

September 10, 1988

Department of Engineering
Seventh Floor-City Hall
455 North Main
Wichita, Kansas 67202

Attention: Mr. Mike Lindebak, P.E., City Engineer

Dear Mike:

Following our meeting of last Thursday I used prints of the City of Wichita 1:1200 scale topographic maps for Cowskin Creek to prepare three new cross sections for the reach of Cowskin Creek effected by Teal Brook Estates, and made new water surface profile runs with the HEC-2 Computer Program to determine profiles for the 100-year flood discharge of 15050 cubic feet per second as reported in the City of Wichita Flood Insurance Study (FIS). The first new cross section is located about 120 feet north of the south line of Teal Brook Estates and models the flood plain at the beginning of the effect which any fill placed as part of that development would have on upstream properties. The next new cross section is at the mapped location of Section Y of the FIS which goes through the Eberly house and then takes two distinct paths across the balance of the Cowskin flood plain. Cross Section Y-1 runs due west from the house at a distance of approximately 450 feet south of and parallel to 21st Street. This path is included because it best represents Section Y plotted from the HEC-2 input file of the original FIS study contractor, Howard Needles Tammen and Bergendoff (HNTB). Cross Section Y-2 follows the path shown for Section Y on Panel 125 of the Sedgwick County Flood Boundary and Floodway Map series.

While there is enough similarity between HNTB Section Y and either of the new sections, Y-1 and Y-2, to prove that the City of Wichita topographic map was the basis for the cross sections used by HNTB, there is considerable difference in the location of the Cowskin Creek channel. HNTB Section Y and new cross section Y-1 model the improved channel of Cowskin Creek due south of the 21st Street Bridge.

New cross section Y-2 matches HNTB Section Y from its beginning to a point just west of the Eberly house and then the pattern of old creek meanders and the location of the Cowskin Creek channel differ to a considerable degree by modeling the the Cowskin Creek channel about 200 feet west of the channel shown on the HNTB Section Y.

To include all of the effect that the permitted Floodway Fringe fills and the definition of the left bank Floodway intercepts which I ran for the Autumn Ridge Addition in the hydraulic analysis of the proposed Floodway Fringe fill for Teal Brook Estates, I made HEC-2 runs for the entire reach of Cowskin Creek from just upstream from 13th Street to the end of the HNTB study which is just upstream from 21st Street. Included in these new runs are five cross sections I used to define the left bank Floodway Intercepts for Autumn Ridge Addition as well as the new cross section at the south edge of Teal Brook Estates and new groundpoints for Section Y. In all, three HEC-2 runs were made; first, the calibration run to prove that my HEC-2 Computer Program is compatible with the one used by the study contractor, HNTB. Second is a run with the new cross section at Station 24.22 (south edge of Teal Brook Estates) and cross section Y-1 substituted for Section Y. The third run is same as the second but with cross section Y-2 substituted for Section Y. Input and summary printouts for each run are furnished as exhibits. Base Flood and "With Floodway" elevations for each of the cross section locations from HNTB Section X at Station 24.08 to the end of the HNTB study at Station 24.47 are tabulated below:

STATION	HNTB STUDY		W/SECTION Y-1		W/SECTION Y-2	
	BFE	FLDWY	BFE	FLDWY	BFE	FLDWY
24.08	1342.0	1342.8	1341.0	1341.8	1341.0	1341.8
24.22	NA	NA	1341.9	1342.6	1341.9	1342.6
24.25	1343.5	1344.2	1344.1	1344.8	1343.2	1343.8
24.42	1345.4	1346.0	1344.8	1345.5	1344.7	1345.1
24.43	1345.4	1346.0	1344.8	1345.5	1344.8	1345.2
24.47	1346.6	1347.0	1346.1	1346.6	1346.1	1346.4

The result of the exercise to check the accuracy of the cross sections used by the HNTB study to model the reach of Cowskin Creek where fill in the Floodway Fringe would have an effect on the Base Flood or With Floodway Elevations when the left bank Floodway Intercept is set at the west boundary of Teal Brook Estates is that while the Base Flood Elevation of cross section Y-1 is calculated to be 0.6 feet higher than reported by HNTB at Station 24.25 (the cross section which runs through the Eberly house), the BFE is 0.3 feet lower when cross section Y-2 is substituted. In neither case does the location of the left bank Floodway Intercept at the Teal Brook west boundary cause a rise in the 100-year flood elevation of more than the 0.7 feet

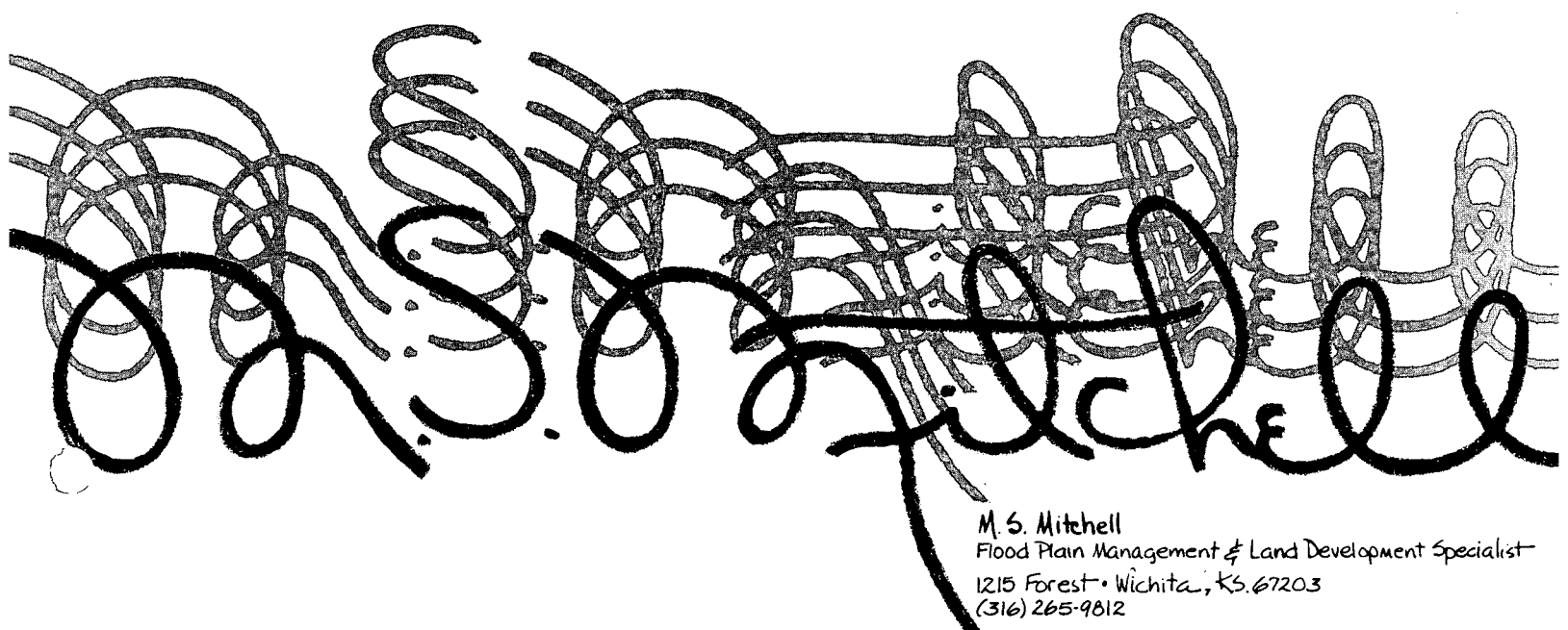
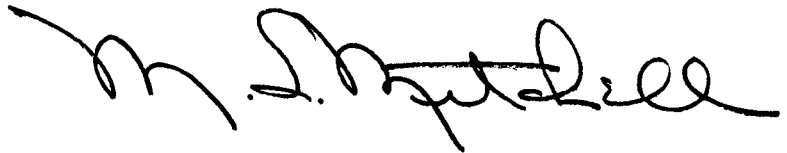
calculated by HNTB. In my opinion, the differences in cross section data taken from the HNTB computer input file and the ones I plotted from the City topographic map are not significant and the Flood Insurance Study data is well within the range of accuracy expected of such general studies.

