

Harrison Park 2nd Addn Drainage 4/12/96
 From PEC Dwg. Plan for Harrison Park Addn, Node 115 = Drainage from this Site and beyond, Area = 42.2 Acres
 Of this area, 31.0 Acres to be developed.
 From Sedgwick County Soil Survey - Site is Type "D" Hydrological Group.
 For Developed Areas
 $C_{100} = 0.79$
 $C_2 = 0.57$

For Inlet Runoff - Use $T_c = 15$ min All Areas.

PEC's drainage plan allows 125 cfs to exit the site @ the North End of Todd Street. Detention Required to meet this existing condition.

For All Inlet Calcs, Rational Equation

$$Q = CIA$$

L_2 for $T_c = 15$ min $\rightarrow 3.83$ "/hr.
 L_{100} for $T_c = 15$ min $\rightarrow 7.37$ "/hr.

Area	Acres	T_c	L_2	C_2	Q_2 (cfs)
A	3.68	15	3.83"/hr	0.57	8.0
B	2.88	15			6.3
C	2.23	15			4.9
D	2.82	15			6.2
E	3.78	15			6.3
F	0.38	15			0.8
G	8.14	15			17.8
H	2.45	15		0.57	5.3
I	2.02	15	3.83"/hr	0.57	4.4
J	11.2	20	3.83	0.26	9.7
K	0.89	15	3.83	0.57	1.9

Area	Ac	T_c	L_{100}	C_{100}	Q_{100} (cfs)
A	3.68	15	7.37"/hr	0.79	21.4
B	2.88				16.7
C	2.23				13.0
D	2.82				16.4
E	3.78				22.0
F	0.38				2.2
G	8.14				47.4
H	2.45			0.79	14.3
I	2.02	15	7.37"/hr	0.79	11.9
J	11.2	20	6.53"/hr	0.61	44.6
K	0.89	15	7.37"/hr	0.79	5.2

Inlet Routing

Area A: $Q_{100} = 21.4$, Inlet 1 $L=10'$ $S=2.11\%$, $Q_A = 21.4$, $Q_2 = 6.0$ cfs, $Q_B = 15.4$

Area B: $Q_{100} = 16.7$, $Q_2 = 6.3$, $Q_B = 15.4$, $Q_A = 32.1$, Inlet 2 $L=10'$ $S=2.11\%$, $Q_i = 7.4$, $Q_B = 24.7$ cfs

Area C: $Q_{100} = 13.0$, $Q_2 = 4.9$, $Q_B = 24.7$, $Q_A = 37.7$, Inlet 3 $L=10'$ $S=1.0\%$, $Q_i = 7.3$, $Q_B = 30.4$

Area D: $Q_{100} = 16.4$, $Q_2 = 6.2$, $Q_B = 30.4$, $Q_A = 46.8$, Inlet 4 $L=10'$ $S=1.0\%$, $Q_i = 7.3$ cfs, $Q_B = 39.5$ cfs

Area E: $Q_{100} = 22.0$, Sump $+Q_B = 39.5$, $Q_A = 61.5$, $Q_2 = 6.3$, $+Q_B = 7.6$, $Q_A = 15.9$

Area F: $Q_{100} = 2.2$, Total $Q_A = 63.7$, $Q_2 = 0.8$, $Q_A = 16.7$

Inlets 5, 6: 2 $L=10'$ Inlets, Sump @ 26 cfs/100 = 52 cfs cap, Inlets 5, 6, $Q_B = 63.7 - 52 = 9.5$ cfs, Spills exist, $Q_2 =$ Clean, No Bypass

Area G: $Q_{100} = 47.4$ cfs, Sump $+Q_B = 9.5$, $Q_A = 56.9$ cfs, $Q_2 = 17.8$ cfs

Inlets 7, 8: 2 $L=10'$ Inlets; Cap = 52 cfs, Q_B (Todd) = 4.9 cfs, Clean 2 yr.

Area H: $Q_{100} = 14.3$ cfs, Inlet 10 $L=10'$ $S=0.7\%$, $Q_i = 6.3$, $Q_B = 8.0$ (RED OAKS), $Q_2 = 5.3$ cfs, Ditto, $Q_2 = 3.3$ cfs, $Q_B = 2.0$ cfs Red Oaks

Area I: $Q_{100} = 11.9$, $Q_2 = 4.4$, $Q_{100} = 44.6$, $Q_{100} = 9.7$, 56.5 cfs, 14.1 cfs

Drop Inlet (Double)
 Inlet 9: 386" each grate $\times 2 = 5.1$ ft² open @ Depth = 1.0'
 $Q_i = 7.6 A \sqrt{2gh} = 0.16 (5.1) \sqrt{2(32.2)(1)}$
 $Q_i = 24.5$ cfs
 $Q_B = 56.5 - 24.5 = 32.0$ cfs Red Oaks, $Q_B = 0$ Clean 2 yr.

Area K: $Q_{100} = 5.2$, $Q_2 = 1.9$

Both Bypass to Todd Street.

Red Oaks Bypass	Todd Bypass
$Q_{100} = 3.0 + 32.0 = 40$ cfs $Q_2 = 2.0 + 0 = 2.0$ cfs	$Q_{100} = 4.9 + 5.2 = 10.1$ $Q_2 = 0 + 1.9 = 1.9$

Total From Site =

Detention Pond

Result Target = 125 cfs off site via Todd; Red Oaks; 27" RCP In Todd Street.

Total Pond Basin = 42.4 Acres

31.0 Ac Developed; CN = 85
 11.2 Ac Undeveloped; CN = 74
 T_c Developed w/ Pond = 45 minutes

$CN = 0.73(85) + (0.27)(74) = 82.0$

SES Lag = $0.6 T_c = 0.6 (45/60) = 0.45$ hrs

100 Year Storm; 7.8", SES Type 2 Distribution

Pond Info: 4:1 Side Slopes.

Top Water Surface Not to Exceed Low R/W Elev.

Pond Can Overspill Via Concrete Flume to Todd Street.

