ENGINEERING DIVISION

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APPENDICES TO SEDIMENT TRANSPORT AND MINE PLAN STUDY FOR ALLIED CONCRETE COMPANY CENTER STREET PROPERTY

CMG DRAINAGE
ENGINEERING, INC.

ENGINEERING DIVISION

LIBRARY

APPENDICES TO SEDIMENT TRANSPORT AND MINE PLAN STUDY FOR ALLIED CONCRETE COMPANY CENTER STREET PROPERTY

Prepared For:

CALMAT COMPANY OF ARIZONA
P.O. BOX 52012
PHOENIX, AZ 85072

Submitted by:

CMG DRAINAGE ENGINEERING, INC.
201 N. STONE AVENUE, STE. 200
TUCSON, AZ 85701
882-4244

NOVEMBER 29, 1988

Registered Professional Engineer (Civil)
CERTIFICATE NO. 15275
CLINTON MURRAY GLASS
Date Signed 11/29/88
ARIZONA, U.S.A.

ENGINEERING DIVISION
LIBRARY

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Registered Professional Engineer (Civil)
CERTIFICATE NO.
15275
CLINTON MURRAY
GLASS
Date Signed 11/29/90
ARIZONA, U.S.A.

APPENDIX A

FEMA HEC-II MODEL INPUT/OUTPUT WITH FLOW DISTRIBUTION AND COMPUTER DISK

THIS RUN EXECUTED 01/01/80 07:25:10

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*************************************************
  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
*************************************************
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FEMA BASELINE HECII MODEL
MULTIPLE PROFILE WITH FLOW DIST.
11/9/88

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T1 SALT RIVER FLOOD INSURANCE STUDY, COUNTRY CLUB TO GRANITE REEF
T2 INPUT FILE:SALTQ  (EXISTING CONDITIONS)
T3 BY CMG DRAINAGE ENGINEERING,JOB# 88052

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0.       2.       0.       0.   .000000     .00      .0       0.  1217.310   .000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1.000    .000   -1.000    .000     .000     .000     .000     .000     .000    15.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000   43.000   25.000   1.000    8.000   42.000   14.000   25.000    4.000   53.000

    54.000    .000     .000     .000     .000     .000     .000     .000     .000     .000

NC      .025     .025     .025     .300     .500     .000     .000     .000     .000     .000
QT    11.000 20000.000 40000.000 60000.000 80000.000 100000.000 120000.000 140000.000 160000.000 180000.000
QT 200000.000 225000.000    .000     .000     .000     .000     .000     .000     .000     .000
X1    28.259    6.000 5000.000 6340.000     .000     .000     .000     .000     .000     .000
X2      .000     .000     .000     .000     .000     .000     .000     .000     .000    15.000
GR  1218.000 5000.000 1200.000 5050.000 1200.000 5450.000 1199.000 5800.000 1200.000 6270.000
GR  1220.000 6340.000    .000     .000     .000     .000     .000     .000     .000     .000

NC      .025     .025     .025     .100     .300     .000     .000     .000     .000     .000
NH     2.000     .035 9300.000     .025 11999.200     .000     .000     .000     .000     .000
ET      .000     .000    4.100 9300.000 10900.000     .000     .000     .000     .000     .000
X1    28.646   17.000 9945.600 10770.200 1650.000 1450.000 1520.000     .000     .000     .000
X2      .000     .000     .000     .000     .000     .000     .000     .000     .000    15.000
GR  1220.500 9080.600 1220.000 9300.000 1212.700 9369.100 1208.900 9502.000 1207.500 9637.000
GR  1211.800 9592.500 1213.700 9945.600 1213.000 10000.000 1209.800 10083.000 1197.400 10329.400
GR  1197.200 10519.900 1202.700 10659.800 1213.000 10770.200 1211.100 11095.400 1221.600 11153.500
GR  1221.200 11569.900 1222.500 11999.200     .000     .000     .000     .000     .000     .000