Submitted with this letter is a portion of the City of Wichita topographic mapping for the reach of Cowskin Creek from south of Teal Brook Estates to north of 21st Street on which I have drawn the location and extent of the three new cross sections I described above. Also transmitted are plots of the HNTB cross section which appears in the FIS as Section Y, and the three new cross sections I took off the topo map together with copies of the three HEC-2 Computer Program runs.

I believe that the above information and discussion answers the questions you had about the Flood Insurance Study data for this reach of Cowskin Creek and request that you advise your staff to remove the restriction they placed on Mr. Huffman's Development Permit so that he can proceed with his plan to fill the lots on the west side of Teal Brook Estates to at least the elevation of the Base Flood and make application for a Letter of Map Revision for the area now mapped as Zone A-4.

Yours truly,

encl



M. S. Mitchell
Flood Plain Management & Land Development Specialist
1215 Forest • Wichita, KS. 67203
(316) 265-9812

Run 1

COWSKIN CREEK

13TH To 21ST - AUTUMN RIDGE 2ND

FILE: CSKATMRI.HC2

CALIBRATION RUN VS HNTB RUN

07/10/87

08:14:05

PAGE

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THIS RUN EXECUTED 07/10/87 08:17:03

HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION APRIL 1985

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCH
22.130	1337.59	.00	1337.64	2088.17	1060.71	1679.18	12310.10	.00	.00	10700.00	10760.00	.00
22.130	1338.35	.76	1338.41	1313.00	.00	1738.72	13311.28	1313.00	10700.00	10700.00	10760.00	12013.00
22.570	1338.64	.00	1338.83	1516.64	1747.41	3694.53	9608.06	.00	.00	10710.00	10782.00	.00
22.570	1339.36	.72	1339.60	928.00	15.99	4178.33	10855.68	928.00	10708.00	10710.00	10782.00	11636.00
24.080	1342.00	.00	1342.07	1702.97	13467.85	1582.15	.00	.00	.00	11905.00	11995.00	.00
24.080	1342.82	.81	1342.89	1380.19	13312.16	1737.84	.00	1407.00	10588.00	11905.00	11995.00	11995.00
24.250	1343.49	.00	1343.73	1773.03	7685.27	4592.06	2772.67	.00	.00	11560.00	11665.00	.00
24.250	1344.22	.73	1344.52	1251.00	8410.44	5310.38	1329.18	1251.00	10513.00	11560.00	11665.00	11764.00

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08:14:05

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CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIMS	EG	10K*S	VCH	AREA	.01K
22.130	.00	.00	.00	1321.00	15050.00	1337.59	.00	1337.64	4.76	2.81	8772.98	6898.38
22.130	.00	.00	.00	1321.00	15050.00	1338.35	.00	1338.41	4.68	2.70	7621.98	6958.04
22.570	2325.00	.00	.00	1323.10	15050.00	1338.64	.00	1338.83	17.76	5.33	5039.64	3570.94
22.570	2325.00	.00	.00	1323.10	15050.00	1339.36	.00	1339.60	17.88	5.61	4260.66	3559.16
24.080	7655.00	.00	.00	1329.00	15050.00	1342.00	.00	1342.07	6.36	2.95	7528.46	5966.50
24.080	7655.00	.00	.00	1329.00	15050.00	1342.82	.00	1342.89	6.00	2.97	7131.88	6145.33
24.250	1215.00	.00	.00	1328.70	15050.00	1343.49	.00	1343.73	29.00	5.87	4708.34	2794.65
24.250	1215.00	.00	.00	1328.70	15050.00	1344.22	.00	1344.52	28.49	6.19	4227.52	2819.78

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CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
22.130	15050.00	1337.59	.00	.00	.00	2088.17	.00
22.130	15050.00	1338.35	.76	.00	.76	1313.00	.00
22.570	15050.00	1338.64	.00	1.05	.00	1516.64	2325.00
22.570	15050.00	1339.36	.72	1.01	.72	928.00	2325.00
24.080	15050.00	1342.00	.00	3.36	.00	1702.97	7655.00
24.080	15050.00	1342.82	.81	3.46	.81	1380.19	7655.00
24.250	15050.00	1343.49	.00	1.49	.00	1773.03	1215.00
24.250	15050.00	1344.22	.73	1.40	.73	1251.00	1215.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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08:14:05

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FLOODWAY DATA, CSK CRK U/S 13TH TO END
PROFILE NO. 2

STATION	WIDTH	FLOODWAY SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
22.130	1313.	7622.	2.0	1338.4	1337.6	.8
22.570	928.	4261.	3.5	1339.3	1338.6	.7
24.080	1380.	7132.	2.1	1342.8	1342.0	.8
24.250	1251.	4228.	3.6	1344.2	1343.5	.7

CONSKIN CREEK

13TH TO 21ST FROM 21ST

w/ New X-Scans for Autumn
Ridge & Teal Book

File: CSKTRK1.HC2

THIS RUN EXECUTED 09/12/88 16:16:56

HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION APRIL 1985

C SEDGWICK COUNTY, KANSAS COWSKIN CREEK NATURAL 100-YEAR PROFILE
T1 HNTB INPUT DATA W/NEW SECTIONS BETWEEN G&O SECTIONS W AND X
T2
T3 CSK CRK U/S 13TH TO END OF DETAILED STUDY FILE CSKTLBK1.HC2

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
0.		2.	0.	0.	.000000	.00	.0	0.	1337.600	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
.000		.000	-1.000	.000	.000	.000	.000	.000	.000	.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.000	150.000	200.000	.000	.000	.000	.000	.000	.000	.000	.000
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NC	.054	.053	.050	.300	.500	.000	.000	.000	.000	.000
QT	2.000	15050.000	15050.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	.000	10700.000	12013.000

G&O CROSS SECTION V JUST U/S FROM 13TH STREET

X1	22.130	36.000	10700.000	10760.000	.000	.000	.000	.000	.000	.000
GR	1350.000	10000.000	1348.000	10055.000	1346.000	10130.000	1344.000	10190.000	1342.000	10365.000
GR	1340.000	10404.000	1338.000	10450.000	1336.000	10492.000	1334.000	10640.000	1332.000	10675.000
GR	1330.000	10700.000	1328.000	10714.000	1326.000	10718.000	1324.000	10720.000	1321.000	10730.000
GR	1322.000	10735.000	1326.000	10737.000	1328.000	10740.000	1330.000	10742.000	1332.000	10752.000
GR	1334.000	10760.000	1334.000	10795.000	1332.000	10844.000	1334.000	10884.000	1334.000	10942.000
GR	1332.000	11250.000	1333.000	11990.000	1334.000	12120.000	1336.000	12480.000	1338.000	12564.000
GR	1340.000	12620.000	1342.000	12640.000	1344.000	12660.000	1346.000	12680.000	1348.000	12710.000
GR	1350.000	12730.000	.000	.000	.000	.000	.000	.000	.000	.000

ET	.000	.000	8.100	.000	.000	.000	.000	.000	10708.000	11636.000
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G&O CROSS SECTION W

X1	22.570	35.000	10710.000	10782.000	1500.000	1100.000	2325.000	.000	.000	.000
GR	1352.000	10000.000	1350.000	10145.000	1348.000	10210.000	1346.000	10276.000	1344.000	10316.000
GR	1342.000	10370.000	1340.000	10410.000	1338.000	10448.000	1336.000	10550.000	1336.000	10580.000
GR	1334.000	10710.000	1332.000	10718.000	1330.000	10728.000	1326.000	10732.000	1323.600	10734.000
GR	1323.100	10744.000	1323.600	10754.000	1330.000	10760.000	1332.000	10766.000	1334.000	10776.000
GR	1336.000	10782.000	1336.000	10870.000	1336.400	11000.000	1336.000	11150.000	1334.000	11315.000
GR	1334.000	11345.000	1334.700	11610.000	1336.000	11790.000	1338.000	11930.000	1340.000	12000.000
GR	1342.000	12030.000	1344.000	12064.000	1346.000	12110.000	1348.000	12140.000	1350.000	12190.000