Stage-Storage-Discharge

Elev	E_1^2	Ac	WV	$Q_p(27")$	Q_w	Q_T
1344	251	0.006	0.2	1.0	(weir)	
1345	10989	0.390	1.2	4.5		
1346	32932	0.756	2.2	15		
1347	59206	0.900	3.2	26		
1348	44274	1.016	4.2	35		
1349	49468	1.136	5.2	40		
1349.4	-	-	-	-	0	40
1349.5	-	-	-	-	5.2	35.2
1349.6	-	-	-	-	16.4	56.4
1349.7	-	-	-	-	32.1	72.1
1349.8	-	-	-	-	51.7	91.7
1349.9	-	-	-	-	14.7	114.7
13500	54788	1.258	6.2	40	-	-

Weir Spillway $L=30'$ concrete $n=0.013$, slope = 0.5%

Elev	Depth	Area	KIP	$V(\text{ft/s})$	$Q (FV \times A)$
1349.4	0	0	0	-	-
1349.5	0.1	34.2	30.2	1.73	5.2 cfs
1349.6	0.2	6	30.4	16.4	16.4 cfs
1349.7	0.3	9	30.6	32.1	32.1 cfs
1349.8	0.4	12	30.8	51.7	51.7 cfs
1349.9	0.5	15 ft ²	31	74.7	74.7 cfs

Where $V = \frac{1.49}{n} (A/k)^{2/3} \sqrt{S}$ (Mannings)

From Inlet Capacities Alone, some overspill will occur on Red Oaks and Todd streets. Not all of the plot and off site drainage will go to the detention pond.

For pond routing, Assume all drainage routes through the pond (conservative).

To HEC-1 w/ Above pond data

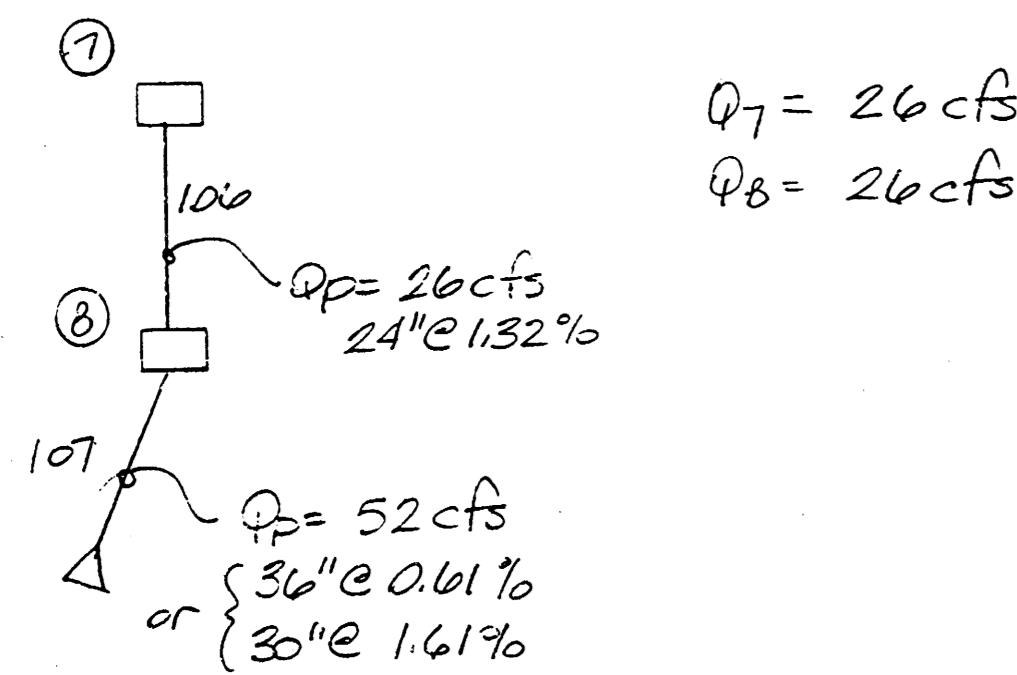
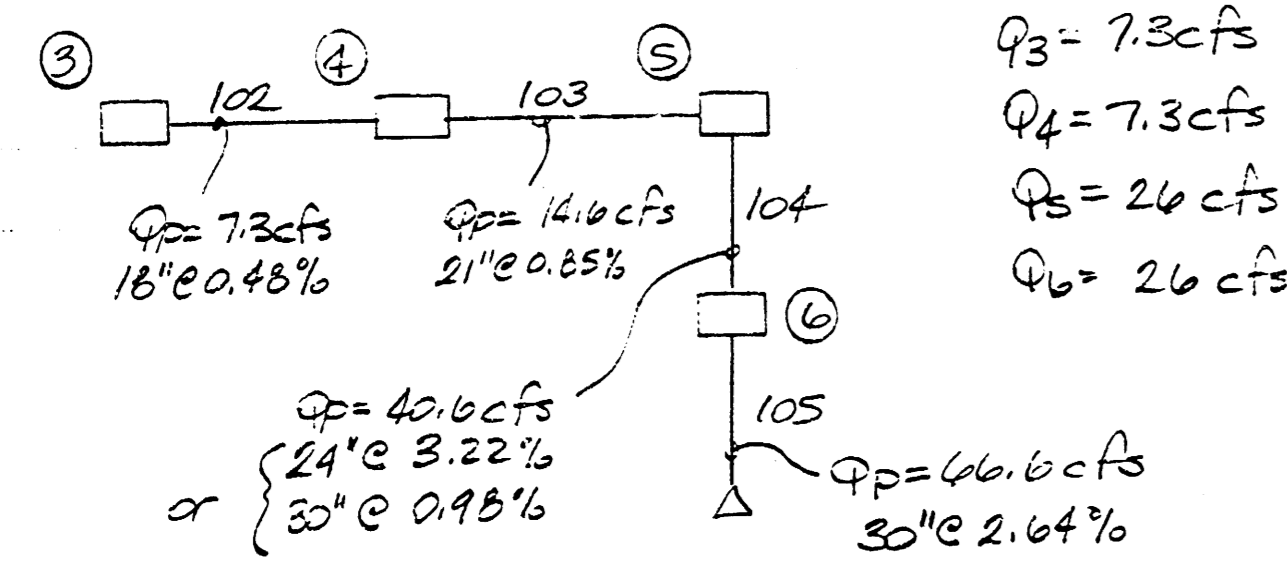
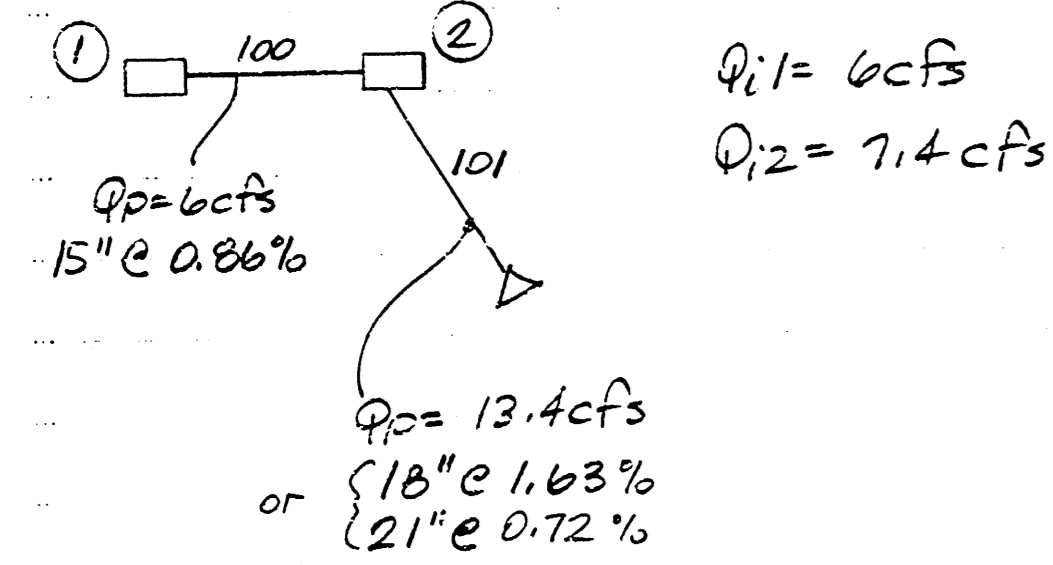
Results: (All drainage to pond)