NC      .025     .025     .025     .000     .000     .000     .000     .000     .000     .000
ET      .000     .000    4.100 9200.000 10900.000     .000     .000     .000     .000     .000
X1    28.831   17.000 10185.700 10495.800  950.000 1010.000 1000.000     .000     .000     .000
X2      .000     .000     .000     .000     .000     .000     .000     .000     .000    15.000
GR  1223.900 8570.200 1221.000 8772.900 1221.000 8851.300 1221.000 9200.000 1199.000 9280.000
GR  1199.000 9450.000 1210.500 9515.900 1205.000 9859.900 1205.400 10000.000 1204.700 10185.700
GR  1199.400 10253.000 1199.400 10404.000 1207.100 10495.800 1207.500 10551.400 1217.400 10992.500
GR  1212.900 11123.000 1224.200 11306.900     .000     .000     .000     .000     .000     .000
```

ET	.000	.000	4.100	9100.000	10750.000	.000	.000	.000	.000	.000
X1	29.017	16.000	9351.500	10519.800	1000.000	1020.000	1020.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1222.000	9929.300	1222.000	8967.900	1222.000	9100.000	1205.300	9178.900	1211.500	9444.800
GR	1209.400	9861.500	1199.800	10000.000	1199.400	10060.900	1204.100	10185.600	1204.700	10522.000
GR	1199.100	10575.700	1215.300	10519.800	1213.200	10537.100	1211.500	10593.300	1210.000	10750.000
GR	1230.200	11800.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	4.100	9400.000	10900.000	.000	.000	.000	.000	.000
X1	29.221	27.000	9684.700	10402.600	950.000	970.000	1020.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1227.500	6376.000	1227.700	6959.700	1225.000	7824.900	1225.000	8100.900	1225.200	8132.200
GR	1225.000	8235.300	1225.000	8413.800	1225.000	8430.500	1225.000	8470.700	1225.000	8560.400
GR	1234.900	8945.900	1231.400	9076.700	1225.000	9117.700	1221.900	9185.800	1206.700	9233.800
GR	1207.700	9409.000	1208.000	9584.700	1204.300	9905.700	1202.200	10000.000	1201.500	10003.000
GR	1209.200	10231.100	1213.500	10402.600	1214.200	10755.200	1212.500	10900.000	1230.000	10950.000
GR	1230.800	11296.500	1234.700	11741.700	.000	.000	.000	.000	.000	.000
ET	.000	.000	4.100	9150.000	11300.000	.000	.000	.000	.000	.000
X1	29.473	21.000	9359.600	10096.700	1030.000	970.000	1300.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1229.100	6815.500	1230.200	7351.900	1228.300	8005.100	1225.900	8829.500	1219.000	8886.700
GR	1230.900	9018.300	1231.000	9106.100	1207.500	9150.700	1205.700	9359.500	1203.000	9530.400
GR	1209.200	9819.000	1207.000	10000.000	1215.000	10096.700	1216.000	11008.400	1211.200	11300.000
GR	1233.500	11530.000	1233.500	11513.600	1233.500	11784.900	1235.600	11990.400	1247.000	12122.200
GR	1247.900	12470.900	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	4.100	8850.000	11270.000	.000	.000	.000	.000	.000
X1	29.575	30.000	9012.500	9284.300	920.000	1020.000	1060.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1230.700	6855.200	1231.000	7462.300	1231.200	8005.500	1231.100	8295.400	1225.000	8707.100
GR	1224.900	8819.200	1204.100	8831.400	1202.900	8958.200	1214.900	9012.500	1198.900	9036.000
GR	1198.400	9185.000	1210.800	9284.300	1211.900	9616.000	1211.200	9859.700	1215.500	9994.300
GR	1215.400	10000.000	1220.100	10119.500	1215.000	10982.900	1214.600	11120.700	1215.000	11167.500
GR	1215.000	11446.000	1215.000	11509.700	1215.400	11543.900	1208.700	11591.700	1206.000	11668.700
GR	1200.100	11690.000	1239.300	11929.000	1240.200	12104.500	1248.500	12214.900	1251.400	12565.900
ET	.000	.000	4.100	9400.000	10920.000	.000	.000	.000	.000	.000
X1	29.981	35.000	9163.400	10000.000	1530.000	1180.000	1600.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1234.800	6562.900	1234.300	7160.900	1235.100	7184.100	1236.100	7211.300	1234.300	7224.500
GR	1235.100	7403.400	1235.900	7425.700	1235.200	7711.500	1230.100	8141.100	1230.400	8269.800
GR	1231.900	8312.800	1233.100	8557.700	1234.700	8573.500	1233.500	8831.200	1233.100	8899.000
GR	1221.400	8943.900	1219.300	9054.800	1222.900	9163.400	1222.300	9449.200	1210.500	9490.800
GR	1209.500	9555.900	1209.100	9752.500	1215.300	9796.300	1215.300	9868.300	1217.800	9886.900
GR	1218.300	9987.200	1225.000	10000.000	1216.900	10040.500	1218.600	10104.000	1215.400	10377.600
GR	1210.500	10459.300	1220.700	10590.300	1216.300	10773.700	1216.000	10787.700	1228.000	10850.000

ET	.000	.000	4.100	9400.000	10820.000	.000	.000	.000	.000	.000
X1	29.982	.000	.000	.000	5.000	5.000	5.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
ET	.000	.000	4.100	9054.000	10900.000	.000	.000	.000	.000	.000
X1	30.194	59.000	9032.100	10000.000	1120.800	1170.000	1120.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1235.500	6087.700	1236.000	6154.700	1237.000	6189.200	1237.000	6233.700	1235.800	6275.700
GR	1236.900	6471.700	1237.000	6860.300	1237.700	7227.500	1238.500	7244.900	1238.900	7269.500
GR	1237.200	7303.600	1236.400	7464.400	1234.300	7532.900	1234.900	8218.200	1236.400	8761.000
GR	1237.500	8722.400	1237.700	8912.200	1235.300	9032.100	1225.200	9076.600	1218.100	9121.100
GR	1218.000	9208.700	1208.800	9299.800	1210.900	9411.500	1212.500	9480.400	1215.900	9559.500
GR	1220.700	9694.100	1221.500	9927.400	1228.500	10000.000	1224.300	10023.500	1224.500	10274.200
GR	1225.900	10494.900	1225.000	10540.100	1225.500	10735.000	1229.500	10875.700	1232.300	10921.800
GR	1232.300	11145.700	1249.900	11243.800	1250.800	11300.600	1245.000	11422.500	1245.000	11454.000
GR	1245.000	11545.500	1245.000	11573.600	1245.000	11632.300	1245.000	11650.000	1245.000	11791.100
GR	1245.000	11883.800	1245.000	12045.100	1245.000	12105.800	1245.000	12140.800	1245.000	12173.300
GR	1252.300	12290.100	1252.700	12480.300	1250.900	12512.200	1253.300	12528.100	1253.400	12554.300
GR	1250.900	12577.200	1252.200	12590.100	1253.900	12664.400	1254.100	12925.700	.000	.000
ET	.000	.000	4.100	9054.000	10800.000	.000	.000	.000	.000	.000
X1	30.195	.000	.000	.000	5.000	5.000	5.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
ET	.000	.000	4.100	9350.000	10775.000	.000	.000	.000	.000	.000
X1	30.458	43.000	9333.500	10777.300	1280.000	1030.000	1370.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1237.100	5516.200	1238.100	5079.400	1239.600	6123.200	1238.100	6776.500	1235.900	7337.600
GR	1236.600	7375.600	1237.000	7420.800	1235.800	7472.300	1235.700	7635.300	1238.200	7650.300
GR	1238.700	7580.000	1236.300	7696.100	1236.300	8052.800	1238.400	9178.000	1237.900	9293.700
GR	1239.100	9333.500	1231.700	9354.500	1230.000	9385.100	1222.300	9414.000	1215.900	9523.200
GR	1214.700	9624.500	1214.900	9850.200	1217.400	10000.000	1222.200	10122.500	1220.900	10270.000
GR	1220.200	10554.000	1227.700	10552.700	1227.900	10719.500	1233.700	10777.300	1251.400	10855.500
GR	1250.300	10944.500	1242.000	11057.500	1242.000	11086.900	1242.000	11212.400	1242.000	11257.900
GR	1242.000	11295.700	1242.000	11320.700	1242.000	11402.900	1242.000	11460.000	1242.000	11526.200
GR	1242.000	11574.800	1242.000	11629.500	1254.900	11553.500	.000	.000	.000	.000
ET	.000	.000	4.100	9310.000	10800.000	.000	.000	.000	.000	.000
X1	30.815	35.000	9559.200	11136.300	1350.000	1390.000	1830.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1239.900	5271.200	1239.500	5795.200	1241.100	5856.400	1238.200	6357.400	1239.300	6383.900
GR	1239.300	6408.900	1238.300	6442.000	1238.300	6533.600	1238.300	7017.600	1237.700	7620.100
GR	1237.700	7892.200	1239.000	7912.900	1238.500	8404.200	1240.300	8448.400	1240.300	8499.000
GR	1239.300	8870.100	1240.100	9221.800	1235.100	9405.900	1232.900	9470.500	1231.900	9514.000
GR	1236.500	9568.200	1226.200	9665.100	1226.500	9727.500	1218.100	9769.700	1217.500	9954.000
GR	1220.900	10000.000	1221.300	10345.200	1222.300	10487.000	1216.000	10770.500	1220.300	10871.500
GR	1251.500	11135.300	1255.500	11229.900	1256.500	11511.600	1259.200	11740.200	1257.500	11773.300
GR	1257.500	12053.000	.000	.000	.000	.000	.000	.000	.000	.000

ET	.000	.000	4.100	9410.000	10845.000	.000	.000	.000	.000	.000
X1	31.029	36.000	10322.800	10772.200	1060.000	1100.000	1100.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1243.500	8747.200	1240.600	8765.600	1241.200	8912.500	1239.800	9071.800	1236.000	9121.600
GR	1239.100	9144.100	1234.900	9199.200	1235.900	9326.400	1245.000	9349.800	1246.200	9382.500
GR	1235.700	9425.800	1233.800	9518.200	1230.900	9534.200	1227.800	9559.900	1232.600	9582.600
GR	1233.100	9756.800	1231.200	9882.100	1235.600	9931.100	1232.700	10000.000	1228.400	10127.100
GR	1225.100	10279.700	1228.000	10322.800	1224.400	10490.100	1218.000	10679.000	1212.700	10772.200
GR	1253.000	10984.900	1256.500	11057.200	1254.900	11307.200	1259.500	11350.400	1260.900	11645.100
GR	1258.300	11670.500	1260.400	11683.500	1260.700	11712.300	1258.300	11725.900	1260.900	11751.200
GR	1261.500	11994.800	.000	.000	.000	.000	.000	.000	.000	.000

ET	.000	.000	4.100	9410.000	10845.000	.000	.000	.000	.000	.000
X1	31.029	.000	.000	.000	5.000	5.000	5.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000

ET	.000	.000	4.100	8770.000	10990.000	.000	.000	.000	.000	.000
X1	31.301	43.000	9689.600	10867.500	1190.000	1360.000	1440.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1245.200	7959.200	1245.300	7989.000	1242.400	8027.100	1242.700	8305.300	1240.300	8705.800
GR	1235.700	8867.300	1235.700	9104.000	1237.600	9154.800	1235.700	9275.700	1231.400	9384.200
GR	1225.500	9589.600	1220.200	9713.800	1220.100	9786.300	1222.400	9835.900	1222.400	9877.300
GR	1224.800	9942.000	1228.000	10000.000	1229.700	10036.200	1229.400	10184.400	1232.200	10225.800
GR	1232.700	10375.200	1232.200	10437.400	1226.800	10547.400	1231.400	10585.600	1229.500	10626.700
GR	1221.600	10665.200	1220.700	10867.500	1263.000	10911.900	1252.800	11065.200	1261.200	11234.100
GR	1263.900	11423.900	1259.800	11595.100	1258.000	11611.900	1260.000	11647.000	1260.000	11685.500
GR	1257.300	11702.100	1259.400	11720.400	1259.800	11752.700	1255.600	11765.900	1259.300	11815.400
GR	1259.700	11936.500	1259.000	12047.100	1259.800	12118.100	.000	.000	.000	.000

ET	.000	.000	4.100	8250.000	11450.000	.000	.000	.000	.000	.000
X1	31.522	58.000	9428.600	11538.900	1120.000	1650.000	1160.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1247.000	7461.100	1244.400	7497.300	1244.900	7703.300	1245.200	8039.000	1235.100	8081.400
GR	1234.800	8179.100	1229.200	8272.700	1229.500	8334.700	1234.300	8401.800	1235.700	8483.900
GR	1240.000	8603.000	1237.200	8654.000	1236.700	8775.200	1242.200	8808.800	1242.900	8880.800
GR	1241.500	8924.600	1241.500	9026.100	1242.300	9062.900	1240.400	9162.300	1240.400	9235.300
GR	1244.500	9428.600	1233.400	9442.100	1229.600	9459.800	1228.600	9533.100	1229.100	9595.400
GR	1227.200	9685.400	1234.400	9740.400	1235.800	9872.400	1233.100	9957.400	1232.200	10000.000
GR	1233.100	10066.600	1234.900	10099.000	1238.000	10207.400	1238.400	10311.300	1236.800	10652.800
GR	1231.200	10705.700	1234.200	10790.500	1233.100	10902.800	1229.200	11141.200	1226.100	11281.200