NH	4.000	.050	360.000	.065	442.000	.054	1040.000	.035	2500.000	.000
ET	.000	.000	7.400	.000	.000	.000	.000	.000	.000	.000
	NEW CROSS SECTION W-1									
X1	22.779	40.000	360.000	442.000	510.000	400.000	1104.000	.000	.000	.000
GR	1350.000	250.000	1348.000	275.000	1346.000	295.000	1344.000	332.000	1342.000	340.000
GR	1340.000	350.000	1338.000	355.000	1336.000	360.000	1334.000	365.000	1332.000	375.000
GR	1330.000	385.000	1328.000	390.000	1326.000	392.000	1324.000	396.000	1324.000	410.000
GR	1330.000	420.000	1332.000	422.000	1334.000	430.000	1336.000	442.000	1336.000	570.000
GR	1336.000	730.000	1334.000	880.000	1334.000	910.000	1334.000	970.000	1336.000	1010.000
GR	1336.000	1040.000	1336.000	1145.000	1336.000	1230.000	1334.500	1330.000	1334.000	1440.000
GR	1334.000	1520.000	1334.000	1630.000	1336.000	2150.000	1338.000	2180.000	1340.000	2280.000
GR	1342.000	2360.000	1344.000	2385.000	1346.000	2420.000	1348.000	2470.000	1350.000	2500.000
	NEW CROSS SECTION W-2									
NH	4.000	.050	600.000	.065	680.000	.054	1225.000	.035	2495.000	.000
X1	22.842	34.000	600.000	680.000	245.000	25.000	333.000	.000	.000	.000
GR	1350.000	15.000	1348.000	55.000	1346.000	105.000	1344.000	210.000	1342.000	320.000
GR	1340.000	400.000	1338.000	495.000	1336.000	500.000	1334.000	600.000	1332.000	620.000
GR	1330.000	635.000	1328.000	650.000	1328.000	665.000	1330.000	670.000	1332.000	675.000
GR	1334.000	680.000	1336.000	700.000	1336.000	735.000	1334.000	970.000	1334.000	1005.000
GR	1336.000	1040.000	1336.000	1140.000	1336.000	1225.000	1334.000	1430.000	1334.000	1520.000
GR	1334.000	1620.000	1336.000	2150.000	1338.000	2190.000	1340.000	2260.000	1342.000	2340.000
GR	1344.000	2380.000	1346.000	2405.000	1348.000	2455.000	1350.000	2495.000	.000	.000
	NEW CROSS SECTION W-3									
NH	4.000	.050	590.000	.065	705.000	.054	1155.000	.035	2490.000	.000
X1	22.860	39.000	590.000	705.000	45.000	30.000	96.000	.000	.000	.000
GR	1350.000	20.000	1348.000	50.000	1346.000	90.000	1344.000	185.000	1342.000	280.000
GR	1340.000	390.000	1340.000	430.000	1340.000	440.000	1338.000	500.000	1336.000	510.000
GR	1334.000	590.000	1332.000	625.000	1330.000	650.000	1328.000	660.000	1326.000	670.000
GR	1326.000	690.000	1330.000	695.000	1332.000	700.000	1334.000	705.000	1336.000	725.000
GR	1336.000	780.000	1335.000	900.000	1334.000	995.000	1334.000	1020.000	1336.000	1040.000
GR	1336.000	1070.000	1335.600	1155.000	1334.000	1410.000	1332.500	1445.000	1334.000	1500.000
GR	1334.000	1610.000	1336.000	2150.000	1338.000	2185.000	1340.000	2255.000	1342.000	2330.000
GR	1344.000	2380.000	1346.000	2405.000	1348.000	2450.000	1350.000	2490.000	.000	.000
	NEW CROSS SECTION W-4									
NH	5.000	.035	695.000	.055	1030.000	.065	1350.000	.054	1870.000	.035
NH	3010.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	NEW CROSS SECTION W-4									
X1	22.908	37.000	1105.000	1170.000	195.000	13.000	251.000	.000	.000	.000
GR	1350.000	150.000	1348.000	355.000	1346.000	560.000	1346.000	620.000	1344.000	695.000
GR	1342.000	900.000	1340.000	940.000	1338.000	1030.000	1334.000	1105.000	1330.000	1120.000
GR	1328.000	1125.000	1328.000	1150.000	1330.000	1152.000	1332.000	1160.000	1334.000	1170.000
GR	1336.000	1200.000	1336.400	1270.000	1336.200	1350.000	1336.000	1400.000	1334.000	1570.000
GR	1334.000	1590.000	1336.000	1610.000	1336.000	1640.000	1336.500	1700.000	1334.600	1870.000
GR	1334.000	1950.000	1332.500	2000.000	1334.000	2050.000	1334.000	2175.000	1336.000	2680.000
GR	1338.000	2710.000	1340.000	2780.000	1342.000	2845.000	1344.000	2890.000	1346.000	2910.000
GR	1348.000	2960.000	1350.000	3010.000	.000	.000	.000	.000	.000	.000

NH	5.000	.035	625.000	.040	1030.000	.035	2065.000	.065	2380.000	.040
NH	2490.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	NEW CROSS SECTION W-5									
X1	23.833	31.000	2110.000	2155.000	285.000	1632.000	4884.000	.000	.000	.000
GR	1350.000	170.000	1348.000	370.000	1346.000	595.000	1346.000	625.000	1344.000	760.000
GR	1342.000	840.000	1340.000	900.000	1338.000	1030.000	1336.000	1200.000	1334.000	1265.000
GR	1333.000	1330.000	1334.000	1360.000	1336.000	1440.000	1337.000	1820.000	1338.000	1980.000
GR	1340.000	2065.000	1340.000	2100.000	1338.000	2110.000	1336.000	2113.000	1330.000	2130.000
GR	1328.000	2132.000	1328.000	2140.000	1330.000	2142.000	1338.000	2155.000	1339.000	2235.000
GR	1340.000	2315.000	1342.000	2380.000	1344.000	2410.000	1344.000	2440.000	1344.000	2475.000
GR	1350.000	2490.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.054	.053	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	10588.000	11995.000	.000
	G&D CROSS SECTION X									
X1	24.080	33.000	11905.000	11995.000	660.000	600.000	898.000	.000	.000	.000
GR	1352.500	10000.000	1352.000	10045.000	1350.000	10104.000	1348.000	10112.000	1348.000	10145.000
GR	1344.000	10210.000	1344.000	10244.000	1340.000	10282.000	1338.000	10330.000	1336.000	10550.000
GR	1336.000	10950.000	1338.000	10980.000	1338.500	11080.000	1338.000	11190.000	1337.200	11270.000
GR	1338.000	11485.000	1340.500	11825.000	1340.000	11905.000	1338.000	11912.000	1330.000	11920.000
GR	1329.000	11924.000	1329.000	11946.000	1330.000	11948.000	1340.000	11960.000	1352.000	11995.000
GR	1356.000	12016.000	1356.000	12315.000	1358.000	12370.000	1358.000	12505.000	1358.500	12590.000
GR	1360.000	12654.000	1360.000	12700.000	1362.000	12855.000	.000	.000	.000	.000
NC	.065	.053	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	1545.000	2700.000	.000
	NEW CROSS SECTION TO MODEL TEAL BROOK FLOOD PLAIN FILL									
X1	24.220	24.000	2520.000	2615.000	520.000	560.000	760.000	.000	.000	.000
GR	1344.000	1000.000	1342.000	1050.000	1340.000	1210.000	1338.000	1480.000	1334.000	1485.000
GR	1334.000	1510.000	1338.000	1530.000	1338.000	2030.000	1334.000	2040.000	1334.000	2065.000
GR	1336.000	2070.000	1338.000	2110.000	1340.000	2150.000	1342.000	2500.000	1342.000	2520.000
GR	1340.000	2535.000	1328.000	2545.000	1328.000	2560.000	1340.000	2615.000	1342.000	2700.000
GR	1344.000	2710.000	1346.000	2730.000	1348.000	2795.000	1350.000	2805.000	.000	.000
NC	.000	.000	.000	.300	.500	.000	.000	.000	.000	.000
NH	5.000	.065	11130.000	.990	11215.000	.065	11620.000	.050	11735.000	.053
NH	12455.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	10665.000	11916.000	.000
	NEW CROSS SECTION Y-1 AT LOCATION OF G&D SECTION Y W/TEAL BROOK FLDY									
X1	24.250	47.000	11620.000	11735.000	880.000	940.000	1335.000	.000	.000	.000
GR	1352.500	10000.000	1352.000	10115.000	1350.000	10212.000	1348.000	10293.000	1346.000	10310.000
GR	1344.000	10340.000	1342.000	10383.000	1340.000	10435.000	1340.000	10510.000	1340.000	10580.000
GR	1340.000	10740.000	1340.000	10815.000	1338.000	10822.000	1336.000	10830.000	1336.000	10860.000
GR	1338.000	10865.000	1340.000	10875.000	1340.200	10895.000	1342.000	10915.000	1342.500	10955.000
GR	1342.000	10990.000	1342.000	11050.000	1342.900	11100.000	1344.000	11130.000	1344.000	11215.000
GR	1343.000	11250.000	1342.000	11320.000	1342.000	11620.000	1340.000	11633.000	1330.000	11653.000
GR	1330.000	11657.000	1336.000	11680.000	1338.000	11730.000	1340.000	11735.000	1341.500	11790.000
GR	1340.000	11835.000	1340.000	11870.000	1342.000	12000.000	1344.000	12100.000	1346.000	12185.000
GR	1348.000	12220.000	1350.000	12260.000	1352.000	12310.000	1354.000	12340.000	1356.000	12375.000
GR	1358.000	12415.000	1360.000	12455.000	.000	.000	.000	.000	.000	.000