Q_{in} developed = 151 cfs (HEC-1)
 Q_{out} pipe: Weir = 127 cfs

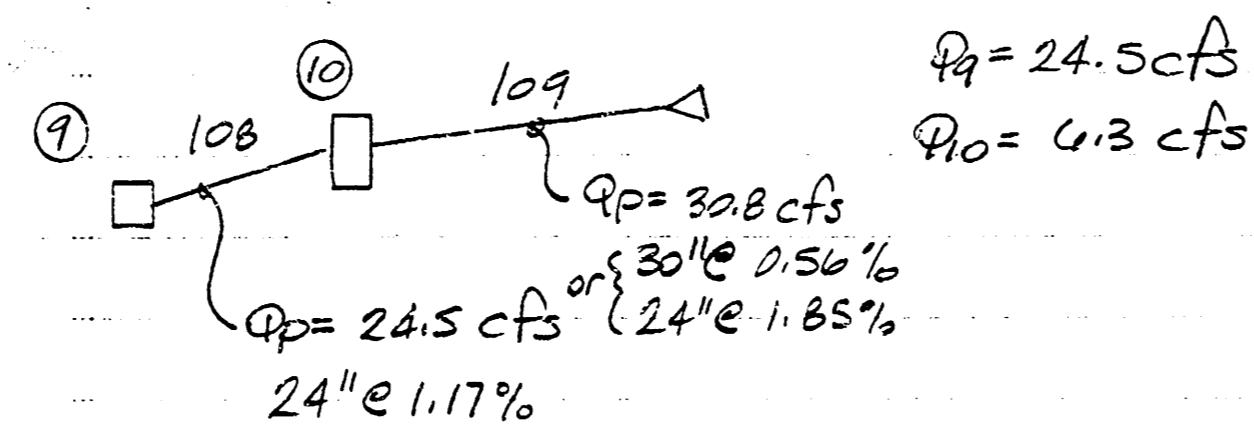
Within 2 cfs of ultimate peak.

Max stage = 1349.95 < low 2/w Elev = 1350.00 o.k.

Pipe Sizes



9/10



10/10

Pipe Sizes may be re-calculated @ the time of design to reflect the actual Hydraulic grade Line conditions.

Results

100	15" @ 0.86%
101	18" @ 1.63%
102	18" @ 0.48%
103	21" @ 0.65%
104	30" @ 0.93%
105	30" @ 2.64%
106	24" @ 1.32%
107	30" @ 1.61%
108	24" @ 1.17%
109	24" @ 1.85%

All Inlets 1-10 Except #9 (field inlet) L=10'-0"

FLOOD HYDROGRAPH PACKAGE (HEC-1) MAY 1991 VERSION 4.0.1E RUN DATE 04/12/1996 TIME 23:42:06

U.S. ARMY CORPS OF ENGINEERS HYDROLOGIC ENGINEERING CENTER 609 SECOND STREET DAVIS, CALIFORNIA 95616 (916) 756-1104

Full Microcomputer Implementation by Neastad Methods, Inc. 37 Brookside Road Waterbury, Connecticut 06708 (203) 755-1666

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HECT1, HECT10B, AND HECT10C. THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOP- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RN-CARD HAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION. NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE, SINGLE EVENT DAMAGE CALCULATION, DSS-WRITE STAGE FREQUENCY, DSS-READ TIME SERIES AT DESIRED CALCULATION INTERVAL, LOSS RATE:GREEN AND JMT INFILTRATION, KINEMATIC WAVE: NEW P*WTE DIFFERENCE ALGORITHM