GR	1224.400	11418.700	1230.000	11446.200	1230.600	11501.500	1264.300	11538.900	1264.400	11590.600
GR	1266.800	11671.000	1267.200	11759.900	1258.500	11785.700	1265.200	11821.400	1268.000	11873.600
GR	1270.500	12030.300	1254.400	12065.000	1265.700	12074.900	1265.700	12101.500	1264.500	12113.300
GR	1271.500	12160.800	1272.700	12335.100	1272.700	12497.900	.000	.000	.000	.000

ET	.000	.000	4.100	8230.000	11950.000	.000	.000	.000	.000	.000
X1	31.725	77.000	9544.000	11019.800	870.000	1530.000	1070.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1248.300	6763.800	1248.300	7039.500	1248.300	7384.700	1248.300	7411.400	1248.300	7433.100
GR	1243.500	7472.900	1244.800	7647.800	1245.900	7951.300	1237.300	7952.800	1234.900	8020.300
GR	1240.000	8055.500	1241.500	8168.900	1241.400	8355.000	1240.200	8460.300	1234.800	8503.500
GR	1234.800	8561.400	1229.500	8597.900	1236.400	8740.300	1240.400	8808.800	1241.000	8910.700
GR	1235.900	8953.300	1246.400	8985.400	1245.300	9028.700	1242.100	9063.600	1243.800	9153.500

GR	1244.100	9233.100	1241.000	9294.200	1245.000	9343.400	1246.400	9431.200	1246.200	9544.000
GR	1242.400	9529.800	1242.900	9673.000	1229.800	9724.400	1231.200	9822.000	1233.200	9959.900
GR	1236.900	9989.300	1236.900	10000.000	1239.400	10057.500	1234.700	10123.000	1237.600	10231.500
GR	1239.200	10342.000	1235.300	10482.600	1229.800	10535.800	1231.400	10639.000	1233.300	10688.200
GR	1229.700	10809.900	1230.900	10874.700	1234.000	10908.800	1237.100	11019.800	1238.500	11202.200
GR	1239.900	11420.100	1240.000	11525.000	1236.200	11738.600	1237.100	11826.400	1233.300	11894.900
GR	1237.100	11975.000	1238.500	12089.300	1235.700	12107.600	1234.700	12218.900	1243.600	12240.400
GR	1239.400	12252.800	1239.400	12335.900	1241.000	12378.100	1245.900	12443.900	1244.500	12544.800
GR	1270.700	12606.900	1271.800	12718.300	1273.900	12834.100	1275.100	12926.700	1270.000	13027.700
GR	1273.400	13221.000	1270.500	13241.900	1274.000	13260.200	1274.800	13294.600	1271.900	13326.100
GR	1276.100	13359.100	1275.100	13410.900	.000	.000	.000	.000	.000	.000
ET	.000	.000	4.100	8300.000	12000.000	.000	.000	.000	.000	.000
X1	31.895	68.000	9550.200	12145.500	920.000	1000.000	980.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.000	15.000
GR	1248.000	6420.300	1248.000	6924.600	1249.000	7330.200	1248.000	7361.000	1248.200	7380.800
GR	1247.000	7406.800	1246.400	7515.000	1246.000	7777.300	1247.200	8043.000	1247.800	8220.600
GR	1245.700	8296.000	1239.800	8349.100	1238.000	8440.700	1235.700	8591.900	1239.700	8604.200
GR	1235.200	8648.500	1235.400	8751.800	1241.200	8785.400	1241.900	8949.300	1236.800	8905.200
GR	1234.300	9014.100	1236.400	9150.700	1243.600	9176.600	1246.300	9344.700	1246.900	9414.800
GR	1245.500	9524.700	1245.500	9547.100	1246.100	9550.200	1237.500	9675.800	1232.100	9589.800
GR	1232.300	9803.600	1228.100	9854.300	1232.100	9912.300	1232.500	10000.300	1231.000	10064.800
GR	1235.500	10138.500	1239.900	10226.100	1239.400	10386.700	1239.900	10487.900	1238.600	10731.500
GR	1235.200	10797.000	1237.500	10819.300	1241.700	10904.800	1242.900	10973.100	1243.100	11126.900
GR	1239.700	11307.500	1241.100	11625.600	1237.900	11682.500	1237.700	11737.000	1243.100	11777.000
GR	1245.200	11905.000	1244.200	12112.700	1246.300	12145.500	1243.900	12382.400	1245.500	12454.400
GR	1245.700	12629.500	1242.800	12748.800	1243.000	12939.800	1244.000	13046.100	1245.300	13119.200
GR	1250.500	13210.100	1252.600	13266.700	1256.100	13391.300	1251.500	13442.800	1273.600	13485.900
GR	1278.100	13526.900	1275.500	13596.700	1278.700	13815.300	.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 1

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.36     3.65  1202.65      .00  1217.31  1203.11      .46      .00      .00  1218.00
   20000.       0.   20000.       0.       0.    3659.       0.       0.       0.   1220.00
      .00      .00     5.47      .00     .025     .025     .025     .000  1199.00  5042.65
  .001992       0.       0.       0.        0        0        7      .00  1236.61  6279.25


FLOW DISTRIBUTION FOR SECNO=     28.36          CWSEL=   1202.55

STA=    5043.    6340.
  PER Q=    100.0
   AREA=   3659.0
    VEL=      5.5

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.646
    28.65     7.32  1205.02      .00      .00  1205.79      .77     2.59      .09  1213.70
   20000.       0.   20000.       0.       0.    2931.       0.     113.      31.   1213.00
      .09      .00     7.06      .00     .025     .025     .025     .000  1197.20 10164.91
  .001474    1650.    1520.    1450.        2        0        0      .00   519.65 10684.55


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1205.02

STA=   10165.   10770.
  PER Q=    100.0
   AREA=   2831.3
    VEL=      7.1

*SECNO 28.831

3265 DIVIDED FLOW

    28.83     7.49  1206.49      .00      .00  1206.94      .45     1.11      .03  1204.70
   20000.    10802.    9198.       0.    2051.    1668.       0.     187.      47.   1207.10
      .11     5.27     5.52      .00     .025     .025     .025     .000  1199.00  9252.78
  .000887     950.    1000.    1010.        2        0        0      .00   961.64 10498.48
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=  .1206.49

STA=    9253.    9280.    9450.    9493.    9860.   10000.   10186.   10496.
  PER Q=      2.1     43.1      3.4       .5     1.9      3.0     46.0
   AREA=    101.9   1272.6    150.6     69.1    180.2    266.7   1667.8
    VEL=      4.2      6.8      4.2      1.5      2.1      2.3      5.5

*SECNO 29.017

3255 DIVIDED FLOW

    29.02     8.45  1207.55      .00      .00  1209.19      .54     1.20      .06  1209.40
   20000.      77.   19923.       0.      44.    3104.       0.     267.      68.   1215.30
      .15     1.76     6.42      .00     .025     .025     .025     .000  1199.10  9172.62
  .001641    1000.    1020.    1020.        2        0        0      .00   781.15 10599.18


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1207.55

STA=    9173.    9179.    9243.   10620.
  PER Q=       .0       .4     99.6
   AREA=      3.9     39.9   3104.0
    VEL=      1.7      1.8      6.4

*SECNO 29.221
    29.22     7.94  1209.44      .00      .00  1210.15      .71     1.94      .02  1209.00
   20000.    3641.   16359.       0.     844.    2266.       0.     340.      88.   1213.50
      .20     4.31     7.22      .00     .025     .025     .025     .000  1201.50  9225.14
  .002266     950.    1020.     970.        2        0        0      .00  1015.66 10240.79


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1209.44

STA=    9225.    9234.    9409.    9685.   10403.
  PER Q=       .2      9.5      8.5     91.8
   AREA=     11.9    393.0    439.2   2266.4
    VEL=      3.4      4.8      3.9      7.2

*SECNO 29.473

3255 DIVIDED FLOW

    29.47     9.41  1211.41      .00      .00  1211.75      .35     1.56      .04  1206.70
   20000.    4215.   15785.       1.     957.    3288.       1.     444.     115.   1215.00
      .27     4.40     4.80      .37     .025     .025     .025     .000  1203.00  9143.29
  .000795    1030.    1300.     970.        2        0        0      .00   918.63 11302.12
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=  1211.41

STA=    9143.    9151.    9370.   10097.   11302.
  PER Q=       .2     20.9     78.9       .9
   AREA=     14.5    942.4   3287.7      1.5
    VEL=      2.4      4.4      4.8       .4

*SECNO 29.576

3265 DIVIDED FLOW

    29.68    13.56  1211.95      .00      .00  1212.23      .27      .47      .01  1214.90
   20000.     5161.   11230.    3559.    1277.    2449.    1330.     553.     140.   1210.90
      .34     4.04     4.61     2.68     .025     .025     .025     .000  1198.40  8827.01
  .000303     920.    1060.    1020.        2        0        0      .00  1231.23 11762.34


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1211.95

STA=    8327.    8931.    8958.    8999.    9284.    9616.    9999.    9891.   11592.   11669.   11690.   11762.
  PER Q=       .1     23.1      2.5     56.4       .9       .3       .0       .3      5.1      4.1      7.2
   AREA=     17.3   1073.4    185.9   2447.7    204.2    105.0      8.6     38.0    355.4    199.9    429.2
    VEL=      1.6      4.3      2.8      4.5       .7       .5       .5      1.4      2.9      4.3      3.4

*SECNO 29.991

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3595 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    29.99     5.64  1214.74  1214.74      .00  1216.82     2.07     1.20      .54  1222.90
   20000.       0.   18163.    1837.       0.    1523.     265.     670.     156.   1225.00
      .33      .00    11.92     6.91     .025     .025     .025     .000  1209.10  9475.84
  .004974    1530.    1600.    1180.       20       14        0      .00   441.77 10513.80


FLOW DISTRIBUTION FOR SECNO=     29.99          CWSEL=   1214.74

STA=    9476.   10000.   10459.   10514.
  PER Q=     90.8      5.2      4.0
   AREA=   1523.2    150.1    115.6
    VEL=     11.9      6.9      6.9
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.982

3265 DIVIDED FLOW

   29.98     6.09  1215.19      .00      .00  1215.88     1.59      .02      .04  1222.90
  20000.       0.   17942.    2059.       0.    1554.     324.     670.     166.   1225.00
     .39      .00    10.78     6.36     .025     .025     .025     .000  1209.10  9474.29
 .003689       5.       5.       5.        4        0        0      .00   459.44 10519.46


FLOW DISTRIBUTION FOR SECNO=     29.99          CWSEL=   1215.19

STA=    9474.   10000.   10459.   10519.
  PER Q=     89.7      5.8      4.5
   AREA=   1663.5    182.9    140.9
    VEL=     10.8      6.4      6.4

*SECNO 30.194

3301 HV CHANGED MORE THAN HVINS

   30.19    10.24  1219.04      .00      .00  1219.99      .95     3.04      .07  1236.30
  20000.       0.   20000.       0.       0.    2560.       0.     729.     179.   1228.50
     .42      .00     7.81      .00     .025     .025     .025     .000  1209.80  9115.21
 .002069    1120.    1120.    1170.        3        0        0      .00   520.07  9635.28


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1219.04

STA=    9115.   10000.
  PER Q=    100.0
   AREA=   2559.5
    VEL=      7.9

*SECNO 30.195
   30.19    10.26  1219.06      .00      .00  1220.00      .94      .01      .00  1236.30
  20000.       0.   20000.       0.       0.    2567.       0.     729.     179.   1228.50
     .42      .00     7.79      .00     .025     .025     .025     .000  1209.80  9115.12
 .002051       5.       5.       5.        0        0        0      .00   520.66  9635.78


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1219.06

STA=    9115.   10000.
  PER Q=    100.0
   AREA=   2566.9
    VEL=      7.9
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAR     TOPWID      ENDST