HNTB CROSS SECTION 50 FEET DOWNSTREAM FROM 21ST STREET

HNTB 21ST BRIDGE TABLE									
	24,420	21,000	11890.000	12110.000	400.000	400.000	400.000	.000	.000
X1	24,420	21,000	11890.000	12110.000	400.000	400.000	400.000	.000	.000
X3	10,000	.000	.000	.000	.000	.000	.000	1347.000	.000
GR	1354,500	10000.000	1354.000	10340.000	1352.000	10510.000	1348.000	10645.000	1340.000
GR	1339,100	11085.000	1340.000	11265.000	1340.000	11550.000	1342.000	11554.000	1344.000
GR	1334,000	11940.000	1331.900	12000.000	1334,700	12060.000	1343.100	12110.000	1344.000
GR	1350.000	12310.000	1351.000	12470.000	1352.000	12670.000	1354.000	12830.000	1358.000
GR	1358,600	13155.000	.000	.000	.000	.000	.000	.000	.000
SB	1,050	1,600	2,600	.000	103.000	5.000	2310.000	3.980	.000
X1	24,430	.000	.000	.000	50.000	50.000	50.000	.000	.000
X2	.000	.000	1,000	1346.600	1350.400	.000	.000	.000	.000
X3	10,000	.000	.000	.000	.000	.000	.000	1347.800	1350.000
BT	16,000	10000.000	1354.500	.000	10340.000	1354.000	.000	10510.000	1352.000
BT	10840.000	1348.000	.000	11150.000	1347.800	.000	11690.000	1349.900	.000
BT	1349,800	.000	11890.000	1350.400	.000	12110.000	1350.400	12210.000	1350.100
BT	.000	12310.000	1350.000	.000	12470.000	1351.000	.000	12670.000	1352.000
BT	12830.000	1354.000	.000	13020.000	1358.000	.000	13155.000	1358.600	.000

HNTB CROSS SECTION UPSTREAM FROM 21ST STREET, END OF HNTB COWSKIN RUN

[illegible]

THIS RUN EXECUTED 09/12/88 16:25:27

HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION APRIL 1985

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	GLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
22.130	1337.60	.00	1337.65	2088.80	1061.76	1675.95	12312.29	.00	.00	10700.00	10760.00	.00
22.130	1338.50	.90	1338.56	1313.00	.00	1704.77	13345.23	1313.00	10700.00	10700.00	10760.00	12013.00
22.570	1338.65	.00	1338.83	1516.83	1748.26	3691.19	9610.55	.00	.00	10710.00	10782.00	.00
22.570	1339.43	.79	1339.67	928.00	15.86	4126.73	10907.41	928.00	10708.00	10710.00	10782.00	11636.00
22.779	1339.19	.00	1339.25	1887.62	11.00	1407.52	13631.48	.00	.00	360.00	442.00	.00
22.779	1340.02	.82	1340.08	1414.66	.00	1524.74	13525.26	.22	360.00	360.00	442.00	1774.66
22.842	1339.21	.00	1339.28	1795.20	707.96	1373.12	12968.92	.00	.00	600.00	680.00	.00
22.842	1340.03	.82	1340.11	1269.94	.00	1475.70	13574.30	.22	600.00	600.00	680.00	1869.94
22.860	1339.24	.00	1339.29	1765.46	531.73	1937.08	12581.19	.00	.00	590.00	705.00	.00
22.860	1340.05	.82	1340.12	1256.06	.00	2102.82	12947.18	.21	590.00	590.00	705.00	1846.06
22.908	1339.25	.00	1339.32	1779.99	279.45	1243.84	13526.71	.00	.00	1105.00	1170.00	.00
22.908	1340.07	.82	1340.14	1272.87	.00	1316.56	13733.44	.22	1105.00	1105.00	1170.00	2377.87
23.833	1340.06	.00	1340.25	1418.58	13907.93	987.58	154.49	.00	.00	2110.00	2155.00	.00
23.833	1340.83	.77	1341.06	889.55	13959.05	1090.95	.00	.25	1265.45	2110.00	2155.00	2155.00
24.080	1341.02	.00	1341.13	1690.63	13092.34	1957.66	.00	.00	.00	11905.00	11995.00	.00
24.080	1341.77	.75	1341.89	1377.16	12973.06	2076.94	.00	1407.00	10588.00	11905.00	11995.00	11995.00
24.220	1341.95	.00	1342.14	1614.47	11040.55	3904.35	105.09	.00	.00	2520.00	2615.00	.00
24.220	1342.63	.68	1342.87	1155.00	10240.00	4552.80	257.20	1155.00	1545.00	2520.00	2615.00	2700.00
24.250	1344.06	.00	1344.25	1763.45	7905.38	4623.04	2521.59	.00	.00	11620.00	11735.00	.00
24.250	1344.81	.75	1345.04	1251.00	7232.95	5329.49	2487.57	1251.00	10665.00	11620.00	11735.00	11916.00
24.420	1344.78	.00	1345.67	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.420	1345.49	.72	1346.26	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00

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SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
24.430	1344.85	.00	1345.73	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.430	1345.55	.70	1346.31	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.470	1346.14	.00	1346.23	2055.83	4740.21	5027.59	5282.19	.00	.00	11550.00	11722.00	.00
24.470	1346.64	.50	1346.70	2099.66	5031.32	4607.70	5410.99	.00	.00	11550.00	11722.00	.00

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CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRWS	EG	10K*S	VCH	AREA	.01K
22.130	.00	.00	.00	1321.00	15050.00	1337.60	.00	1337.65	4.73	2.80	8793.89	6923.26
22.130	.00	.00	.00	1321.00	15050.00	1338.50	.00	1338.56	4.31	2.61	7818.96	7253.11
22.570	2325.00	.00	.00	1323.10	15050.00	1338.65	.00	1338.83	17.71	5.33	5045.01	3576.36
22.570	2325.00	.00	.00	1323.10	15050.00	1339.43	.00	1339.67	17.03	5.50	4329.76	3647.03
22.779	1104.00	.00	.00	1324.00	15050.00	1339.19	.00	1339.25	3.87	1.88	7852.61	7649.40
22.779	1104.00	.00	.00	1324.00	15050.00	1340.02	.00	1340.08	3.62	1.87	7432.30	7913.28
22.842	333.00	.00	.00	1328.00	15050.00	1339.21	.00	1339.28	4.35	1.98	7474.60	7218.91
22.842	333.00	.00	.00	1328.00	15050.00	1340.03	.00	1340.11	4.09	1.95	6881.31	7443.77
22.860	96.00	.00	.00	1326.00	15050.00	1339.24	.00	1339.29	3.61	1.86	7833.48	7925.24
22.860	96.00	.00	.00	1326.00	15050.00	1340.05	.00	1340.12	3.41	1.85	7207.79	8145.13
22.908	251.00	.00	.00	1328.00	15050.00	1339.25	.00	1339.32	4.69	2.11	7315.79	6952.20
22.908	251.00	.00	.00	1328.00	15050.00	1340.07	.00	1340.14	4.42	2.05	6816.88	7155.50
23.833	4884.00	.00	.00	1328.00	15050.00	1340.06	.00	1340.25	11.70	2.83	4394.61	4399.69
23.833	4884.00	.00	.00	1328.00	15050.00	1340.83	.00	1341.06	11.18	2.85	3924.10	4500.33
24.080	898.00	.00	.00	1329.00	15050.00	1341.02	.00	1341.13	13.52	4.10	5841.19	4092.47
24.080	898.00	.00	.00	1329.00	15050.00	1341.77	.00	1341.89	11.85	3.98	5700.20	4371.79
24.220	760.00	.00	.00	1328.00	15050.00	1341.95	.00	1342.14	22.32	5.27	5032.42	3185.53
24.220	760.00	.00	.00	1328.00	15050.00	1342.63	.00	1342.87	23.07	5.66	4463.08	3133.47
24.250	1335.00	.00	.00	1330.00	15050.00	1344.06	.00	1344.25	19.34	5.08	5302.56	3422.64
24.250	1335.00	.00	.00	1330.00	15050.00	1344.81	.00	1345.04	19.03	5.35	4763.36	3449.75
24.420	400.00	.00	.00	1331.90	15050.00	1344.78	.00	1345.67	39.60	7.60	1981.12	2391.46
24.420	400.00	.00	.00	1331.90	15050.00	1345.49	.00	1346.26	30.70	7.04	2138.47	2716.33
24.430	50.00	1350.40	1346.60	1331.90	15050.00	1344.85	.00	1345.73	38.60	7.54	1996.51	2422.50
24.430	50.00	1350.40	1346.60	1331.90	15050.00	1345.55	.00	1346.31	30.15	7.00	2150.02	2740.82
24.470	220.00	.00	.00	1331.00	15050.00	1346.14	.00	1346.23	6.67	3.31	7975.61	5827.69
24.470	220.00	.00	.00	1331.00	15050.00	1346.64	.00	1346.70	4.73	2.87	9007.63	6922.87