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	10	HARRISON PARK 2ND ADDITION DETENTION POND CALCS - 100 YEAR EVENT									
2	IT	5									
3	IN	30									
4	IO	1									
5	KK	DEVEL									
6	BA	0.0659									
7	PC	0	0.04	0.08	.12	.17	.22	.27	.32	.37	.43
8	PC	.49	.56	.62	.69	.77	.85	.94	1.04	1.15	1.27
9	PC	1.41	1.59	1.83	2.21	2.71	3.33	4.09	5.02	6.23	7.80
10	PC	6.65	8.76	11.66	15.55	20.55	27.00	35.35	46.10	60.00	77.76
11	PC	7.43	7.49	7.54	7.59	7.63	7.68	7.72	7.76	7.80	
12	BA	0.0659									
13	LO	0.45									
14	LS	0	84								
15	KK	POND									
16	RS	1	ELEV 1343.80								
17	SA	0.1	0.0058	0.390	0.756	0.90	1.016	1.136	1.258	1.258	
18	SE	1343.80	1344	1345	1346	1347	1348	1349	1350	1350.2	
19	SS	0.1	1.0	4.5	15	28	35	40	40	45.2	56.4
20	SD	72.1	91.7	114.7							
21	SE	1343.80	1344	1345	1346	1347	1348	1349	1349.4	1349.5	1349.6
22	SE	1349.7	1349.8	1349.9							
23											

FLOOD HYDROGRAPH PACKAGE (HEC-1) MAY 1991 VERSION 4.0.1E RUN DATE 04/12/1996 TIME 23:42:06

U.S. ARMY CORPS OF ENGINEERS HYDROLOGIC ENGINEERING CENTER 609 SECOND STREET DAVIS, CALIFORNIA 95616 (916) 756-1104

HARRISON PARK 2ND ADDITION DETENTION POND CALCS - 100 YEAR EVENT

4 ID OUTPUT CONTROL VARIABLES
 1 PRINT CONTROL
 0 PLOT CONTROL
 0 HYDROGRAPH SCALE
 5 MINUTES IN COMPUTATION INTERVAL
 0 STARTING DATE
 0000 STARTING TIME
 289 NUMBER OF HYDROGRAPH ORDINATES
 2 0 ENDING DATE
 0000 ENDING TIME
 19 CENTURY MARK
 0.08 HOURS
 24.00 HOURS
 SQUARE MILES
 INCHES
 FEET
 CUBIC FEET PER SECOND
 ACRE-Feet
 04.06 CURVE NUMBER
 PERCENT IMPERVIOUS AREA
 DIMENSIONLESS UNITGRAPH
 0.45 LAG

SUBBASIN RUNOFF DATA

STATION	DA	MO	HR	ORD	RAIN	LOSS	EXCESS	COMP	Q
12 BA	1	0000	1	0.00	0.00	0.00	0.00	0.00	0.00
12 BA	1	0005	2	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0010	3	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0015	4	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0020	5	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0025	6	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0030	7	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0035	8	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0040	9	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0045	10	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0050	11	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0055	12	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0100	13	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0105	14	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0110	15	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0115	16	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0120	17	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0125	18	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0130	19	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0135	20	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0140	21	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0145	22	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0150	23	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0155	24	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0200	25	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0205	26	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0210	27	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0215	28	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0220	29	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0225	30	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0230	31	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0235	32	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0240	33	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0245	34	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0250	35	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0255	36	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0300	37	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0305	38	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0310	39	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0315	40	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0320	41	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0325	42	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0330	43	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0335	44	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0340	45	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0345	46	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0350	47	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0355	48	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0400	49	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0405	50	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0410	51	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0415	52	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0420	53	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0425	54	0.01	0.01	0.00	0.00	0.00	0.00
12 BA	1	0430	55	0.01	0.01	0.00	0.00	0.00	0.00

DA	MO	HR	ORD	RAIN	LOSS	EXCESS	COMP	Q
1	1205	146	0.09	0.01	0.09	128.		
1	1210	147	0.09	0.01	0.09	144.		
1	1215	148	0.09	0.01	0.09	151.		
1	1220	149	0.09	0.01	0.09	166.		
1	1225	150	0.09	0.01	0.09	185.		
1	1230	151	0.09	0.01	0.09	204.		
1	1235	152	0.05	0.00	0.05	104.		
1	1240	153	0.05	0.00	0.05	89.		
1	1245	154	0.05	0.00	0.05	76.		
1	1250	155	0.05	0.00	0.05	66.		
1	1255	156	0.05	0.00	0.05	57.		
1	1300	157	0.05	0.00	0.05	50.		
1	1305	158	0.03	0.00	0.03	43.		
1	1310	159	0.04	0.00	0.03	38.		
1	1315	160	0.03	0.00	0.03	34.		
1	1320	161	0.03	0.00	0.03	31.		
1	1325	162	0.04	0.00	0.03	28.		
1	1330	163	0.03	0.00	0.03	25.		
1	1335	164	0.03	0.00	0.03	23.		
1	1340	165	0.03	0.00	0.03	22.		
1	1345	166	0.03	0.00	0.03	20.		
1	1350	167	0.03	0.00	0.03	19.		
1	1355	168	0.03	0.00	0.03	18.		
1	1400	169	0.03	0.00	0.03	17.		
1	1405	170	0.02	0.00	0.02	16.		
1	1410	171	0.02	0.00	0.02	15.		
1	1415	172	0.02	0.00	0.02	15.		
1	1420	173	0.02	0.00	0.02	14.		
1	1425	174	0.02	0.00	0.02	14.		
1	1430	175	0.02	0.00	0.02	13.		
1	1435	176	0.02	0.00	0.02	13.		
1	1440	177	0.02	0.00	0.02	12.		
1	1445	178	0.02	0.00	0.02	12.		
1	1450	179	0.02	0.00	0.02	11.		
1	1455	180	0.02	0.00	0.02	11.		
1	1500	181	0.02	0.00	0.02	10.		
1	1505	182	0.02	0.00	0.02	10.		
1	1510	183	0.02	0.00	0.02	10.		
1	1515	184	0.02	0.00	0.02	10.		