*SECNO 30.459

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    30.46      7.14  1221.84       .00       .00  1222.23       .39      2.19       .06  1239.10
   20000.        0.   20000.        0.        0.    4002.        0.     832.      204.   1233.70
      .49       .00     5.00       .00      .025      .025      .025      .000  1214.70  9423.25
  .001268    1280.    1370.    1030.         2         0         0       .00  1102.69 10575.52


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1221.84

STA=    9423.   10777.
  PER Q=    100.0
   AREA=   4001.9
    VEL=      5.0

*SECNO 30.815
    30.82      7.93  1222.93       .00       .00  1224.26       .34      2.03       .01  1236.50
   20000.        0.   20000.        0.        0.    4303.        0.    1007.      250.   1251.60
      .50       .00     4.65       .00      .025      .025      .025      .000  1216.00  9740.44
  .000977    1350.    1830.    1390.         2         0         0       .00  1096.12 10926.56


FLOW DISTRIBUTION FOR SECNO=     30.82          CWSEL=   1223.93

STA=    9740.   11136.
  PER Q=    100.0
   AREA=   4302.9
    VEL=      4.6

*SECNO 31.028

3301 HV CHANGED MORE THAN HVINS

    31.03     11.95  1224.65       .00       .00  1225.75      2.10      1.95       .53  1229.00
   20000.        0.   17559.    2441.        0.    1521.      200.    1093.      268.   1212.70
      .53       .00    11.54     12.21      .025      .025      .025      .000  1212.70 10478.29
  .004217    1060.    1100.    1100.         3         0         0       .00   327.34 10805.63
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


FLOW DISTRIBUTION FOR SECNO=     31.03          CWSEL=   1224.65

STA=   10478.   10772.   10805.
  PER Q=     87.8      12.2
   AREA=   1521.1     199.8
    VEL=     11.5      12.2

*SECNO 31.029
    31.03    12.11  1224.81      .00      .00  1226.79     1.98      .02      .01  1228.00
   20000.       0.   17558.    2442.       0.    1569.     205.    1093.     258.   1212.70
      .53      .00    11.20    11.91     .025     .025     .025     .000  1212.70 10470.99
  .003939       5.       5.       5.        2        0        0      .00   335.08 10806.07


FLOW DISTRIBUTION FOR SECNO=     31.03          CWSEL=   1224.81

STA=   10471.   10772.   10806.
  PER Q=     87.8      12.2
   AREA=   1567.9     205.1
    VEL=     11.2      11.9

*SECNO 31.301

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    31.30     8.59  1228.78      .00      .00  1229.20      .43     2.26      .16  1225.60
   20000.     625.   19254.     121.     266.    3618.      34.    1176.     287.   1220.70
      .70     2.35     5.32     3.53     .025     .025     .025     .000  1220.10  9522.30
  .000946    1190.    1440.    1380.        3        0        0      .00   843.84 10875.98


FLOW DISTRIBUTION FOR SECNO=     31.30          CWSEL=   1228.78

STA=    9522.    9690.   10869.   10876.
  PER Q=      3.1     96.3       .6
   AREA=    255.8   3617.9     34.2
    VEL=      2.4      5.3      3.5

*SECNO 31.522
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

31.52	5.52	1230.92	1230.92	.00	1232.28	1.37	2.12	.28	1244.50
20000.	784.	19216.	0.	136.	2021.	0.	1257.	309.	1264.30
.74	5.78	9.51	.00	.025	.025	.025	.000	1224.40	8244.03
.006468	1120.	1160.	1650.	20	19	0	.00	829.50	11501.95

FLOW DISTRIBUTION FOR SECNO= 31.52 CWSEL= 1230.92

STA=	8244.	8273.	8335.	8354. 11539.
PER Q=	.5	3.1	.3	96.1
AREA=	24.6	97.0	14.0	2020.6
VEL=	4.3	6.4	3.8	9.5

*SECNO 31.725

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.73	5.82	1235.32	.00	.00	1235.88	.56	3.52	.08	1245.20
20000.	3128.	16627.	245.	572.	2714.	103.	1324.	334.	1237.10
.79	5.47	6.13	2.39	.025	.025	.025	.000	1229.50	8010.13
.002032	870.	1070.	1530.	4	0	0	.00	1181.54	12220.41

FLOW DISTRIBUTION FOR SECNO= 31.73 CWSEL= 1235.32

STA=	8010.	8020.	8551.	8699.	8734.	11020.	11895.	11938.	12219.	12220.
PER Q=	.0	.3	12.5	2.9	83.1	.5	.6	.1	.0	
AREA=	2.2	32.1	433.3	104.2	2713.6	36.9	43.7	21.7	.5	
VEL=	1.0	1.7	5.8	5.4	6.1	2.7	2.7	1.2	1.2	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICCNT	CORAR	TOPWID	ENDST

*SECNO 31.895

3265 DIVIDED FLOW

31.90	9.05	1237.15	.00	.00	1237.88	.73	1.95	.05	1245.10
20000.	1980.	18020.	0.	592.	2516.	0.	1395.	359.	1245.30
.93	3.35	7.15	.00	.025	.025	.025	.000	1228.10	8495.04
.001977	920.	980.	1000.	3	0	0	.00	1034.79	10815.99

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1237.15

STA=	8495.	8592.	8595.	8649.	8752.	8757.	9014.	9151.	9153.	12146.
PER Q=	.7	.0	.0	1.1	.0	3.2	4.8	.0	90.1	
AREA=	59.9	3.3	5.8	88.7	2.0	174.2	247.0	1.0	2515.9	
VEL=	2.1	2.1	1.6	2.4	1.4	3.6	3.9	1.4	7.2	

THIS RUN EXECUTED 01/01/80 07:30:43

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**************************************************
 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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*PROF 2

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.36     5.19  1204.19      .00  1217.31  1204.99      .80      .00      .00  1218.00
   40000.       0.   40000.       0.       0.    5577.       0.       0.       0.   1220.00
      .00      .00     7.17      .00     .025     .025     .025     .000  1199.00  5039.36
  .001977       0.       0.       0.        0        0        6      .00  1246.30  5284.67


FLOW DISTRIBUTION FOR SECNO=     28.36          CWSEL=   1204.19

STA=    5039.    5340.
  PER Q=    100.0
   AREA=   5577.0
    VEL=      7.2

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.646

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    9300.0   10900.0  TYPE=     1  TARGET=    1600.000
    28.55     9.70  1206.90      .00  1205.02  1208.56     1.66     3.31      .25  1213.70
   40000.       0.   40000.       0.       0.    3871.       0.      155.      32.   1213.00
      .04      .00    10.33      .00     .025     .025     .025     .000  1197.20 10124.07
  .002412    1650.    1520.    1450.        2        0        0      .00   590.75 10704.92


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1206.90

STA=   10124.   10770.
  PER Q=    100.0
   AREA=   3870.9
    VEL=     10.3

*SECNO 28.831

3265 DIVIDED FLOW
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    9200.0   10900.0 TYPE=     1  TARGET=    1700.000
    28.83     10.33  1209.33      .00  1206.49  1209.85      .52      1.18      .11  1204.70
   40000.    22748.   16410.     841.    4211.    2546.     359.      289.      54.  1207.10
      .09      5.40     6.45     2.34     .025     .025     .025      .000  1199.00  9242.46
  .000712     950.    1000.    1010.        2        0        0       .00  1388.76 10711.44


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1209.33

STA=    9242.    9280.    9450.    9509.    9860.   10000.   10186.   10496.   10651.   10711.
  PER Q=      2.2     33.0      3.6      3.9      5.9      8.3     41.0      1.9       .2
   AREA=    193.8   1755.2    305.4    585.0    577.9    793.9   2545.9    307.3     51.8
    VEL=      4.6      7.5      4.7      2.7      4.1      4.2      6.4      2.5      1.4

*SECNO 29.017

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=    9100.0   10750.0 TYPE=     1  TARGET=    1650.000
    29.02     10.93  1210.03      .00  1207.55  1210.96      .93       .99      .12  1209.40
   40000.     1358.   38532.       0.     432.    4922.       0.      434.      83.  1215.30
      .12      3.17     7.85      .02     .025     .025     .025      .000  1199.10  9160.13
  .001411     1000.    1020.    1020.        2        0        0       .00  1081.71 10750.00


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1210.03

STA=    9160.    9179.    9370.    9862.   10620.
  PER Q=      .3      3.0       .1     96.6
   AREA=     35.1    356.9     40.1   4921.9
    VEL=      3.3      3.4      1.0      7.8

*SECNO 29.221

3470 ENCROACHMENT STATIONS=    9400.0   10900.0 TYPE=     1  TARGET=    1500.000
    29.22     10.17  1211.67      .00  1209.44  1212.93     1.16      1.80      .07  1208.00
   40000.     7559.   32441.       0.    1088.    3602.       0.      550.     106.  1213.50
      .16      6.94     9.01      .00     .025     .025     .025      .000  1201.50  9400.00
  .002317     950.    1020.     970.        3        0        0       .00   929.52 10329.52
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1211.57

STA=    9400.    9409.    9685.   10403.
  PER Q=       .5     18.4     81.1
   AREA=     35.9   1052.5   3602.2
    VEL=      5.6      7.0      9.0

*SECNO 29.473

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    9150.0   11300.0  TYPE=     1  TARGET=    2150.000
    29.47    10.88  1213.88      .00  1211.41  1214.45      .57     1.56      .06  1206.70
   40000.    9955.   30710.     436.    1488.    4995.     218.     711.     134.   1216.00
      .21     5.95     6.15     2.00     .025     .025     .025     .000  1203.00  9150.00
  .000786    1030.    1300.     970.        2        0        0      .00  1086.46 11300.00


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1213.88

STA=    9150.    9151.    9370.   10097.   11300.
  PER Q=       .0     22.1     76.8      1.1
   AREA=      4.3   1483.3   4995.2    217.5
    VEL=      1.2      6.0      6.1      2.0

*SECNO 29.575

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=    8850.0   11270.0  TYPE=     1  TARGET=    2420.000
    29.68    15.09  1214.49      .00  1211.96  1215.23      .75      .73      .05  1214.90
   40000.    9957.   24012.    6021.    1501.    3112.    1937.     866.     159.   1210.90
      .26     6.64     7.72     3.11     .025     .025     .025     .000  1198.40  8850.00
  .000654     920.    1060.    1020.        2        0        0      .00  1110.74  9964.55


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1214.49

STA=    8850.    8958.    9011.    9284.    9516.    9869.    9955.
  PER Q=     21.3      3.7     60.0      8.5      5.8       .8
   AREA=   1197.7    303.5   3112.2   1038.8    740.8    157.3
    VEL=      7.1      4.8      7.7      3.3      3.1      2.1
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 29.981

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3585 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9400.0   10820.0  TYPE=     1  TARGET=    1420.000
    29.98      8.43  1217.53  1217.53  1214.74  1219.67     2.14      2.00      .42100000.00
   40000.        0.   32526.    7474.       0.    2610.     953.     1037.      190.   1225.00
      .29       .00    12.45     7.84     .025     .025     .025      .000  1209.10  9466.00
  .003955     1530.    1600.    1190.       20       11        0       .00   873.67 10795.67


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1217.53

STA=    9466.   10000.   10054.   10378.   10459.   10550.   10774.   10788.   10795.
