.90
26	2.20	2.90	3.50	4.05	4.72	5.31	5.79
27	2.16	2.84	3.43	3.99	4.63	5.21	5.69
28	2.14	2.78	3.37	3.90	4.55	5.12	5.59
29	2.11	2.72	3.30	3.83	4.47	5.03	5.49
30	2.08	2.67	3.24	3.76	4.39	4.94	5.40
31	2.05	2.62	3.19	3.70	4.32	4.86	5.32
32	2.02	2.57	3.10	3.63	4.25	4.79	5.22
33	1.99	2.52	3.05	3.57	4.18	4.71	5.14
34	1.96	2.48	3.01	3.51	4.11	4.63	5.07
35	1.93	2.44	2.98	3.46	4.05	4.56	5.00
36	1.91	2.39	2.93	3.41	3.99	4.50	4.93
37	1.89	2.35	2.88	3.36	3.93	4.43	4.86
38	1.87	2.32	2.84	3.31	3.87	4.37	4.79
39	1.85	2.28	2.80	3.25	3.82	4.31	4.73
40	1.83	2.24	2.76	3.22	3.76	4.25	4.66
41	1.81	2.21	2.72	3.17	3.71	4.19	4.60
42	1.79	2.18	2.68	3.13	3.66	4.13	4.54
43	1.77	2.14	2.64	3.09	3.61	4.08	4.49
44	1.75	2.11	2.61	3.05	3.57	4.03	4.43
45	1.73	2.08	2.57	3.01	3.52	3.98	4.38