1	0955	116	0.02	0.01	0.01	5.	*	1	2140	261	0.01	0.00	0.01	4.
1	0940	117	0.02	0.01	0.01	5.	*	1	2145	262	0.01	0.00	0.01	4.
1	0945	118	0.02	0.01	0.01	5.	*	1	2150	263	0.01	0.00	0.01	4.
1	0950	119	0.02	0.01	0.01	5.	*	1	2155	264	0.01	0.00	0.01	4.
1	0955	120	0.02	0.01	0.01	6.	*	1	2200	265	0.01	0.00	0.01	4.
1	1000	121	0.02	0.01	0.01	6.	*	1	2205	266	0.01	0.00	0.01	4.
1	1005	122	0.03	0.01	0.02	6.	*	1	2210	267	0.01	0.00	0.01	4.
1	1010	123	0.03	0.01	0.02	6.	*	1	2215	268	0.01	0.00	0.01	4.
1	1015	124	0.03	0.01	0.02	7.	*	1	2220	269	0.01	0.00	0.01	4.
1	1020	125	0.03	0.01	0.02	7.	*	1	2225	270	0.01	0.00	0.01	4.
1	1025	126	0.03	0.01	0.02	7.	*	1	2230	271	0.01	0.00	0.01	4.
1	1030	127	0.03	0.01	0.02	8.	*	1	2235	272	0.01	0.00	0.01	4.
1	1035	128	0.04	0.01	0.03	8.	*	1	2240	273	0.01	0.00	0.01	4.
1	1040	129	0.04	0.01	0.03	8.	*	1	2245	274	0.01	0.00	0.01	4.
1	1045	130	0.04	0.01	0.03	9.	*	1	2250	275	0.01	0.00	0.01	4.
1	1050	131	0.04	0.01	0.03	9.	*	1	2255	276	0.01	0.00	0.01	4.
1	1055	132	0.04	0.01	0.03	10.	*	1	2300	277	0.01	0.00	0.01	4.
1	1100	133	0.04	0.01	0.03	11.	*	1	2305	278	0.01	0.00	0.01	4.
1	1105	134	0.06	0.02	0.04	11.	*	1	2310	279	0.01	0.00	0.01	3.
1	1110	135	0.06	0.02	0.04	12.	*	1	2315	280	0.01	0.00	0.01	3.
1	1115	136	0.06	0.02	0.04	13.	*	1	2320	281	0.01	0.00	0.01	3.
1	1120	137	0.06	0.02	0.05	14.	*	1	2325	282	0.01	0.00	0.01	3.
1	1125	138	0.06	0.02	0.05	16.	*	1	2330	283	0.01	0.00	0.01	3.
1	1130	139	0.06	0.02	0.05	17.	*	1	2335	284	0.01	0.00	0.01	3.
1	1135	140	0.49	0.11	0.38	20.	*	1	2340	285	0.01	0.00	0.01	3.
1	1140	141	0.49	0.09	0.40	26.	*	1	2345	286	0.01	0.00	0.01	3.
1	1145	142	0.49	0.07	0.42	38.	*	1	2350	287	0.01	0.00	0.01	3.
1	1150	143	0.49	0.06	0.43	57.	*	1	2355	288	0.01	0.00	0.01	3.
1	1155	144	0.49	0.05	0.44	80.	*	2	0000	289	0.01	0.00	0.01	3.
1	1200	145	0.49	0.04	0.45	105.	*							

TOTAL RAINFALL = 7.30, TOTAL LOSS = 1.90, TOTAL EXCESS = 5.90

PEAK FLOW TIME	MAXIMUM AVERAGE FLOW
(CFS)	(CFS)
151 12.25	33. 10. 10. 10.
(INCHES)	4.658 5.858 5.858 5.858
(AC-FT)	16. 21. 21. 21.

CUMULATIVE AREA = 0.07 SQ MI

15 XX * POND *

HYDROGRAPH ROUTING DATA

STATION	STAGE	1	NUMBER OF SUBREACHES
16 RS	STORAGE ROUTING	1	
	STAGE	1	
	STAGE	1	

RUNOFF SUMMARY

FLOW IN CUBIC FEET PER SECOND

TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DEVEL	151.	12.25	33.	10.	10.	0.07
ROUTED TO	POND	127.	12.50	33.	10.	10.	0.07

*** NORMAL END OF REC-1 ***

RSVRIC 1343.80 INITIAL CONDITION

X 0.00 WORKING R AND Q COEFFICIENT

AREA	0.1	0.0	0.4	0.8	0.9	1.0	1.1	1.3	1.3
17 SA									
18 SE	ELEVATION	1342.80	1344.00	1345.00	1346.00	1347.00	1348.00	1349.00	1350.00
19 SW	DISCHARGE	0.	1.	5.	15.	26.	35.	40.	45.
		72.	92.	115.					56.
21 SE	ELEVATION	1343.80	1344.00	1345.00	1346.00	1347.00	1348.00	1349.00	1349.60
		1349.70	1349.80	1349.90					

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.01	0.16	0.72	1.55	2.50	3.58	4.78	5.03
ELEVATION	1343.80	1344.00	1345.00	1346.00	1347.00	1348.00	1349.00	1350.00	1350.20

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.01	0.16	0.72	1.55	2.50	3.58	4.04	4.16	4.28
OUTFLOW	0.10	1.00	4.50	15.00	26.00	35.00	40.00	45.20	45.20	45.20
ELEVATION	1343.80	1344.00	1345.00	1346.00	1347.00	1348.00	1349.00	1349.40	1349.50	1349.60