  PER Q=     81.3       .0      1.9      9.5      6.8       .2       .2       .0
   AREA=   2509.6      8.5    194.7    374.5    317.7     31.7     19.4      6.1
    VEL=     12.5      1.7      3.9     10.2      8.5      2.7      4.6      3.1

*SECNO 29.982

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    9400.0   10820.0  TYPE=     1  TARGET=    1420.000
    29.98      9.30  1218.40       .00  1215.19  1219.77     1.37       .02      .08100000.00
   40000.        0.   30297.    9703.       0.    3009.    1415.     1038.      190.   1225.00
      .29       .00    10.07     5.86     .025     .025     .025      .000  1209.10  9462.95
  .002807       5.       5.       5.        9        0        0       .00  1140.95 10800.14


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1219.40

STA=    9463.   10000.   10041.   10096.   10378.   10459.   10561.   10774.   10788.   10800.
  PER Q=     75.7       .0       .3      4.0     10.8      7.9       .7       .4       .1
   AREA=   3009.5      5.6     41.8    383.9    445.0    400.5     91.6     31.5     14.9
    VEL=     10.1      2.6      2.6      4.1      9.7      7.9      3.2      5.4      3.5
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 30.194

3470 ENCROACHMENT STATIONS=    9054.0   10800.0  TYPE=     1  TARGET=    1746.000
    30.19    12.85  1221.65      .00  1219.04  1223.08     1.44      3.30      .02100000.00
   40000.       0.   40000.       0.       0.    4158.      0.     1149.     216.   1228.50
      .33      .00     9.62      .00     .025     .025     .025     .000  1208.80  9998.86
  .003055    1120.    1120.    1170.        3        0        0      .00   829.04  9927.90


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1221.65

STA=    9999.   10000.
  PER Q=    100.0
   AREA=   4158.2
    VEL=      9.6

*SECNO 30.195

3470 ENCROACHMENT STATIONS=    9054.0   10900.0  TYPE=     1  TARGET=    1746.000
    30.19    12.87  1221.67      .00  1219.05  1223.10     1.43       .02      .00100000.00
   40000.       0.   40000.       0.       0.    4170.      0.     1149.     215.   1228.50
      .33      .00     9.59      .00     .025     .025     .025     .000  1208.80  9999.78
  .003028       5.       5.       5.        0        0        0      .00   829.27  9928.05


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1221.67

STA=    9999.   10000.
  PER Q=    100.0
   AREA=   4169.6
    VEL=      9.5

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    9350.0   10775.0  TYPE=     1  TARGET=    1425.000
    30.46     9.91  1224.61      .00  1221.84  1225.08      .47      1.99      .10100000.00
   40000.       0.   40000.       0.       0.    7267.      0.     1329.     248. 100000.00
      .40      .00     5.50      .00     .025     .025     .025     .000  1214.70  9405.33
  .000783    1280.    1370.    1030.        3        0        0      .00  1206.72 10612.05
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1224.61

STA=    9405.   10777.
  PER Q=    100.0
   AREA=   7267.4
    VEL=      5.5

*SECNO 30.815

3470 ENCROACHMENT STATIONS=    9310.0   10800.0  TYPE=     1  TARGET=    1490.000
    30.82    10.10  1225.10      .00  1223.93  1226.58      .57     1.57      .03  1235.50
   40000.       0.   40000.       0.       0.    6574.       0.    1620.     296. 100000.00
      .49      .00     6.08      .00     .025     .025     .025     .000  1215.00  9729.49
  .000940    1350.    1830.    1390.        3        0        0      .00  1070.51 10800.00


FLOW DISTRIBUTION FOR SECNO=     30.82          CWSEL=   1225.10

STA=    9729.   11135.
  PER Q=    100.0
   AREA=   6574.3
    VEL=      5.1

*SECNO 31.029

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9410.0   10945.0  TYPE=     1  TARGET=    1435.000
    31.03    15.04  1227.74  1227.74  1224.65  1230.49     2.75     1.94      .65  1228.00
   40000.     418.   34951.    4632.     120.    2650.     316.    1742.     317.   1212.70
      .50     3.48    13.19    14.64     .025     .025     .025     .000  1212.70 10170.73
  .004459    1050.    1100.    1100.       20       14        0      .00   525.73 10814.27


FLOW DISTRIBUTION FOR SECNO=     31.03          CWSEL=   1227.74

STA=   10171.   10280.   10317.   10772.   10814.
  PER Q=       .8       .3     87.4     11.5
   AREA=     89.5     30.6   2550.4    316.4
    VEL=      3.5      3.5     13.2     14.5
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 31.029

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    9410.0   10845.0  TYPE=     1  TARGET=    1435.000
    31.03    15.52  1228.52      .00  1224.81  1230.58     2.05      .02      .07  1228.00
   40000.    1035.   34618.    4347.     271.    3002.     350.    1742.     317.   1212.70
      .50     3.82    11.53    12.41     .025     .025     .025     .000  1212.70  9530.34
  .002996       5.       5.       5.       12        0        0      .00   725.03 10815.45


FLOW DISTRIBUTION FOR SECNO=     31.03          CWSEL=   1228.52

STA=    9530.    9560.   10280.   10323.   10772.   10815.
  PER Q=        .0      1.9       .7     86.5     10.9
   AREA=      10.7    195.4     53.7   3091.5    350.3
    VEL=       1.7      3.8      4.2     11.5     12.4

*SECNO 31.301

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    8770.0   10890.0  TYPE=     1  TARGET=    2120.000
    31.30    11.97  1232.07      .00  1228.78  1232.52      .45     1.78      .16  1225.60
   40000.    3974.   35755.     271.    1097.    6454.      68.    1924.     349.   1220.70
      .58     3.52     5.53     4.00     .025     .025     .025     .000  1220.10  9357.19
  .000685    1190.    1440.    1380.        4        0        0      .00  1296.71 10879.44


FLOW DISTRIBUTION FOR SECNO=     31.30          CWSEL=   1232.07

STA=    9357.    9384.    9690.   10868.   10879.
  PER Q=        .0      9.9     89.4       .7
   AREA=       5.7   1091.5   6464.4     67.9
    VEL=        .8      3.6      5.5      4.0
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 31.522

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    8250.0   11450.0  TYPE=     1  TARGET=    3200.000
    31.52     8.61  1233.01      .00  1230.92  1234.54     1.53     1.69      .32  1244.50
   40000.    3393.   36507.       0.     384.    3655.       0.    2079.     381. 100000.00
      .51     8.84    10.02      .00     .025     .025     .025     .000  1224.40  8250.00
  .005023    1120.    1160.    1650.        4        0        0      .00  1126.24 11450.00


FLOW DISTRIBUTION FOR SECNO=     31.52          CWSEL=   1233.01

STA=    8250.    8273.    8335.    8384.   11539.
  PER Q=      1.5      5.7      1.3     91.5
   AREA=     71.0    226.8     86.0   3654.6
    VEL=      8.4     10.0      6.1     10.0

*SECNO 31.725

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    8230.0   11950.0  TYPE=     1  TARGET=    3720.000
    31.73     7.64  1237.14      .00  1235.32  1237.92      .78     3.31      .08  1245.20
   40000.    7498.   31118.    1394.    1023.    4379.     331.    2197.     415.   1237.10
      .55     7.33     7.11     4.18     .025     .025     .025     .000  1229.50  8484.74
  .002157     870.    1070.    1530.        2        0        0      .00  1575.17 11950.00


FLOW DISTRIBUTION FOR SECNO=     31.73          CWSEL=   1237.14

STA=    8485.    8698.    8740.    8954.   11020.   11950.
  PER Q=     15.6      3.2       .0     77.8      3.5
   AREA=    839.5    177.9      5.2   4378.9    330.7
    VEL=      7.4      7.1      1.4      7.1      4.2
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAR     TOPWID      ENDST


*SECNO 31.996

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=    9300.0   12000.0  TYPE=     1  TARGET=    3700.000
    31.90    11.26  1239.36      .00  1237.15  1240.06      .70     2.13      .01  1246.10
   40000.   11384.   28616.       0.    1974.    4124.       0.    2327.     452. 100000.00
      .69     6.07     6.94      .00     .025     .025     .025     .000  1228.10  8371.03
  .002253     920.     980.    1000.        3        0        0      .00  1751.19 11749.36


FLOW DISTRIBUTION FOR SECNO=     31.90          CWSEL=   1239.36

STA=    9371.    8441.    9592.    9603.    8649.    9752.    9773.    8906.    9014.    9151.    9161.   12145.
  PER Q=       .3      5.0       .2       .6      4.7       .3       .3      7.1      9.9       .1     71.5
   AREA=     47.7    390.9     20.7     63.6    317.0     30.9     36.8    412.1    549.0     15.9   4124.3
    VEL=      2.2      5.2      4.1      3.8      6.0      3.7      3.3      6.9      7.1      3.6      6.9
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THIS RUN EXECUTED 01/01/80 07:33:43

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**************************************************
  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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLOC	IBW	CHNIM	ITRACE
	3.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*PROF 3

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.36     6.42  1205.42      .00  1217.31  1206.52     1.11      .00      .00  1218.00
   60000.       0.   60000.       0.       0.    7112.       0.       0.       0.   1220.00
      .00      .00     8.44      .00     .025     .025     .025     .000  1199.00  5034.95
  .001995       0.       0.       0.        0        0        6      .00  1254.01  6268.96


FLOW DISTRIBUTION FOR SECNO=     28.36          CWSEL=   1205.42

STA=    5035.    6340.
  PER Q=    100.0
   AREA=   7112.1
    VEL=      8.4

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.645

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    28.65    10.99  1208.19      .00      .00  1210.77     2.58     3.81      .44  1213.70
   60000.       43.   59957.       0.      25.    4647.       0.     206.      34.   1213.00
      .03     1.66    12.90      .00     .025     .025     .025     .000  1197.20  9570.52
  .003234    1650.    1520.    1450.        2        0        0      .00   697.82 10718.64


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1208.19

STA=    9571.    9637.    9646.   10770.
  PER Q=       .1       .0     99.9
   AREA=     22.9      3.1   4646.7
    VEL=      1.7      1.7     12.9

*SECNO 28.831

3301 HV CHANGED MORE THAN HVINS
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


   28.83    12.55  1211.55      .00      .00  1212.10      .55     1.13      .20  1204.70
  60000.   34946.   22024.    3030.    5254.    3233.     923.     375.      59.   1207.10
     .08     5.58     6.81     3.28     .025     .025     .025     .000  1199.00  9234.39
 .000578     950.    1000.    1010.        2        0        0      .00  1554.20 10789.50