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CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
22.130	15050.00	1337.60	.00	.00	.00	2088.80	.00
22.130	15050.00	1338.50	.90	.00	.90	1313.00	.00
22.570	15050.00	1338.65	.00	1.05	.00	1516.83	2325.00
22.570	15050.00	1339.43	.79	.93	.79	928.00	2325.00
22.779	15050.00	1339.19	.00	.55	.00	1887.62	1104.00
22.779	15050.00	1340.02	.82	.58	.82	1414.66	1104.00
22.842	15050.00	1339.21	.00	.02	.00	1795.20	333.00
22.842	15050.00	1340.03	.82	.02	.82	1269.94	333.00
22.860	15050.00	1339.24	.00	.02	.00	1765.46	96.00
22.860	15050.00	1340.05	.82	.02	.82	1256.06	96.00
22.908	15050.00	1339.25	.00	.01	.00	1779.99	251.00
22.908	15050.00	1340.07	.82	.01	.82	1272.87	251.00
23.833	15050.00	1340.06	.00	.81	.00	1418.58	4884.00
23.833	15050.00	1340.83	.77	.77	.77	889.55	4884.00
24.080	15050.00	1341.02	.00	.96	.00	1690.63	898.00
24.080	15050.00	1341.77	.75	.94	.75	1377.16	898.00
24.220	15050.00	1341.95	.00	.93	.00	1614.47	760.00
24.220	15050.00	1342.63	.68	.86	.68	1155.00	760.00
24.250	15050.00	1344.06	.00	2.11	.00	1763.45	1335.00
24.250	15050.00	1344.81	.75	2.18	.75	1251.00	1335.00
24.420	15050.00	1344.78	.00	.72	.00	220.00	400.00
24.420	15050.00	1345.49	.72	.68	.72	220.00	400.00
24.430	15050.00	1344.85	.00	.07	.00	220.00	50.00
24.430	15050.00	1345.55	.70	.05	.70	220.00	50.00
24.470	15050.00	1346.14	.00	1.30	.00	2055.83	220.00
24.470	15050.00	1346.64	.50	1.09	.50	2099.66	220.00

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FLOODWAY DATA, CSK CRK U/S 13TH TO END
PROFILE NO. 2

STATION	WIDTH	FLOODWAY SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
22.130	1313.	7819.	1.9	1338.5	1337.6	.9
22.570	928.	4330.	3.5	1339.4	1338.6	.8
22.779	1415.	7432.	2.0	1340.0	1339.2	.8
22.842	1270.	6881.	2.2	1340.0	1339.2	.8
22.860	1256.	7208.	2.1	1340.0	1339.2	.8
22.908	1273.	6817.	2.2	1340.0	1339.2	.8
23.833	890.	3924.	3.8	1340.9	1340.1	.8
24.080	1377.	5700.	2.6	1341.8	1341.0	.8
24.220	1155.	4463.	3.4	1342.6	1341.9	.7
24.250	1251.	4763.	3.2	1344.8	1344.1	.7
24.420	220.	2138.	7.0	1345.5	1344.8	.7
24.430	220.	2150.	7.0	1345.5	1344.8	.7
24.470	2255.	9008.	1.7	1346.6	1346.1	.5

GOWSKIN CREEK

13TH TO 10/25 FROM 21ST

w/ New X- Sees for Autumn
Ridge & Teal Break

File CSKTLBK24C2

09/12/88 13:26:09

PAGE 1

THIS RUN EXECUTED 09/12/88 13:26:17

HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984

ERROR CORR - 01,02,03,04,05,06

MODIFICATION - 50,51,52,53,54,55,56

IBM-PC-XT VERSION APRIL 1985

C SEDGWICK COUNTY, KANSAS COMSKIN CREEK NATURAL 100-YEAR PROFILE
 T1 HNTB INPUT DATA W/NEW SECTIONS BETWEEN G&D SECTIONS W AND X
 T2 CSK CRK U/S 13TH TO END OF DETAILED STUDY FILE CSKTLBK2.HC2
 T3

J1	ICHECK	INQ	2.	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
0.				0.	0.	.000000	.00	.0	0.	1337.600	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
.000			-1.000	.000	.000	.000	.000	.000	.000	.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.000	150.000	200.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.054	.053	.050	.300	.500	.000	.000	.000	.000	.000	.000
QT	2.000	15050.000	15050.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	.000	10700.000	12013.000	.000
X1	22.130	36.000	10700.000	10760.000	.000	.000	.000	.000	.000	.000	.000
GR	1350.000	10000.000	1348.000	10055.000	1346.000	10130.000	1344.000	10190.000	1342.000	10365.000	.000
GR	1340.000	10404.000	1338.000	10450.000	1336.000	10492.000	1334.000	10640.000	1332.000	10675.000	.000
GR	1330.000	10700.000	1328.000	10714.000	1326.000	10718.000	1324.000	10720.000	1321.000	10730.000	.000
GR	1322.000	10735.000	1326.000	10737.000	1328.000	10740.000	1330.000	10742.000	1332.000	10752.000	.000
GR	1334.000	10760.000	1334.000	10795.000	1332.000	10844.000	1334.000	10884.000	1334.000	10942.000	.000
GR	1332.000	11250.000	1333.000	11990.000	1334.000	12120.000	1336.000	12480.000	1338.000	12564.000	.000
GR	1340.000	12620.000	1342.000	12640.000	1344.000	12660.000	1346.000	12680.000	1348.000	12710.000	.000
GR	1350.000	12730.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	.000	10708.000	11636.000	.000
X1	22.570	35.000	10710.000	10782.000	1500.000	1100.000	2325.000	.000	.000	.000	.000
GR	1352.000	10000.000	1350.000	10145.000	1348.000	10210.000	1346.000	10276.000	1344.000	10316.000	.000
GR	1342.000	10370.000	1340.000	10410.000	1338.000	10448.000	1336.000	10550.000	1336.000	10580.000	.000
GR	1334.000	10710.000	1332.000	10718.000	1330.000	10728.000	1326.000	10732.000	1323.600	10734.000	.000
GR	1323.100	10744.000	1323.600	10754.000	1330.000	10760.000	1332.000	10766.000	1334.000	10776.000	.000
GR	1336.000	10782.000	1336.000	10870.000	1336.400	11000.000	1336.000	11150.000	1334.000	11315.000	.000
GR	1334.000	11345.000	1334.700	11610.000	1336.000	11790.000	1338.000	11930.000	1340.000	12000.000	.000
GR	1342.000	12030.000	1344.000	12064.000	1346.000	12110.000	1348.000	12140.000	1350.000	12190.000	.000