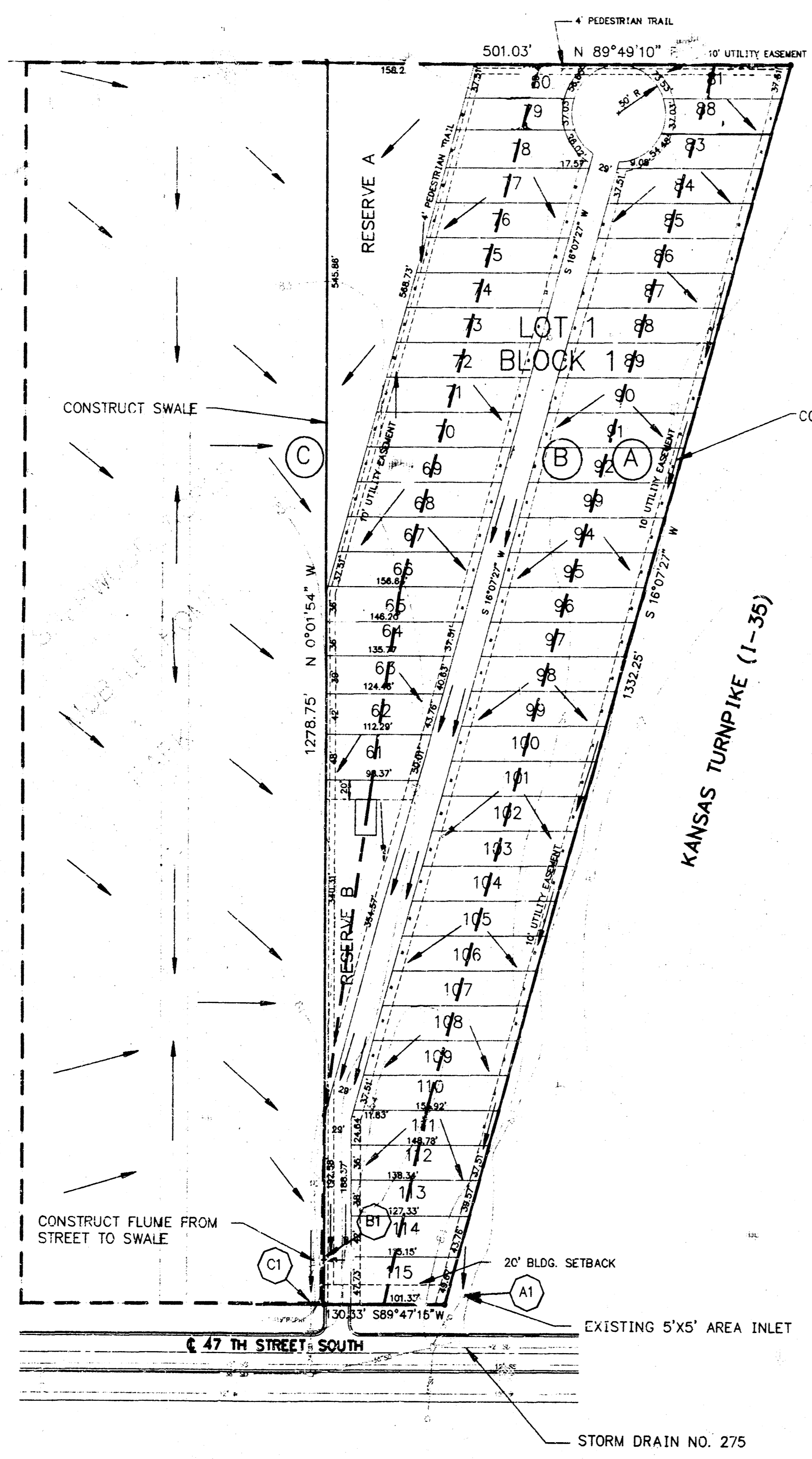
ATTACHMENT A CONTINUED
Page 2

DURATION IN MINUTES	RETURN PERIODS OF						
	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
46	1.70	2.05	2.54	2.97	3.48	3.93	4.33
47	1.67	2.02	2.50	2.93	3.44	3.88	4.28
48	1.66	2.00	2.47	2.90	3.39	3.84	4.23
49	1.64	1.97	2.44	2.86	3.35	3.79	4.18
50	1.61	1.95	2.41	2.83	3.32	3.75	4.13
51	1.59	1.92	2.38	2.79	3.28	3.71	4.09
52	1.56	1.89	2.35	2.76	3.24	3.67	4.05
53	1.54	1.86	2.33	2.73	3.20	3.63	4.00
54	1.52	1.84	2.30	2.70	3.17	3.59	3.96
55	1.50	1.81	2.27	2.67	3.14	3.55	3.92
56	1.47	1.79	2.25	2.64	3.10	3.51	3.88
57	1.45	1.76	2.22	2.61	3.07	3.48	3.84
58	1.43	1.74	2.20	2.59	3.04	3.44	3.81
59	1						