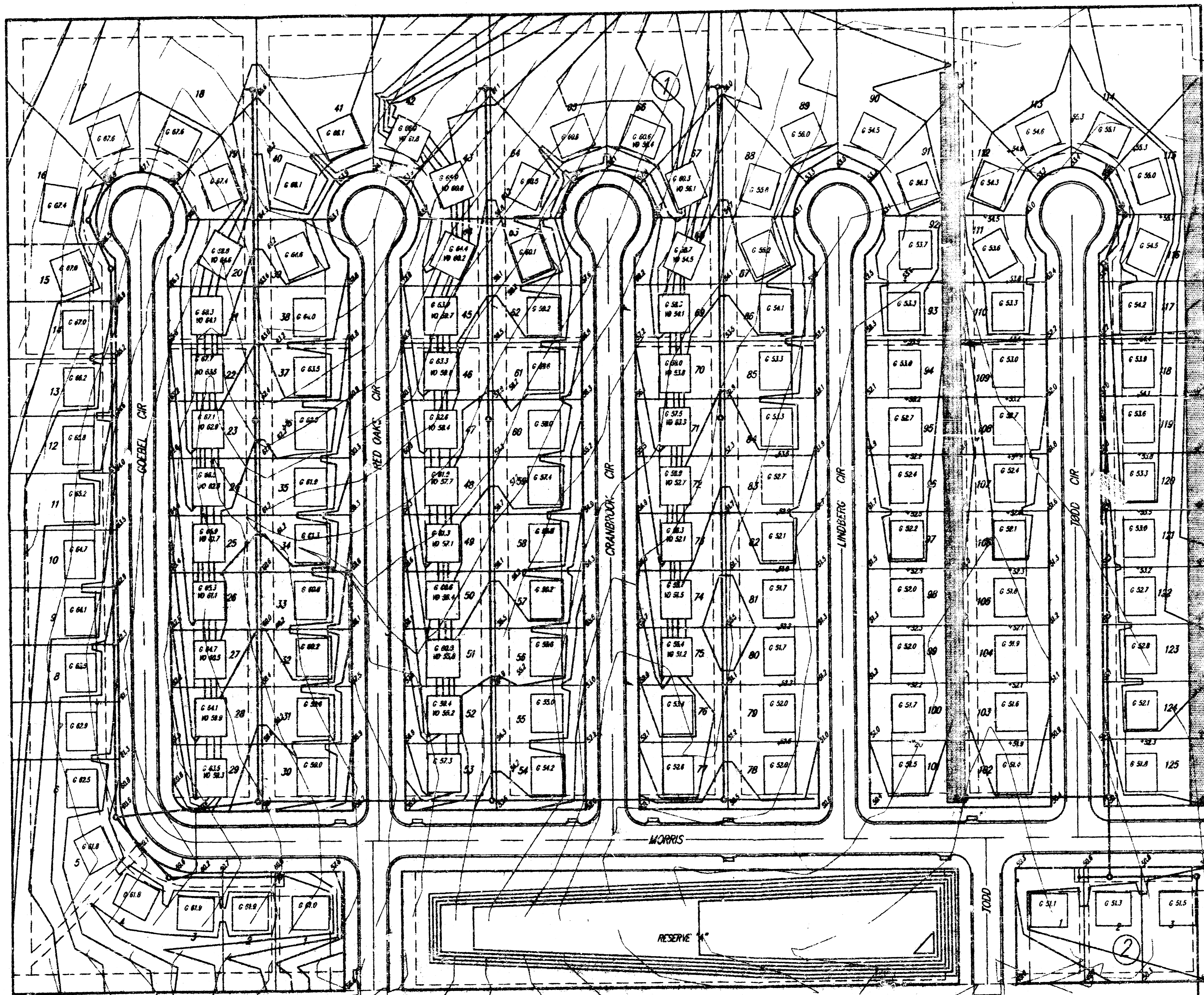
COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	4.40	4.53	4.65	4.78	5.03
OUTFLOW	72.10	91.70	114.70	137.70	163.70
ELEVATION	1349.70	1349.80	1349.90	1350.00	1350.20

HYDROGRAPH AT STATION POND

DA	MON	HR	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HR	ORD	OUTFLOW	STORAGE	STAGE	
1	0000	1	0.	0.0	1343.8	1	0805	98	2.	0.1	1344.3	1	1610	195
1	0205	2	0.	0.0	1343.8	1	0810	99	2.	0.1	1344.3	1	1615	196
1	0410	3	0.	0.0	1343.8	1	0815	100	2.	0.1	1344.4	1	1620	197
1	0615	4	0.	0.0	1343.8	1	0820	101	2.	0.1	1344.4	1	1625	198
1	0820	5	0.	0.0	1343.8	1	0825	102	2.	0.1	1344.4	1	1630	199
1	1025	6	0.	0.0	1343.8	1	0830	103	3.	0.1	1344.4	1	1635	200
1	1230	7	0.	0.0	1343.8	1	0835	104	3.	0.1	1344.5	1	1640	201
1	0035	8	0.	0.0	1343.8	1	0840	105	3.	0.1	1344.5	1	1645	202
1	0240	9	0.	0.0	1343.8	1	0845	106	3.	0.1	1344.5	1	1650	203
1	0445	10	0.	0.0	1343.8	1	0850	107	3.	0.1	1344.6	1	1655	204
1	0650	11	0.	0.0	1343.8	1	0855	108	3.	0.1	1344.6	1	1700	205
1	0855	12	0.	0.0	1343.8	1	0900	109	3.	0.1	1344.6	1	1705	206
1	1100	13	0.	0.0	1343.8	1	0905	110	3.	0.1	1344.7	1	1710	207
1	0105	14	0.	0.0	1343.8	1	0910	111	3.	0.1	1344.7	1	1715	208
1	0310	15	0.	0.0	1343.8	1	0915	112	4.	0.1	1344.7	1	1720	209
1	0515	16	0.	0.0	1343.8	1	0920	113	4.	0.1	1344.8	1	1725	210
1	0720	17	0.	0.0	1343.8	1	0925	114	4.	0.1	1344.8	1	1730	211
1	0925	18	0.	0.0	1343.8	1	0930	115	4.	0.1	1344.8	1	1735	212
1	1130	19	0.	0.0	1343.8	1	0935	116	4.	0.1	1344.9	1	1740	213
1	0135	20	0.	0.0	1343.8	1	0940	117	4.	0.1	1344.9	1	1745	214
1	0340	21	0.	0.0	1343.8	1	0945	118	4.	0.1	1344.9	1	1750	215
1	0545	22	0.	0.0	1343.8	1	0950	119	4.	0.2	1345.0	1	1755	216