NH	4.000	.050	360.000	.065	442.000	.054	1040.000	.035	2500.000	.000
ET	.000	.000	7.400	.000	.000	.000	.000	.000	.000	.000
	NEW CROSS SECTION W-1									
X1	22.779	40.000	360.000	442.000	510.000	400.000	1104.000	.000	.000	.000
GR	1350.000	250.000	1348.000	275.000	1346.000	295.000	1344.000	332.000	1342.000	340.000
GR	1340.000	350.000	1338.000	355.000	1336.000	360.000	1334.000	365.000	1332.000	375.000
GR	1330.000	385.000	1328.000	390.000	1326.000	392.000	1324.000	396.000	1324.000	410.000
GR	1330.000	420.000	1332.000	422.000	1334.000	430.000	1336.000	442.000	1336.000	570.000
GR	1336.000	730.000	1334.000	880.000	1334.000	910.000	1334.000	970.000	1336.000	1010.000
GR	1336.000	1040.000	1336.000	1145.000	1336.000	1230.000	1334.500	1330.000	1334.000	1440.000
GR	1334.000	1520.000	1334.000	1630.000	1336.000	2150.000	1338.000	2180.000	1340.000	2280.000
GR	1342.000	2360.000	1344.000	2385.000	1346.000	2420.000	1348.000	2470.000	1350.000	2500.000
NH	4.000	.050	600.000	.065	680.000	.054	1225.000	.035	2495.000	.000
	NEW CROSS SECTION W-2									
X1	22.842	34.000	600.000	680.000	245.000	25.000	333.000	.000	.000	.000
GR	1350.000	15.000	1348.000	55.000	1346.000	105.000	1344.000	210.000	1342.000	320.000
GR	1340.000	400.000	1338.000	495.000	1336.000	500.000	1334.000	500.000	1332.000	620.000
GR	1330.000	635.000	1328.000	650.000	1328.000	665.000	1330.000	670.000	1332.000	675.000
GR	1334.000	680.000	1336.000	700.000	1336.000	735.000	1334.000	970.000	1334.000	1005.000
GR	1336.000	1040.000	1336.000	1140.000	1336.000	1225.000	1334.000	1430.000	1334.000	1520.000
GR	1334.000	1620.000	1336.000	2150.000	1338.000	2190.000	1340.000	2260.000	1342.000	2340.000
GR	1344.000	2380.000	1346.000	2405.000	1348.000	2455.000	1350.000	2495.000	.000	.000
NH	4.000	.050	590.000	.065	705.000	.054	1155.000	.035	2490.000	.000
	NEW CROSS SECTION W-3									
X1	22.860	39.000	590.000	705.000	45.000	30.000	96.000	.000	.000	.000
GR	1350.000	20.000	1348.000	50.000	1346.000	90.000	1344.000	185.000	1342.000	280.000
GR	1340.000	390.000	1340.000	430.000	1340.000	440.000	1338.000	500.000	1336.000	510.000
GR	1334.000	590.000	1332.000	625.000	1330.000	650.000	1328.000	660.000	1326.000	670.000
GR	1326.000	590.000	1330.000	695.000	1332.000	700.000	1334.000	705.000	1336.000	725.000
GR	1336.000	780.000	1335.000	900.000	1334.000	995.000	1334.000	1020.000	1336.000	1040.000
GR	1336.000	1070.000	1335.600	1155.000	1334.000	1410.000	1332.500	1445.000	1334.000	1500.000
GR	1334.000	1610.000	1336.000	2150.000	1338.000	2185.000	1340.000	2255.000	1342.000	2330.000
GR	1344.000	2380.000	1346.000	2405.000	1348.000	2450.000	1350.000	2490.000	.000	.000
NH	5.000	.035	695.000	.055	1030.000	.065	1350.000	.054	1870.000	.035
NH	3010.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	NEW CROSS SECTION W-4									
X1	22.908	37.000	1105.000	1170.000	195.000	13.000	251.000	.000	.000	.000
GR	1350.000	150.000	1348.000	355.000	1346.000	560.000	1346.000	620.000	1344.000	695.000
GR	1342.000	900.000	1340.000	940.000	1338.000	1030.000	1334.000	1105.000	1330.000	1120.000
GR	1328.000	1125.000	1328.000	1150.000	1330.000	1152.000	1332.000	1160.000	1334.000	1170.000
GR	1336.000	1200.000	1336.400	1270.000	1336.200	1350.000	1336.000	1400.000	1334.000	1570.000
GR	1334.000	1590.000	1336.000	1610.000	1336.000	1640.000	1336.500	1700.000	1334.600	1870.000
GR	1334.000	1950.000	1335.500	2000.000	1334.000	2050.000	1334.000	2175.000	1336.000	2680.000
GR	1338.000	2710.000	1340.000	2780.000	1342.000	2845.000	1344.000	2890.000	1346.000	2910.000
GR	1348.000	2960.000	1350.000	3010.000	.000	.000	.000	.000	.000	.000

NH	5.000	.035	625.000	.040	1030.000	.035	2065.000	.065	2380.000	.040
NH	2490.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
NEW CROSS SECTION W-5										
X1	23.833	31.000	2110.000	2155.000	285.000	1632.000	4884.000	.000	.000	.000
GR	1350.000	170.000	1348.000	370.000	1346.000	595.000	1346.000	625.000	1344.000	760.000
GR	1342.000	840.000	1340.000	900.000	1338.000	1030.000	1336.000	1200.000	1334.000	1265.000
GR	1333.000	1330.000	1334.000	1360.000	1336.000	1440.000	1337.000	1820.000	1338.000	1980.000
GR	1340.000	2065.000	1340.000	2100.000	1338.000	2110.000	1336.000	2113.000	1330.000	2130.000
GR	1328.000	2132.000	1328.000	2140.000	1330.000	2142.000	1338.000	2155.000	1339.000	2235.000
GR	1340.000	2315.000	1342.000	2380.000	1344.000	2410.000	1344.000	2440.000	1344.000	2475.000
GR	1350.000	2490.000	.000	.000	.000	.000	.000	.000	.000	.000
G&D CROSS SECTION X										
NC	.054	.053	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	10588.000	11995.000	.000
G&D CROSS SECTION Y										
X1	24.080	33.000	11905.000	11995.000	660.000	600.000	898.000	.000	.000	.000
GR	1352.500	10000.000	1352.000	10045.000	1350.000	10104.000	1348.000	10112.000	1348.000	10145.000
GR	1344.000	10210.000	1344.000	10244.000	1340.000	10282.000	1338.000	10330.000	1336.000	10550.000
GR	1336.000	10950.000	1338.000	10980.000	1338.500	11080.000	1338.000	11190.000	1337.200	11270.000
GR	1338.000	11485.000	1340.500	11825.000	1340.000	11905.000	1338.000	11912.000	1330.000	11920.000
GR	1329.000	11924.000	1329.000	11946.000	1330.000	11948.000	1340.000	11960.000	1352.000	11995.000
GR	1356.000	12016.000	1356.000	12315.000	1358.000	12370.000	1358.000	12505.000	1358.500	12590.000
GR	1360.000	12654.000	1360.000	12700.000	1362.000	12855.000	.000	.000	.000	.000
NEW CROSS SECTION TO MODEL TEAL BROOK FLOOD PLAIN FILL										
NC	.065	.053	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	1545.000	2700.000	.000
NEW CROSS SECTION Y-2 AT LOCATION OF G&D CROSS SECTION Y W/TEAL BROOK FLDY										
X1	24.220	24.000	2520.000	2615.000	520.000	560.000	760.000	.000	.000	.000
GR	1344.000	1000.000	1342.000	1050.000	1340.000	1210.000	1338.000	1480.000	1334.000	1485.000
GR	1334.000	1510.000	1338.000	1530.000	1338.000	2030.000	1334.000	2040.000	1334.000	2065.000
GR	1336.000	2070.000	1338.000	2110.000	1340.000	2150.000	1342.000	2500.000	1342.000	2520.000
GR	1340.000	2335.000	1328.000	2345.000	1328.000	2360.000	1340.000	2615.000	1342.000	2700.000
GR	1344.000	2710.000	1346.000	2730.000	1348.000	2795.000	1350.000	2805.000	.000	.000
NEW CROSS SECTION Y-2 AT LOCATION OF G&D CROSS SECTION Y W/TEAL BROOK FLDY										
NC	.000	.000	.000	.300	.500	.000	.000	.000	.000	.000
NH	7.000	.065	11130.000	.990	11215.000	.065	11870.000	.050	11985.000	.053
NH	12190.000	.990	12250.000	.053	12505.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	10665.000	12080.000	.000
NEW CROSS SECTION Y-2 AT LOCATION OF G&D CROSS SECTION Y W/TEAL BROOK FLDY										
X1	24.250	64.000	11620.000	11735.000	880.000	540.000	455.000	.000	.000	.000
GR	1352.500	10000.000	1352.000	10115.000	1350.000	10212.000	1348.000	10293.000	1346.000	10310.000
GR	1344.000	10340.000	1342.000	10383.000	1340.000	10435.000	1340.000	10510.000	1340.000	10680.000
GR	1340.000	10740.000	1340.000	10815.000	1338.000	10822.000	1336.000	10830.000	1336.000	10860.000
GR	1338.000	10865.000	1340.000	10875.000	1340.200	10895.000	1342.000	10915.000	1342.500	10955.000
GR	1342.000	10990.000	1342.000	11050.000	1342.900	11100.000	1344.000	11130.000	1344.000	11215.000
GR	1343.000	11245.000	1342.000	11283.000	1340.000	11300.000	1334.000	11310.000	1334.000	11315.000
GR	1340.000	11340.000	1340.000	11385.000	1342.000	11520.000	1340.000	11550.000	1338.000	11560.000
GR	1336.000	11590.000	1336.000	11595.000	1340.000	11600.000	1342.000	11610.000	1342.000	11715.000
GR	1340.000	11720.000	1332.000	11745.000	1332.000	11795.000	1340.000	11820.000	1342.000	11850.000
GR	1342.000	11870.000	1340.000	11900.000	1338.000	11915.000	1330.000	11960.000	1329.000	11965.000
GR	1330.000	11980.000	1340.000	11985.000	1342.000	12120.000	1344.000	12160.000	1346.000	12180.000
GR	1347.000	12190.000	1347.000	12250.000	1348.000	12270.000	1350.000	12300.000	1352.000	12345.000
GR	1354.000	12380.000	1356.000	12420.000	1358.000	12463.000	1360.000	12505.000	.000	.000