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1211.55

STA=    9234.    9280.    9450.    9515.    9860.   10000.   10185.   10495.   10651.   10789.
  PER Q=      2.3     27.4      3.8      7.6      7.2     10.0     35.7      4.0      1.0
   AREA=    295.0   2132.1    447.6   1304.4    888.5   1205.5   3233.4    652.2    270.4
    VEL=      4.7      7.7      5.1      3.5      4.9      5.0      5.9      3.7      2.2

*SECNO 29.017

3265 DIVIDED FLOW

   29.02    12.93  1212.03      .00      .00  1213.04     1.00      .80      .13  1209.40
  60000.    5726.   53878.     395.    1575.    6413.     185.     591.      96.   1215.30
     .11     3.54     8.40     2.14     .025     .025     .025     .000  1199.10  9150.09
 .001148    1000.    1020.    1020.        3        0        0      .00  1640.03 10855.67


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1212.03

STA=    9150.    9179.    9445.    9862.   10620.   10750.   10856.
  PER Q=      .6      6.0      3.0     89.8       .3       .4
   AREA=    82.6    933.0    559.6   6413.4     77.2    107.4
    VEL=      4.0      4.3      2.7      8.4      2.3      2.0

*SECNO 29.221

3265 DIVIDED FLOW

   29.22    11.87  1213.37      .00      .00  1214.38     1.02     1.34      .00  1208.00
  60000.   20158.   39798.      45.    2673.    4757.      33.     771.     129.   1213.50
     .15     7.54     8.37     1.35     .025     .025     .025     .000  1201.50  9212.74
 .001577     950.    1020.     970.        2        0        0      .00  1260.60 10902.48


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1213.37

STA=    9213.    9234.    9409.    9685.   10403.   10900.   10902.
  PER Q=      .6     14.3     18.7     66.3       .1       .0
   AREA=    70.2   1080.8   1521.5   4756.9     31.9      1.1
    VEL=      5.1      7.9      7.4      8.4      1.4      1.3
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       CLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.473

3265 DIVIDED FLOW

    29.47    12.04  1215.04      .00      .00  1215.94      .89     1.54      .01  1206.70
   60000.   13465.   44996.    1549.    1793.    5824.     525.     988.     163.   1216.00
      .19     7.51     7.72     2.95     .025     .025     .025     .000  1203.00  9135.39
  .001035    1030.    1300.     970.        2        0        0      .00  1223.08 11339.53


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1215.04

STA=    9136.    9151.    9370.   10097.   11300.   11340.
  PER Q=       .4     22.1     75.0      2.2       .4
   AREA=     54.0   1738.6   5823.8    448.5     76.1
    VEL=      4.3      7.6      7.7      3.0      2.9

*SECNO 29.576

3265 DIVIDED FLOW

    29.68    17.70  1216.10      .00      .00  1216.65      .55      .69      .03  1214.90
   60000.   13072.   25176.   21752.    2030.    3553.    5673.    1215.     202.   1210.80
      .24     6.44     7.09     3.83     .025     .025     .025     .000  1199.40  9924.71
  .000457     920.    1060.    1020.        2        0        0      .00  2117.34 11787.59


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1216.10

STA=    8825.    8958.    9013.    9284.    9616.    9859.   11592.   11669.   11690.   11788.
  PER Q=     18.7      3.1     42.0      9.5      6.8      4.0      5.1      3.2      5.6
   AREA=   1638.4    391.2   3552.9   1577.1   1150.9   1212.1    674.1    278.1    780.8
    VEL=      5.9      4.7      7.1      3.6      3.5      2.0      5.5      5.9      5.1

*SECNO 29.981

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3585 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3720 CRITICAL DEPTH ASSUMED
    29.98     10.01   1219.11   1219.11       .00   1221.31      2.20      1.51       .49   1222.90
   60000.        0.    43696.    15304.        0.     3386.     1889.     1480.      252.    1225.00
      .28       .00     12.90      8.63      .025      .025      .025      .000   1209.10   9450.43
  .003979     1530.     1600.     1180.        20        11         0       .00   1215.22  10803.97


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1219.11

STA=    9450.    10000.    10041.    10104.    10378.    10459.    10570.    10774.    10798.    10804.
  PER Q=     72.8       .1       .7      6.0      10.6       7.9       1.3       .5       .2
   AREA=   3386.1      12.3     86.5    578.4     503.6     476.5     155.0     41.5     25.2
    VEL=     12.9       4.0      4.6      6.2      12.6       9.9       4.7      7.7      5.0

*SECNO 29.982

3265 DIVIDED FLOW

    29.98     10.43   1219.53       .00       .00   1221.37      1.84       .02       .04   1222.90
   60000.        2.    42701.    17298.        2.     3602.     2174.     1481.      252.    1225.00
      .28       .76     11.83      7.96      .025      .025      .025      .000   1209.10   9043.13
  .003112       5.        5.        5.         6         0         0       .00   1263.10  10805.98


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1219.53

STA=    9043.     9051.    10000.    10041.    10104.    10378.    10459.    10575.    10774.    10798.    10805.
  PER Q=       .0     71.2       .1       .9      7.1      10.4       7.9       1.5       .5       .3
   AREA=      2.0   3501.5     17.2    112.3    689.7    536.9    522.6    216.2     47.2     32.2
    VEL=       .8     11.9      3.9      4.9      5.1      11.6       9.0       4.6      7.5      4.8

*SECNO 30.194
    30.19     14.18   1222.98       .00       .00   1224.99      2.01      3.57       .05   1236.30
   60000.        0.    60000.        0.        0.     5275.        0.     1524.      279.    1228.50
      .31       .00     11.37       .00      .025      .025      .025      .000   1209.80   9090.53
  .003222     1120.     1120.     1170.         3         0         0       .00    851.36   9941.99


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1222.98

STA=    9091.    10000.
  PER Q=    100.0
   AREA=   5275.4
    VEL=     11.4
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 30.195
    30.19    14.21  1223.01      .00       .00  1225.00      1.99       .02       .00  1235.30
   60000.       0.   60000.       0.        0.    5294.       0.     1625.      280.   1229.50
      .31      .00    11.33      .00      .025     .025      .025      .000   1208.80   9090.40
  .003187       5.       5.       5.         1        0         0       .00    851.72   9942.12


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1223.01

STA=    9090.   10000.
  PER Q=    100.0
   AREA=   5293.6
    VEL=     11.3

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    11.70  1226.40      .00       .00  1227.02       .63      1.98       .14  1239.10
   60000.       0.   60000.       0.        0.    9441.       0.     1855.      312.   1233.70
      .37      .00     6.35      .00      .025     .025      .025      .000   1214.70   9398.65
  .000751    1290.    1370.    1030.         2        0         0       .00   1236.82  10635.46


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1226.40

STA=    9399.   10777.
  PER Q=    100.0
   AREA=   9441.1
    VEL=      5.4

*SECNO 30.815
    30.82    11.87  1227.87      .00       .00  1229.59       .72      1.54       .03  1236.50
   60000.       0.   60000.       0.        0.    8785.       0.     2239.      364.   1251.60
      .44      .00     6.83      .00      .025     .025      .025      .000   1216.00   9649.40
  .000936    1350.    1830.    1390.         3        0         0       .00   1205.03  10854.43


FLOW DISTRIBUTION FOR SECNO=     30.82          CWSEL=   1227.87

STA=    9649.   11136.
  PER Q=    100.0
   AREA=   8784.7
    VEL=      5.8
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 31.028

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3585 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

31.03	17.08	1229.78	1229.78	.00	1232.73	2.96	1.90	.67	1228.00
60000.	3751.	50422.	5927.	619.	3563.	408.	2408.	389.	1212.70
.46	6.06	14.15	14.29	.025	.025	.025	.000	1212.70	9579.73
.003599	1050.	1100.	1100.	20	11	0	.00	922.99	10819.95

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1229.78

STA=	9580.	9660.	9669.	10127.	10280.	10323.	10772.	10820.
PER Q=	.5	.1	.1	4.2	1.4	84.0	9.7	
AREA=	79.1	9.2	28.0	385.5	117.5	3562.9	407.7	
VEL=	3.5	3.5	2.9	6.6	5.9	14.2	14.3	

*SECNO 31.028

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.03	17.55	1230.36	.00	.00	1232.80	2.44	.02	.05	1228.00
60000.	4937.	49593.	5570.	820.	3823.	435.	2408.	389.	1212.70
.46	5.90	12.97	12.78	.025	.025	.025	.000	1212.70	9555.30
.002745	5.	5.	5.	12	0	0	.00	867.87	10821.57

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1230.36

STA=	9556.	9660.	9672.	10127.	10280.	10323.	10772.	10822.
PER Q=	.8	.1	.3	5.2	1.6	82.7	9.3	
AREA=	132.2	15.5	56.5	473.7	142.4	3822.8	435.8	
VEL=	3.7	3.6	3.1	5.6	5.9	13.0	12.8	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICCNT	CORAR	TOPWID	ENDST

*SECNO 31.301

3301 HV CHANGED MORE THAN HVINS

31.30	14.06	1234.16	.00	.00	1234.65	.49	1.65	.19	1225.50
60000.	8464.	51123.	413.	1822.	8833.	95.	2562.	427.	1220.70
.53	4.65	5.79	4.35	.025	.025	.025	.000	1220.10	9314.74
.000647	1190.	1440.	1390.	2	0	0	.00	1566.98	10881.52

FLOW DISTRIBUTION FOR SECNO= 31.30 CWSEL= 1234.16

STA=	9315.	9384.	9690.	10868.	10982.
PER Q=	.3	13.8	95.2	.7	
AREA=	95.6	1726.3	9833.1	95.0	
VEL=	1.9	4.8	5.8	4.3	

*SECNO 31.522

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.52	10.70	1235.10	.00	.00	1235.15	1.05	1.34	.17	1244.50
60000.	5812.	53188.	0.	888.	6404.	0.	2902.	471.	1254.30
.57	7.57	8.30	.00	.025	.025	.025	.000	1224.40	8081.39
.002619	1120.	1160.	1650.	3	0	0	.00	1763.71	11506.50

FLOW DISTRIBUTION FOR SECNO= 31.52 CWSEL= 1235.10

STA=	8081.	8179.	8273.	8335.	8402.	8429.	11539.
PER Q=	.0	3.1	5.8	2.4	.0	88.6	
AREA=	15.0	290.5	355.7	214.9	11.0	6404.4	
VEL=	.9	6.5	9.8	6.6	1.7	8.3	

*SECNO 31.725

3255 DIVIDED FLOW

31.73	8.46	1237.96	.00	.00	1238.95	1.00	2.79	.01	1246.20
60000.	11776.	43121.	5104.	1394.	5284.	984.	3095.	522.	1237.10
.61	8.44	8.16	5.19	.025	.025	.025	.000	1229.50	7961.93
.002657	870.	1070.	1530.	3	0	0	.00	2200.32	12226.76

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 31.73 CWSEL= 1237.96

STA=	7962.	8561.	8698.	8740.	8957.	11020.	11976.	12219.	12227.
PER Q=	3.3	13.1	3.1	.1	71.9	5.2	3.2	.1	
AREA=	362.1	792.0	212.1	28.2	5284.3	619.2	352.3	12.8	
VEL=	5.5	9.9	8.9	2.4	8.2	5.0	5.5	4.0	

*SECNO 31.995

3265 DIVIDED FLOW

31.90	12.51	1240.61	.00	.00	1241.37	.76	2.40	.02	1245.10
60000.	20505.	39495.	0.	2768.	5815.	0.	3265.	572.	1246.30
.65	7.41	6.79	.00	.025	.025	.025	.000	1228.10	8341.79
.002334	920.	990.	1000.	2	0	0	.00	2337.81	11759.57

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1240.51

STA=	8342.	8441.	8592.	8604.	8649.	8752.	8781.	8906.	9014.	9151.	9166.	12146.
PER Q=	1.1	6.6	.3	1.1	5.6	.5	.6	7.7	10.4	.2	55.8	