1	0150	23	0.	0.0	1343.8	1	0955	120	5.	0.2	1345.0	1	1800	217
1	0355	24	0.	0.0	1343.8	1	1000	121	5.	0.2	1345.0	1	1805	218
1	0600	25	0.	0.0	1343.8	1	1005	122	5.	0.2	1345.0	1	1810	219
1	0805	26	0.	0.0	1343.8	1	1010	123	5.	0.2	1345.0	1	1815	220
1	1010	27	0.	0.0	1343.8	1	1015	124	5.	0.2	1345.1	1	1820	221
1	1215	28	0.	0.0	1343.8	1	1020	125	5.	0.2	1345.1	1	1825	222
1	0220	29	0.	0.0	1343.8	1	1025	126	6.	0.2	1345.1	1	1830	223
1	0425	30	0.	0.0	1343.8	1	1030	127	6.	0.2	1345.1	1	1835	224
1	0630	31	0.	0.0	1343.8	1	1035	128	6.	0.2	1345.1	1	1840	225
1	0835	32	0.	0.0	1343.8	1	1040	129	6.	0.2	1345.2	1	1845	226
1	1040	33	0.	0.0	1343.8	1	1045	130	7.	0.3	1345.2	1	1850	227
1	1245	34	0.	0.0	1343.8	1	1050	131	7.	0.3	1345.2	1	1855	228
1	0250	35	0.	0.0	1343.8	1	1055	132	7.	0.3	1345.3	1	1900	229
1	0455	36	0.	0.0	1343.8	1	1100	133	8.	0.3	1345.3	1	1905	230
1	0650	37	0.	0.0	1343.8	1	1105	134	8.	0.3	1345.3	1	1910	231
1	0855	38	0.	0.0	1343.8	1	1110	135	8.	0.4	1345.4	1	1915	232
1	1050	39	0.	0.0	1343.8	1	1115	136	9.	0.4	1345.4	1	1920	233
1	1255	40	0.	0.0	1343.8	1	1120	137	10.	0.4	1345.5	1	1925	234
1	0300	41	0.	0.0	1343.8	1	1125	138	10.	0.5	1345.5	1	1930	235
1	0505	42	0.	0.0	1343.8	1	1130	139	11.	0.5	1345.6	1	1935	236
1	0710	43	0.	0.0	1343.8	1	1135	140	12.	0.6	1345.7	1	1940	237
1	0915	44	0.	0.0	1343.8	1	1140	141	13.	0.6	1345.8	1	1945	238
1	1120	45	0.	0.0	1343.8	1	1145	142	15.	0.8	1346.0	1	1950	239
1	0325	46	0.	0.0	1343.8	1	1150	143	18.	1.0	1346.3	1	1955	240
1	0530	47	0.	0.0	1343.8	1	1155	144	23.	1.3	1346.7	1	2000	241
1	0735	48	0.	0.0	1343.8	1	1200	145	28.	1.8	1347.2	1	2005	242
1	0940	49	0.	0.0	1343.8	1	1205	146	34.	2.4	1347.8	1	2010	243
1	1145	50	0.	0.0	1343.8	1	1210	147	38.	3.0	1348.5	1	2015	244
1	0350	51	0.	0.0	1343.8	1	1215	148	40.	3.8	1349.2	1	2020	2



SCALE: 1" = 60'

SHADED AREAS ARE TO BE GRADED AS PART OF THIS PROJECT. W=20'

**APPROVED
DRAINAGE PLAN**

**HARRISON PARK 2ND ADDITION
SITE GRADING PLAN
SEDGWICK COUNTY, KS**

SRB 924 NORTH MAIN 316-264-8008
WICHITA, KANSAS 67203 FAX 316-264-6071

SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING

DESIGN: CSB DRAWN: AML CHECKED: VJBY REVIEW: [] DATE: OCT. 24, 1998

PROJECT NUMBER: []

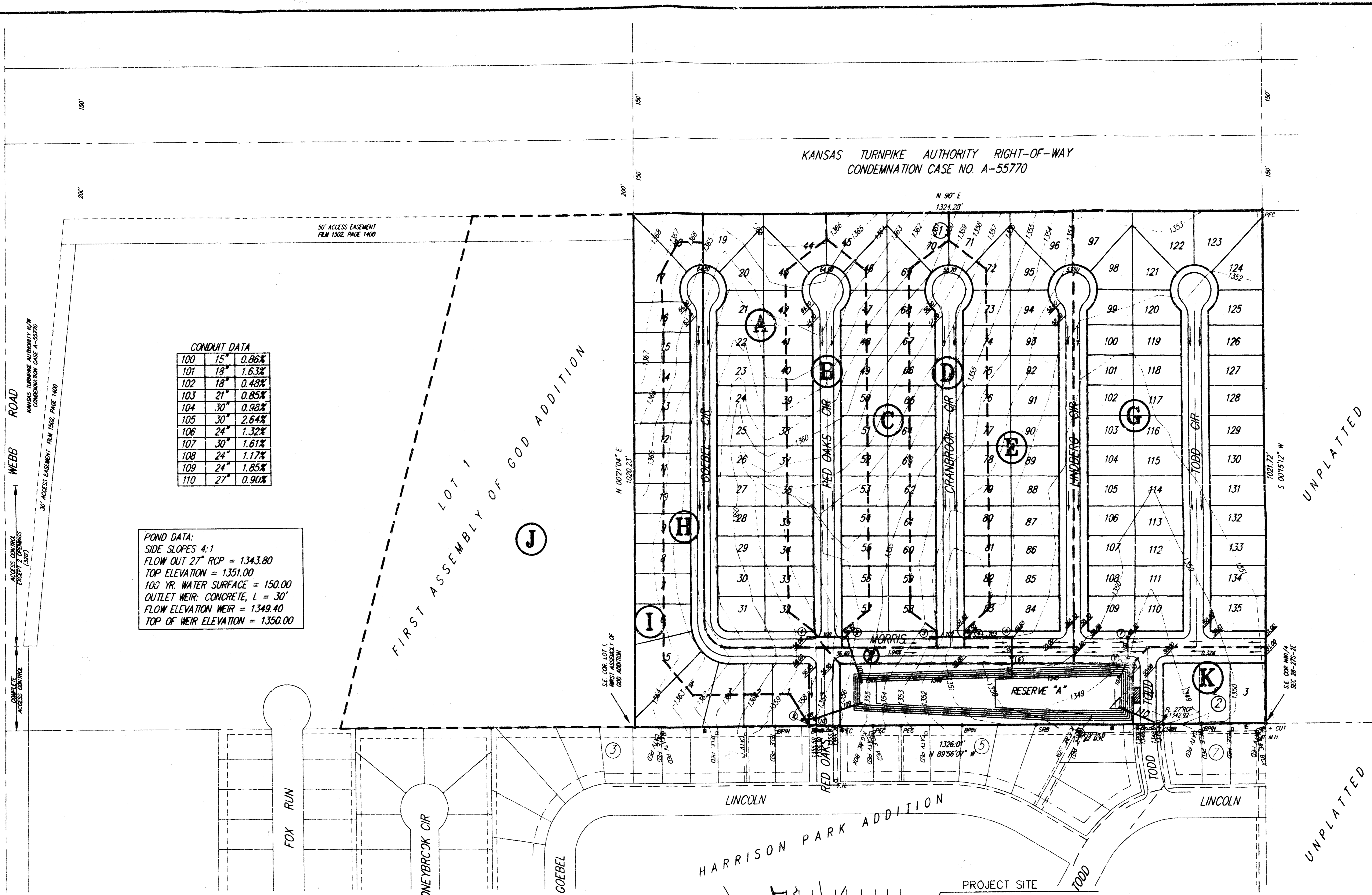
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KANSAS TURNPIKE AUTHORITY RIGHT-OF-WAY
CONDEMNATION CASE NO. A-55770