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THIS RUN EXECUTED 09/12/88 13:34:52

 HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
 ERROR CORR - 01,02,03,04,05,06
 MODIFICATION - 50,51,52,53,54,55,56
 IBM-PC-XI VERSION APRIL 1985

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 110

SECD	CWSEL	DIFKWS	EG	TOPWID	GLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
22.130	1337.60	.00	1337.65	2088.80	1061.76	1675.95	12312.29	.00	.00	10700.00	10760.00	.00
22.130	1338.50	.90	1338.56	1313.00	.00	1704.77	13345.23	1313.00	10700.00	10700.00	10760.00	12013.00
22.570	1338.65	.00	1338.83	1516.83	1748.26	3691.19	9610.55	.00	.00	10710.00	10782.00	.00
22.570	1339.43	.79	1339.67	928.00	15.85	4126.73	10907.41	928.00	10708.00	10710.00	10782.00	11636.00
22.779	1339.19	.00	1339.25	1887.62	11.00	1407.52	13631.48	.00	.00	360.00	442.00	.00
22.779	1340.02	.82	1340.08	1414.66	.00	1524.74	13525.26	.22	360.00	360.00	442.00	1774.66
22.842	1339.21	.00	1339.28	1795.20	707.96	1373.12	12968.92	.00	.00	600.00	680.00	.00
22.842	1340.03	.82	1340.11	1269.94	.00	1475.70	13574.30	.22	600.00	600.00	680.00	1869.94
22.860	1339.24	.00	1339.29	1765.46	531.73	1937.08	12581.19	.00	.00	590.00	705.00	.00
22.860	1340.05	.82	1340.12	1256.06	.00	2102.82	12947.18	.21	590.00	590.00	705.00	1846.06
22.908	1339.25	.00	1339.32	1779.99	279.45	1243.84	13526.71	.00	.00	1105.00	1170.00	.00
22.908	1340.07	.82	1340.14	1272.87	.00	1316.56	13733.44	.22	1105.00	1105.00	1170.00	2377.87
23.833	1340.06	.00	1340.25	1418.58	13907.93	987.58	154.49	.00	.00	2110.00	2155.00	.00
23.833	1340.83	.77	1341.06	889.55	13959.05	1090.95	.00	.25	1265.45	2110.00	2155.00	2155.00
24.080	1341.02	.00	1341.13	1690.63	13092.34	1957.66	.00	.00	.00	11905.00	11995.00	.00
24.080	1341.77	.75	1341.89	1377.16	12973.06	2076.94	.00	1407.00	10588.00	11905.00	11995.00	11995.00
24.220	1341.95	.00	1342.14	1614.47	11040.55	3904.35	105.09	.00	.00	2520.00	2615.00	.00
24.220	1342.63	.68	1342.87	1155.00	10240.00	4552.80	257.20	1155.00	1545.00	2520.00	2615.00	2700.00
24.250	1343.23	.00	1343.35	1658.45	.00	.00	15050.00	.00	.00	10000.00	10000.00	.00
24.250	1343.87	.64	1344.00	1322.39	.00	.00	15050.00	1415.00	10665.00	10000.00	10000.00	12080.00
24.420	1344.71	.00	1345.62	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.420	1345.13	.42	1345.96	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00

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SECNO	CHSEL	DIFKWS	EG	TOPWID	QLOB	QCH	OROB	PERENC	STENCL	STOHL	STCHR	STENCR
24.430	1344.78	.00	1345.67	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.430	1345.19	.41	1346.01	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.470	1346.09	.00	1346.18	2051.45	4753.64	4978.05	5318.31	.00	.00	11550.00	11722.00	.00
24.470	1346.38	.28	1346.45	2076.55	4923.64	4736.18	5390.17	.00	.00	11550.00	11722.00	.00

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CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECD	XLCH	ELTRD	ELLC	ELMIN	Q	OWSEL	CRIMS	EG	10K*S	VCH	AREA	.01K
22.130	.00	.00	.00	1321.00	15050.00	1337.60	.00	1337.65	4.73	2.80	8793.89	6923.26
22.130	.00	.00	.00	1321.00	15050.00	1338.50	.00	1338.56	4.31	2.61	7818.96	7253.11
22.570	2325.00	.00	.00	1323.10	15050.00	1338.65	.00	1338.83	17.71	5.33	5045.01	3576.36
22.570	2325.00	.00	.00	1323.10	15050.00	1339.43	.00	1339.67	17.03	5.50	4329.76	3647.03
22.779	1104.00	.00	.00	1324.00	15050.00	1339.19	.00	1339.25	3.87	1.89	7852.61	7649.40
22.779	1104.00	.00	.00	1324.00	15050.00	1340.02	.00	1340.08	3.62	1.87	7432.30	7913.28
22.842	333.00	.00	.00	1328.00	15050.00	1339.21	.00	1339.28	4.35	1.98	7474.60	7218.91
22.842	333.00	.00	.00	1328.00	15050.00	1340.03	.00	1340.11	4.09	1.95	6881.31	7443.77
22.860	96.00	.00	.00	1326.00	15050.00	1339.24	.00	1339.29	3.61	1.86	7833.48	7925.24
22.860	96.00	.00	.00	1326.00	15050.00	1340.05	.00	1340.12	3.41	1.85	7207.79	8145.13
22.908	251.00	.00	.00	1328.00	15050.00	1339.25	.00	1339.32	4.69	2.11	7315.79	6952.20
22.908	251.00	.00	.00	1328.00	15050.00	1340.07	.00	1340.14	4.42	2.05	6816.88	7155.50
23.833	4884.00	.00	.00	1328.00	15050.00	1340.06	.00	1340.25	11.70	2.83	4394.61	4399.69
23.833	4884.00	.00	.00	1328.00	15050.00	1340.83	.00	1341.06	11.18	2.85	3924.10	4500.33
24.080	898.00	.00	.00	1329.00	15050.00	1341.02	.00	1341.13	13.52	4.10	5841.19	4092.47
24.080	898.00	.00	.00	1329.00	15050.00	1341.77	.00	1341.89	11.85	3.98	5700.20	4371.79
24.220	760.00	.00	.00	1328.00	15050.00	1341.95	.00	1342.14	22.32	5.27	5032.42	3185.53
24.220	760.00	.00	.00	1328.00	15050.00	1342.63	.00	1342.87	23.07	5.66	4463.08	3133.47
24.250	455.00	.00	.00	1329.00	15050.00	1343.23	.00	1343.35	15.12	.00	5324.25	3870.47
24.250	455.00	.00	.00	1329.00	15050.00	1343.87	.00	1344.00	13.04	.00	5212.26	4167.51
24.420	880.00	.00	.00	1331.90	15050.00	1344.71	.00	1345.62	36.20	7.66	1965.41	2501.53
24.420	880.00	.00	.00	1331.90	15050.00	1345.13	.00	1345.96	31.07	7.31	2057.56	2700.03
24.430	50.00	1350.40	1346.60	1331.90	15050.00	1344.78	.00	1345.67	35.24	7.60	1981.26	2535.23
24.430	50.00	1350.40	1346.60	1331.90	15050.00	1345.19	.00	1346.01	30.35	7.26	2072.00	2731.70
24.470	220.00	.00	.00	1331.00	15050.00	1346.09	.00	1346.18	7.05	3.30	7873.83	5668.70
24.470	220.00	.00	.00	1331.00	15050.00	1346.38	.00	1346.45	5.74	3.04	8460.88	6283.54