AREA=	159.8	568.9	35.8	117.9	445.5	62.1	81.1	546.2	718.8	31.9	5815.0	
VEL=	4.1	6.9	5.7	5.5	7.6	4.7	4.4	8.5	8.7	4.6	6.8	

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 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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XGECV	XSECH	FN	ALLDC	IEW	CHNIM	ITRACE
	4.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
  Q         OLOB      OCH       OROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*PROF 4

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.35     7.50  1205.50      .00  1217.31  1207.88     1.39      .00      .00  1218.00
   80000.       0.   80000.       0.       0.    9466.       0.       0.       0.   1220.00
      .00      .00     9.45      .00     .025     .025     .025     .000  1199.00  5031.96
  .001999       0.       0.       0.        0        0        6      .00  1260.77  6292.73


FLOW DISTRIBUTION FOR SECNO=     28.36          CWSEL=   1205.50

STA=    5032.    6340.
  PER Q=    100.0
   AREA=   9466.5
    VEL=      9.4

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.646

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    28.65    11.98  1209.18  1209.05      .00  1212.67     3.49     4.16      .53  1213.70
   80000.     551.   79449.       0.     152.    5279.       0.     243.      37.   1213.00
      .03     3.52     15.05      .00     .025     .025     .025     .000  1197.20  9492.19
  .003962    1550.    1520.    1450.        4       14        0      .00   820.27 10729.26


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1209.18

STA=    9492.    9537.    9559.   10770.
  PER Q=       .5       .1     99.3
   AREA=    133.7     18.2   5279.3
    VEL=      3.7      3.3     15.0

*SECNO 28.831

3265 DIVIDED FLOW
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       CROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3301 HV CHANGED MORE THAN HVINS

   28.83    14.44  1213.44       .00       .00  1214.03       .59      1.07       .29  1204.70
  80000.   47257.   26957.     5786.     8073.     3821.     1546.      455.       54.  1207.10
     .07     5.85      7.05      3.74      .025      .025      .025      .000   1199.00  9227.50
 .000496     950.     1000.     1010.         3         0         0       .00   1651.30 11121.73


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1213.44

STA=    9229.     9280.     9450.     9515.     9550.    10000.    10196.    10496.    10651.    10855.    11132.
  PER Q=      2.3      24.1       4.0      10.3       7.8      10.6      33.7       5.2       2.0        .0
   AREA=    378.9    2454.1     572.4    1956.0    1153.9    1557.3    3920.8     947.0     592.8      5.5
    VEL=      4.8       7.9       5.5       4.2       5.4       5.5       7.1       4.4       2.7        .5

*SECNO 29.017

3255 DIVIDED FLOW

   29.02    14.75  1213.85       .00       .00  1214.79       .94       .55       .10  1209.40
  80000.   13046.   65051.     1903.     2977.     7781.      644.      742.      104.  1215.30
     .11     4.53      8.35      2.95      .025      .025      .025      .000   1199.10  9140.95
 .000885    1000.     1020.     1020.         3         0         0       .00   1792.93 10950.17


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1213.85

STA=    9141.     9179.     9445.     9852.    10620.    10693.    10750.    10950.
  PER Q=       .9       8.5       7.1      81.3        .2        .9      1.3
   AREA=    143.3    1315.4    1417.2    7780.6      82.9     175.8    385.4
    VEL=      4.2       5.1       4.0       8.4       2.2       3.8      2.7

*SECNO 29.221
   29.22    13.30  1214.80       .00       .00  1215.94      1.14      1.09       .05  1209.00
  80000.   27345.   51322.     1333.     3354.     5788.      555.      992.      144.  1213.50
     .14     8.15      8.87      2.40      .025      .025      .025      .000   1201.50  9209.20
 .001377     950.     1020.      970.         2         0         0       .00   1699.38 10906.59


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1214.80

STA=    9208.     9234.     9409.     9685.    10403.    10756.    10900.    10907.
  PER Q=       .7      14.2      19.3      64.2        .9        .7        .0
   AREA=    103.7    1332.4    1917.6    5787.7     337.8     209.3       7.6
    VEL=      5.4       8.5       8.0       8.9       2.1       2.8       2.3
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  SECNO     DEPTH     CWSEL     CRIWS     WSELR     EG        HV        HL        CLOSS     BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 29.473
    29.47     13.32   1216.32       .00       .00   1217.43      1.11      1.48       .00   1205.70
   80000.    17771.    58439.     3790.     2092.     6747.     1219.     1253.      193.   1216.00
      .19      9.50      8.66      3.11      .025      .025      .025      .000   1203.00   9133.96
  .001090     1030.     1300.      970.         3         0         0       .00   2218.83  11352.79


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1216.32

STA=    9134.    9151.    9370.   10097.   11009.   11300.   11353.
  PER Q=       .4     21.8     73.0       .3      3.8       .5
   AREA=     73.8   2017.9   6746.7    290.4    792.7    135.1
    VEL=      4.9      8.6      8.7       .9      3.8      3.7

*SECNO 29.676

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    29.59     19.19   1217.58       .00       .00   1218.17       .59       .59       .05   1214.90
   80000.    15893.    29902.    34315.     2307.     3954.     8356.     1542.      248.   1210.80
      .23      6.88      7.54      4.11      .025      .025      .025      .000   1198.40   8823.88
  .000458      920.     1060.     1020.         2         0         0       .00   2439.40  11795.57


FLOW DISTRIBUTION FOR SECNO=     29.59          CWSEL=   1217.58

STA=    8924.    8958.    9013.    9284.    9615.    9969.   11121.   11510.   11569.   11797.
  PER Q=     16.7      3.1     37.3     11.1      8.0      4.2      3.1      7.4      9.1
   AREA=   1835.0    471.3   3953.9   2056.5   1523.8   1378.4   1013.0   1133.4   1240.9
    VEL=      7.3      5.3      7.5      4.3      4.2      2.4      2.4      5.3      5.9

*SECNO 29.981

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3995 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
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SECNO    DEPTH    CWSEL    CRIWS    WSELR    EG       HV       HL       OLOSS    BANK ELEV
Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


3720 CRITICAL DEPTH ASSUMED
   29.98    11.07  1220.17  1220.17      .00  1222.67     2.49     1.45      .57  1222.90
  80000.      67.    54911.   25022.      32.    3949.    2655.    1877.     304.   1225.00
     .26     2.12     13.90     9.43     .025     .025     .025     .000  1209.10  9009.54
 .003921    1520.    1600.    1180.       20       11        0      .00  1363.13 10809.37


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1220.17

STA=    9009.    9055.    9081.   10000.   10041.   10104.   10378.   10459.   10594.   10774.   10789.   10809.
  PER Q=      .1       .0     58.6       .2      1.3      8.6     10.1      7.9      2.2       .7       .3
   AREA=    20.2     11.5   3949.2     26.9    153.7    868.5    590.2    601.0    312.8     56.3     45.2
    VEL=     2.1      2.1     13.9      5.0      6.6      7.9     13.7     10.5      5.7      9.3      5.9

*SECNO 29.982

3265 DIVIDED FLOW

   29.98    11.51  1220.71      .00      .00  1222.73     2.02      .02      .05  1222.90
  80000.      210.    53312.   26478.      83.    4239.    3074.    1878.     304.   1225.00
     .26     2.53     12.58     9.51     .025     .025     .025     .000  1209.10  8990.05
 .002867       5.       5.       5.        8        0        0      .00  1445.18 10812.19


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1220.71

STA=    8990.    9055.    9097.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10788.   10812.
  PER Q=      .2       .1     56.6       .2      1.5      9.7      9.9      7.9      2.7       .7       .4
   AREA=    52.9     30.2   4239.1     36.5    188.0   1016.5    634.4    670.1    405.3     63.9     57.7
    VEL=     2.5      2.5     12.6      4.9      6.6      7.6     12.5      9.4      5.4      8.8      5.6

*SECNO 30.194

3301 HV CHANGED MORE THAN HVINS

   30.19    15.09  1223.89      .00      .00  1226.59     2.71     3.66      .21  1236.30
  80000.       0.    80000.       0.       0.    5059.       0.    2053.     335.   1228.50
     .29      .00     13.20      .00     .025     .025     .025     .000  1208.80  9084.81
 .003697    1120.    1120.    1170.        2        0        0      .00   866.69  9951.50


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1223.89

STA=    9085.   10000.
  PER Q=    100.0
   AREA=   6059.4
    VEL=     13.2
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 SECNO    DEPTH    CWSEL    CRIWS    WSELR    CD       HV       HL       SLOPE    SSTA ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      ARCB     VOL      TWA      LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*SECNO 30.195
   30.19    15.19  1223.99      .00      .00  1226.62     2.63      .02      .01  1236.30
  80000.       0.   80000.       0.       0.    6145.       0.    2054.     335.   1228.50
     .29      .00    13.02      .00     .025     .025     .025     .000  1208.80  9094.19
 .003537       5.       5.       5.        2        0        0      .00   869.34  9952.53


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1223.99

STA=    9094.   10000.
  PER Q=    100.0
   AREA=   6144.9
    VEL=     13.0

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

   30.46    13.32  1228.02      .00      .00  1228.77      .75     1.97      .19  1239.10
  80000.       0.   80000.       0.       0.   11494.       0.    2331.     369.   1233.70
     .34      .00     6.96      .00     .025     .025     .025     .000  1214.70  9392.53
 .000773    1280.    1370.    1030.        2        0        0      .00  1328.17 10720.70


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1228.02

STA=    9393.   10777.
  PER Q=    100.0
   AREA=  11493.6
    VEL=      7.0

*SECNO 30.815
   30.82    13.45  1229.45      .00      .00  1230.32      .97     1.51      .03  1236.50
  80000.       0.   80000.       0.       0.   10715.       0.    2797.     423.   1251.50
     .41      .00     7.47      .00     .025     .025     .025     .000  1216.00  9534.49
 .000983    1350.    1830.    1390.        3        0        0      .00  1231.14 10855.62


FLOW DISTRIBUTION FOR SECNO=     30.82          CWSEL=   1229.45

STA=    9634.   11136.
  PER Q=    100.0
   AREA=  10715.8
    VEL=      7.5
```