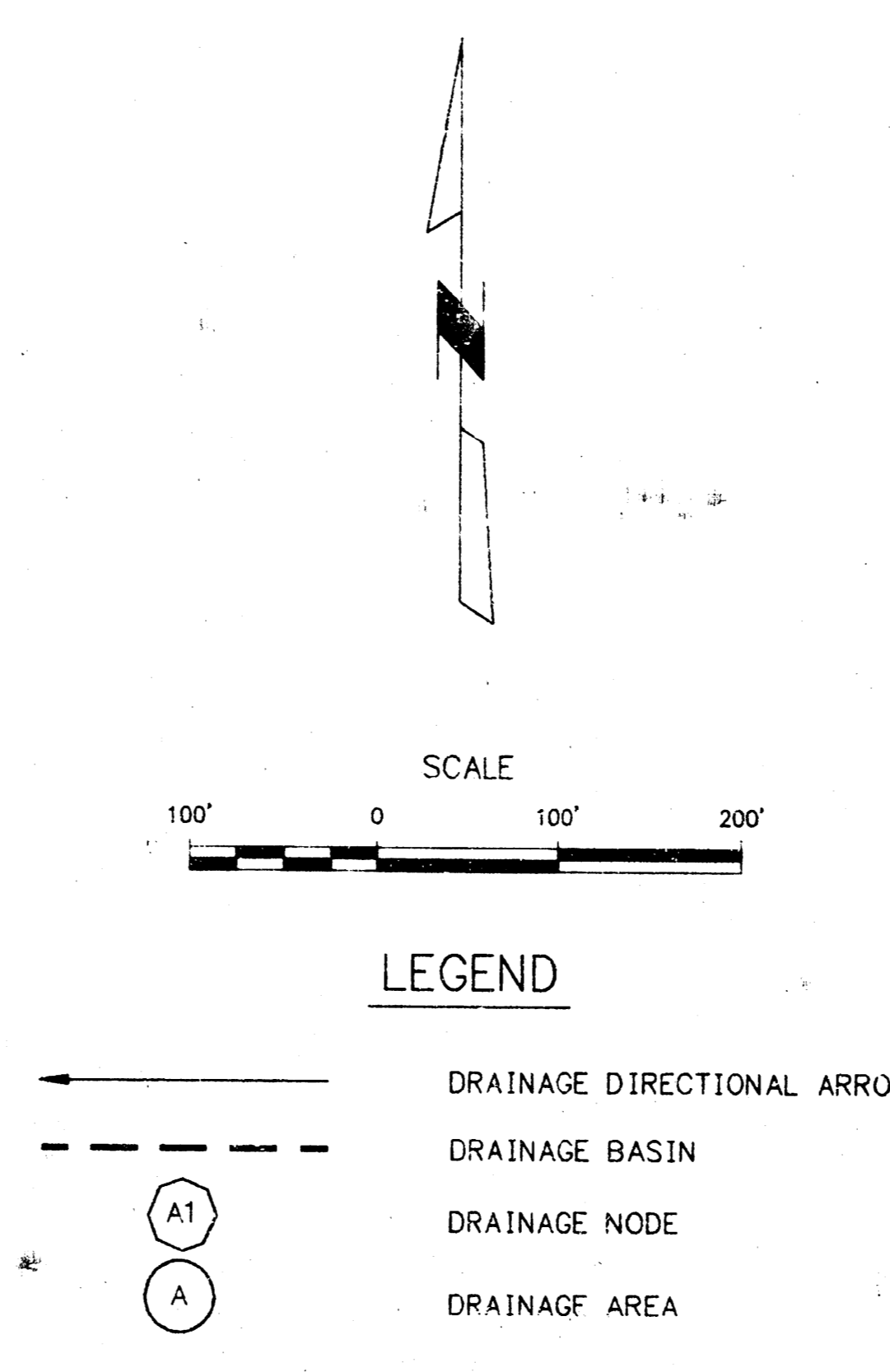
Drainage Plan

SHERWOOD ACRES MOBILE HOME PARK SECOND ADDITION

Wichita, Sedgwick County, Kansas



DRAINAGE MAP

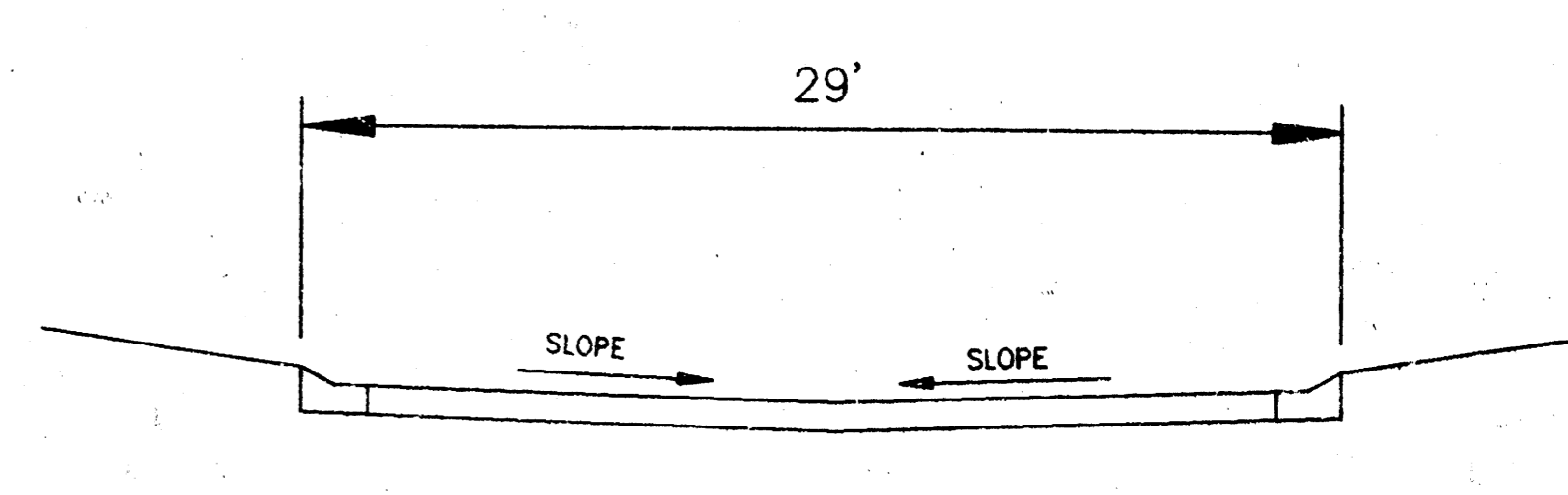


DRAINAGE SUMMARY

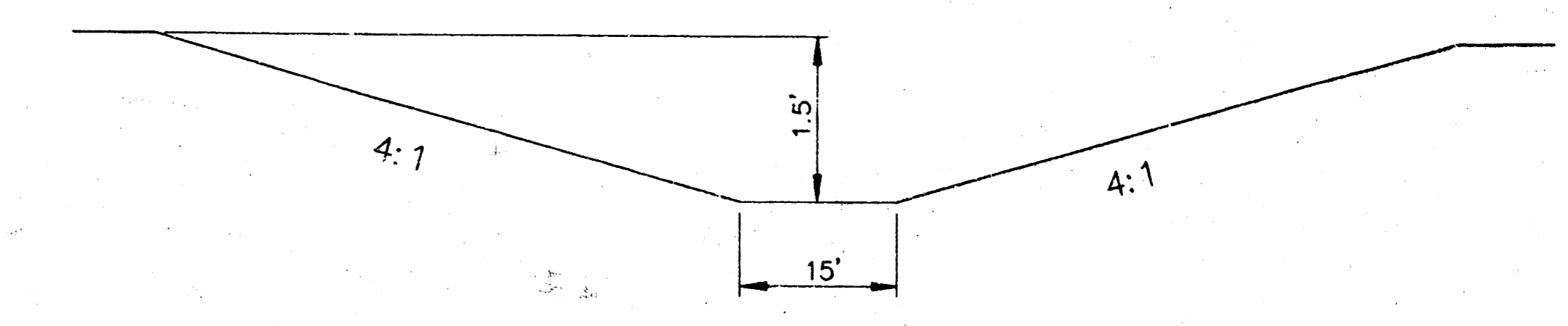
NODE A1
 DRAINAGE AREA = 2.34 Ac
 RUNOFF COEFF. = .5
 RETURN PERIOD = 2 YRS.
 INTENSITY = 1.63 IN/HR.
 Q2 = 1.9 CFS

NODE B1
 DRAINAGE AREA = 4.53 Ac
 RUNOFF COEFF. = .5
 RETURN PERIOD = 2 YRS.
 INTENSITY = 2.84 IN/HR.
 Q2 = 6.2 CFS

NODE C1
 AREA "B" + "C" = 16.53 Ac
 RUNOFF COEFF. = .5
 RETURN PERIOD = 2 YRS.
 INTENSITY = 1.61 IN/HR.
 Q2 = 13.3 CFS



TYPICAL ROAD SECTION
N.T.S.



TYPICAL SWALE SECTION
N.T.S.

NO PLAN
SCALE: 1"=100'

SURVEYED FEB. 28, 1994

BENCH MARK
 Chiseled "Q" on the top of a 5'x5' KTA drop inlet
 located 20' east of the S.E. property corner.
 Elev. = 182.28 (City of Wichita Datum)

Booker ASSOCIATES INC. OF KANSAS Wichita, Kansas	
SCALE NOTED	DATE MAY 13, 1994
DWG. NO.	1 OF 1