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CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECD	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
22.130	15050.00	1337.60	.00	.00	.00	2088.80	.00
22.130	15050.00	1338.50	.90	.00	.90	1313.00	.00
22.570	15050.00	1338.65	.00	1.05	.00	1516.83	2325.00
22.570	15050.00	1339.43	.79	.93	.79	928.00	2325.00
22.779	15050.00	1339.19	.00	.55	.00	1887.62	1104.00
22.779	15050.00	1340.02	.82	.58	.82	1414.66	1104.00
22.842	15050.00	1339.21	.00	.02	.00	1795.20	333.00
22.842	15050.00	1340.03	.82	.02	.82	1269.94	333.00
22.860	15050.00	1339.24	.00	.02	.00	1765.46	96.00
22.860	15050.00	1340.05	.82	.02	.82	1256.06	96.00
22.908	15050.00	1339.25	.00	.01	.00	1779.99	251.00
22.908	15050.00	1340.07	.82	.01	.82	1272.87	251.00
23.833	15050.00	1340.06	.00	.81	.00	1418.58	4884.00
23.833	15050.00	1340.83	.77	.77	.77	889.55	4884.00
24.080	15050.00	1341.02	.00	.96	.00	1690.63	898.00
24.080	15050.00	1341.77	.75	.94	.75	1377.16	898.00
24.220	15050.00	1341.95	.00	.93	.00	1614.47	760.00
24.220	15050.00	1342.63	.68	.86	.68	1155.00	760.00
24.250	15050.00	1343.23	.00	1.28	.00	1658.45	455.00
24.250	15050.00	1343.87	.64	1.24	.64	1322.39	455.00
24.420	15050.00	1344.71	.00	1.48	.00	220.00	880.00
24.420	15050.00	1345.13	.42	1.26	.42	220.00	880.00
24.430	15050.00	1344.78	.00	.07	.00	220.00	50.00
24.430	15050.00	1345.19	.41	.06	.41	220.00	50.00
24.470	15050.00	1346.09	.00	1.32	.00	2051.45	220.00
24.470	15050.00	1346.38	.28	1.19	.28	2076.55	220.00

09/12/88 13:26:09

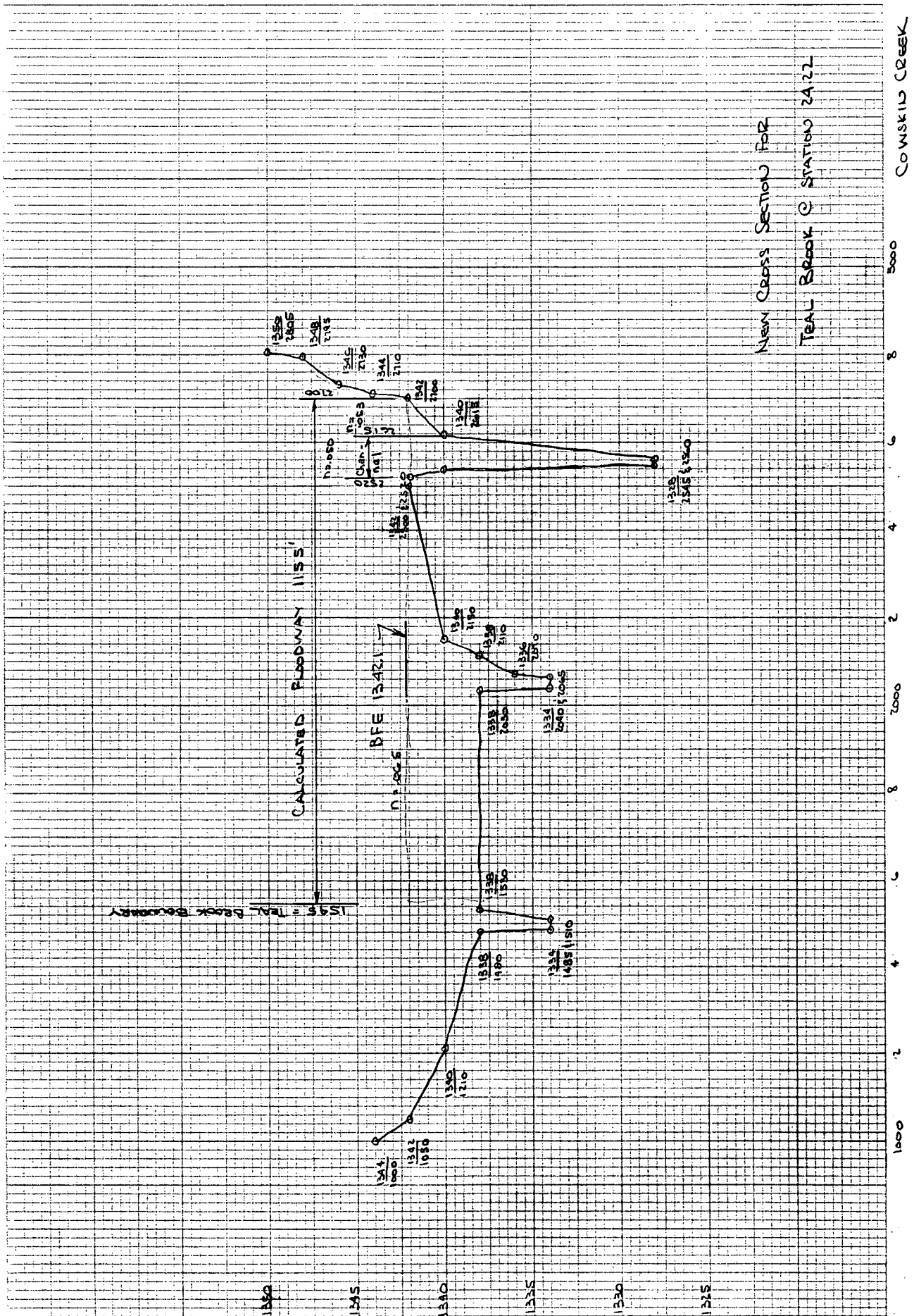
SUMMARY OF ERRORS AND SPECIAL NOTES

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FLOODWAY DATA, CSK CRK U/S 13TH TO END
PROFILE NO. 2

STATION	FLOODWAY		MEAN VELOCITY	WATER SURFACE ELEVATION	
	WIDTH	SECTION AREA		WITH FLOODWAY	WITHOUT FLOODWAY
22.130	1313.	7819.	1.9	1338.5	1337.6
22.570	928.	4330.	3.5	1339.4	1338.6
22.779	1415.	7432.	2.0	1340.0	1339.2
22.842	1270.	6881.	2.2	1340.0	1339.2
22.860	1256.	7208.	2.1	1340.0	1339.2
22.908	1273.	6817.	2.2	1340.0	1339.2
23.833	890.	3924.	3.8	1340.9	1340.1
24.080	1377.	5700.	2.6	1341.8	1341.0
24.220	1155.	4463.	3.4	1342.6	1341.9
24.250	1415.	5212.	2.9	1343.8	1343.2
24.420	220.	2058.	7.3	1345.1	1344.7
24.430	220.	2072.	7.3	1345.2	1344.8
24.470	2241.	8461.	1.8	1346.4	1346.1
					.3



NEW CROSS SECTION FOR

TEAL BROOK @ STATION 24.22

COWSKILL CREEK