CONDUIT DATA

100	15"	0.86%
101	18"	1.63%
102	18"	0.49%
103	21"	0.85%
104	30"	0.98%
105	30"	2.64%
106	24"	1.32%
107	30"	1.61%
108	24"	1.17%
109	24"	1.85%
110	27"	0.90%

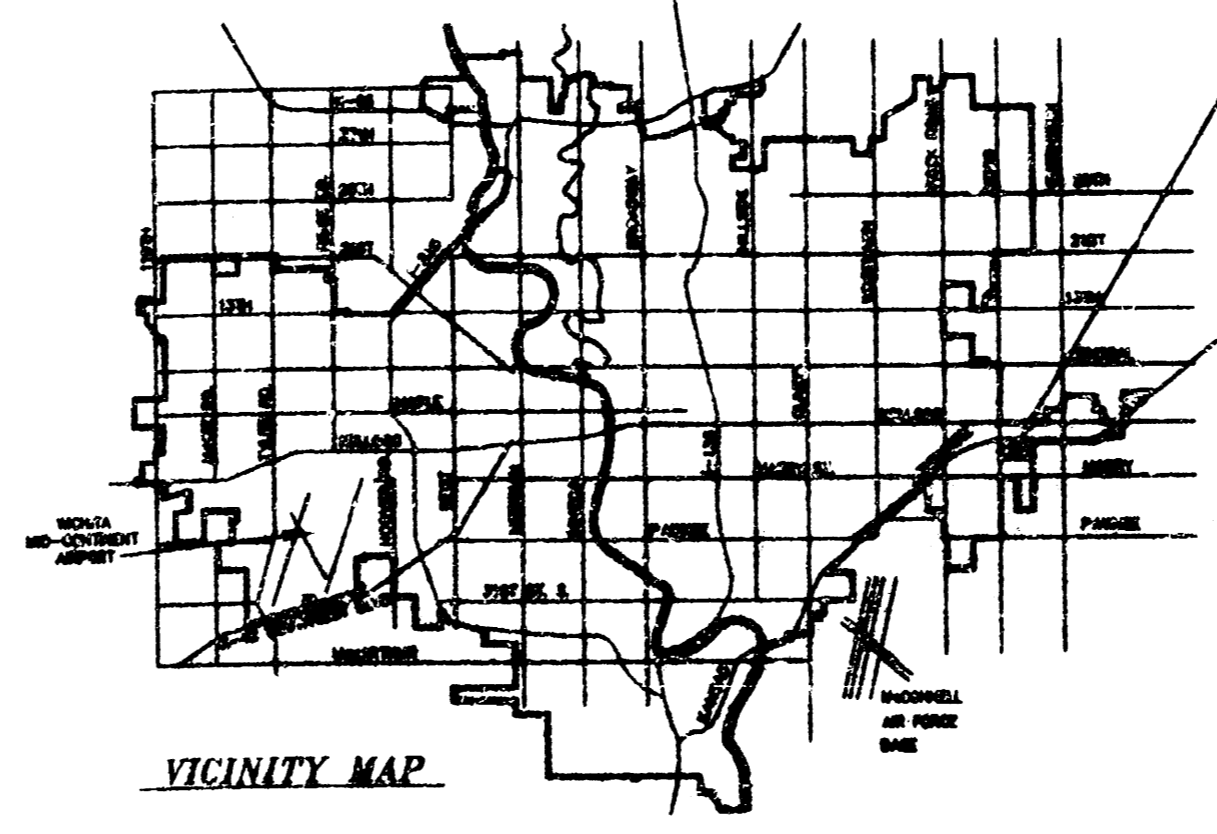
POND DATA:
SIDE SLOPES 4:1
FLOW OUT 27" RCP = 1,343.80
TOP ELEVATION = 1,351.00
100 YR. WATER SURFACE = 150.00
OUTLET WEIR: CONCRETE, L = 30'
FLOW ELEVATION WEIR = 1,349.40
TOP OF WEIR ELEVATION = 1,350.00



1" = 100'
ELEV = MSL
GROSS SIZE OF PROPERTY
1,352,921.71 SQ. FT.
31.058 ACRES

DRAINAGE PLAN HARRISON PARK 2ND ADDITION

WICHITA, SEDGWICK COUNTY, KANSAS.



PROJECT SITE
HARRISON PARK 2ND ADDITION

DRAINAGE PLAN HARRISON PARK 2ND ADDITION	
SRB	316-264-8009 316-264-4621
924 NORTH MAIN WICHITA, KANSAS 67203	
SAVOY, RUGGLES & BOHM, P.A.	
ENGINEERING & SURVEYING	
PROJECT NUMBER	
DATE: 4-12-08	UTILITY: SRB JOB

DWG FILE: C:\na\drainage\new\harrison
PROJECT NO. 06402423P