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 31.028

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3585 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

31.03	18.53	1231.23	1231.23	.00	1234.51	3.28	1.69	.72	1229.00
80000.	8721.	64301.	6978.	1171.	4217.	480.	3006.	450.	1212.70
.43	7.45	15.25	14.53	.025	.025	.025	.000	1212.70	9532.37
.003327	1060.	1100.	1100.	20	11	0	.00	926.87	10824.03

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1231.23

STA=	9532.	9550.	9576.	10127.	10280.	10323.	10772.	10824.
PER Q=	1.5	.2	.5	5.5	2.0	80.4	9.7	
AREA=	236.7	29.0	118.6	607.7	180.3	4217.2	480.2	
VEL=	5.2	4.8	4.3	8.6	8.9	15.2	14.5	

*SECNO 31.029

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.03	19.29	1231.99	.00	.00	1234.50	2.50	.01	.07	1228.00
80000.	10748.	62511.	6642.	1532.	4562.	521.	3007.	450.	1212.70
.43	7.02	13.72	12.75	.025	.025	.025	.000	1212.70	9529.14
.002427	5.	5.	5.	7	0	0	.00	1018.67	10826.17

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1231.99

STA=	9528.	9550.	9590.	9882.	10127.	10280.	10323.	10772.	10826.
PER Q=	2.3	.2	.0	1.0	7.5	2.3	78.3	8.3	
AREA=	336.1	41.9	21.1	195.0	724.7	213.3	4551.9	520.8	
VEL=	5.6	4.7	1.5	4.3	8.3	8.5	13.7	12.8	

```
Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICCNT    CORAR    TOPWID    ENDST


*SECNO 31.301

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

   31.30    15.61  1235.71      .00      .00  1236.29      .59     1.49      .20  1225.50
  80000.    12460.   67011.     529.    2436.   10665.     118.    3323.     491.   1220.70
     .49     5.12     6.28     4.48     .025     .025     .025     .000  1220.10  9102.04
 .000593    1190.    1440.    1380.        2        0        0      .00  1610.27 10893.25


FLOW DISTRIBUTION FOR SECNO=     31.30          CWSEL=   1235.71

STA=    9102.    9384.    9590.   10868.   10893.
  PER Q=       .7     14.9     83.8       .7
   AREA=    234.2   2201.4  10565.4    118.2
    VEL=      2.4      5.4      6.3      4.5

*SECNO 31.522

3265 DIVIDED FLOW

   31.52    12.15  1236.55      .00      .00  1237.54      .99     1.13      .12  1244.50
  80000.    10473.   69527.       0.    1434.    8605.       0.    3632.     538.   1254.30
     .53     7.31     8.08      .00     .025     .025     .025     .000  1224.40  9075.29
 .001923    1120.    1150.    1650.        3        0        0      .00  1975.18 11508.11


FLOW DISTRIBUTION FOR SECNO=     31.52          CWSEL=   1236.55

STA=    8075.    8091.    8179.    8273.    8335.    8402.    8479.   11539.
  PER Q=       .0       .7      3.8      5.4      2.8       .3     86.9
   AREA=      4.4    156.8    426.3    445.7    312.3     87.0   8605.4
    VEL=      2.1      3.6      7.2      9.7      7.3      2.8      8.1

*SECNO 31.725

3265 DIVIDED FLOW

   31.73     9.32  1238.82      .00      .00  1239.92     1.10     2.34      .03  1246.20
  80000.    15582.   55252.    9156.    1745.    6398.    1600.    3876.     596.   1237.10
     .57     8.93     8.64     5.73     .025     .025     .025     .000  1229.50  7960.77
 .002549     870.    1070.    1530.        3        0        0      .00  2533.54 12228.86
```

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 31.73 CWSEL= 1238.82

STA=	7951.	8561.	8698.	8740.	8960.	11020.	11895.	12089.	12219.	12229.
PER Q=	4.1	12.1	3.0	.3	69.1	4.6	3.0	3.7	.1	
AREA=	510.1	910.6	248.9	75.6	5397.8	735.6	409.3	434.5	20.5	
VEL=	6.4	10.6	9.7	3.2	8.6	5.0	5.9	6.9	4.6	

*SECNO 31.896

3265 DIVIDED FLOW

31.90	13.30	1241.40	.00	.00	1242.30	.90	2.36	.02	1245.10
90000.	27683.	52312.	0.	3368.	7173.	0.	4101.	653.	1246.30
.61	8.22	7.29	.00	.025	.025	.025	.000	1228.10	8334.55
.002356	920.	980.	1000.	2	0	0	.00	2565.48	11764.45

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1241.40

STA=	8335.	8592.	8752.	9014.	9151.	9169.	12146.
PER Q=	9.4	7.3	8.7	9.9	.3	55.4	
AREA=	929.9	726.0	839.5	827.1	45.1	7172.5	
VEL=	7.2	8.0	8.3	9.6	5.2	7.3	

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  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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	6.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	5.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

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   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 5

CCHV=    .300 CEHV=    .500
*SECNO 28.359
    28.36     8.49  1207.49      .00  1217.31  1209.13   1.64      .00      .00  1218.00
  100000.       0.  100000.       0.       0.    9729.      0.       0.       0.   1220.00
      .00      .00    10.28      .00     .025     .025     .025     .000  1199.00  5029.18
  .001979       0.       0.       0.        0        0        5      .00  1267.04  6296.23


FLOW DISTRIBUTION FOR SECNO=     28.36          CWSEL=   1207.49

STA=    5029.    6340.
  PER Q=    100.0
   AREA=   9729.7
    VEL=     10.3

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.546

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7195 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    28.65    13.28  1210.48  1210.48      .00  1214.31     3.83     4.10      .56  1213.70
  100000.    2388.   97612.       0.     409.    6154.       0.     295.      39.   1213.00
      .03     5.84    15.86      .00     .025     .025     .025     .000  1197.20  9446.75
  .003879    1650.    1520.    1450.        3       14        0      .00   922.09 10743.19


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1210.48

STA=    9447.    9502.    9637.    9675.   10770.
  PER Q=       .1      2.0       .3     97.5
   AREA=     43.6    307.8     57.3   6154.5
    VEL=      3.2      6.4      4.8     15.9

*SECNO 28.831
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   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    28.83    15.99  1214.99      .00      .00  1215.63      .65     1.01      .32  1204.70
   100000.   59307.   31761.    8932.    9562.    4301.    2236.     540.      69.  1207.10
      .07     5.20     7.38     3.99     .025     .025     .025     .000  1199.00  9221.97
   .000454     950.    1000.    1010.        2        0        0      .00  1781.00 11156.94


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1214.99

STA=    9222.    9290.    9450.    9516.    9860.   10000.   10196.   10495.   10551.   10909.   11123.   11157.
  PER Q=      2.3     22.1      4.0     11.9      8.0     10.9     31.9      5.9      2.9       .1       .0
   AREA=    464.6   2717.5    574.5   2489.0   1370.9   1845.0   4301.2   1198.1    949.2     63.1     35.4
    VEL=      5.0      8.1      6.0      4.8      5.9      5.9      7.4      5.0      3.1      1.3      1.3

*SECNO 29.017
    29.02    16.28  1215.38      .00      .00  1216.31      .92      .59      .08  1209.40
   100000.   20431.   75399.    4170.    3986.    9939.    1202.     990.     112.  1215.30
      .11     5.13     8.44     3.47     .025     .025     .025     .000  1199.10  9133.25
   .000755    1000.    1020.    1020.        2        0        0      .00  1896.48 11029.74


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1215.38

STA=    9133.    9179.    9445.    9852.   10620.   10537.   10593.   10750.   11030.
  PER Q=       .9      9.8      9.7     75.4       .0       .6      1.2      2.4
   AREA=    207.2   1723.5   2055.0   9938.6     18.7    167.6    262.6    752.7
    VEL=      4.4      5.7      4.7      8.4      1.7      3.4      4.5      3.2

*SECNO 29.221
    29.22    14.84  1215.14      .00      .00  1217.32     1.19      .94      .09  1203.00
   100000.   33830.   61608.    4552.    3990.    6743.    1228.    1188.     152.  1213.50
      .14     8.49     9.14     3.72     .025     .025     .025     .000  1201.50  9204.00
   .001193     950.    1020.     970.        2        0        0      .00  1706.38 10910.39


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1216.14

STA=    9204.    9234.    9409.    9685.   10403.   10756.   10900.   10910.
  PER Q=       .8     13.8     19.2     61.6      2.9      1.6       .1
   AREA=    140.6   1565.5   2294.3   6742.6    808.1    400.5     18.9
    VEL=      5.6      8.8      8.4      9.1      3.6      4.1      2.9
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   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.473
    29.47    14.48  1217.48      .00      .00  1218.66     1.18     1.34      .00  1205.70
  100000.   21167.   69329.    9505.    2366.    7588.    2679.    1520.     202.   1216.00
      .18     8.95     9.14     3.55     .025     .025     .025     .000  1203.00  9131.77
  .001037    1030.    1300.     970.        2        0        0      .00  2232.96 11364.73


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1217.48

STA=    9132.    9151.    9370.   10097.   11008.   11300.   11365.
  PER Q=       .5     20.7     69.3      3.3      5.3       .8
   AREA=     94.4   2271.2   7599.1   1345.4   1130.2    203.1
    VEL=      5.1      9.1      9.1      2.5      4.7      4.1

*SECNO 29.575

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    29.58    20.35  1218.76      .00      .00  1219.39      .53      .58      .06  1214.90
  100000.   18420.   33956.   47624.    2531.    4275.   10847.    1875.     260.   1210.80
      .22     7.28     7.94     4.39     .025     .025     .025     .000  1199.40  8323.22
  .000459     920.    1060.    1020.        2        0        0      .00  2597.35 11803.78


FLOW DISTRIBUTION FOR SECNO=     29.58          CWSEL=   1219.75

STA=    8823.    8958.    9013.    9284.    9516.    9869.   10983.   11446.   11559.   11804.
  PER Q=     15.3      3.1     34.0     11.9      9.7      4.1      5.2      8.2      8.5
   AREA=   1995.1    535.5   4275.1   2458.5   1822.4   1552.3   2056.2   1561.0   1395.3
    VEL=      7.7      5.8      7.9      4.8      4.8      2.6      3.0      5.3      5.1

*SECNO 29.981

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3595 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
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  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      FWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


3720 CRITICAL DEPTH ASSUMED
    29.98    11.85  1220.95  1220.95      .00  1223.83     2.89     1.45      .58  1222.90
  100000.     370.   65684.   33946.     113.    4364.    3257.    2271.     321.   1225.00
      .25     3.29    15.05    10.42     .025     .025     .025     .000  1209.10  9967.90
  .003963    1530.    1600.    1180.       20       14        0      .00  1468.06 10813.39


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1220.95

STA=    8969.    9055.    9104.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10798.   10813.
  PER Q=      .2       .1     65.7       .2      1.6     10.1      9.8      8.0      3.1       .7       .4
   AREA=    71.7     40.9   4363.8     41.1    202.7   1080.0    653.4    700.5    448.9     57.2     63.5
    VEL=     3.3      3.3     15.1      5.9      8.1      9.3     14.9     11.4      6.8     10.5      6.8

*SECNO 29.992

3265 DIVIDED FLOW

3995 20 TRIALS ATTEMPTED WSEL,CWSEL
3720 CRITICAL DEPTH ASSUMED
    29.98    12.02  1221.12  1221.12      .00  1223.82     2.70      .02      .02  1222.90
  100000.     461.   65000.   34529.     137.    4455.    3393.    2272.     322.   1225.00
      .25     3.36    14.59    10.18     .025     .025     .025     .000  1209.10  9959.74
  .003628       5.       5.       5.       20        5        0      .00  1484.98 10814.23


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1221.12

STA=    8959.    9055.    9110.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10799.   10814.
  PER Q=      .3       .2     65.0       .3      1.7     10.4      9.7      8.1      3.3       .7       .5
   AREA=    87.4     49.9   4456.2     44.6    213.6   1127.0    667.4    723.0    490.3     59.5     68.0
    VEL=     3.4      3.4     14.6      5.8      8.0      9.2     14.5     11.2      6.8     10.4      6.6

*SECNO 30.194

3265 DIVIDED FLOW

    30.19    16.13  1224.93  1224.37      .00  1228.10     3.17     4.14      .14  1236.30
  100000.       0.   99727.     273.       0.    6969.     127.    2468.     356.   1228.50
      .28      .00    14.31     2.16     .025     .025     .025     .000  1208.80  9078.30
  .003702    1120.    1120.    1170.        4       11        0      .00  1171.27 10307.20
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  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1224.93

STA=    9078.   10000.   10274.   10307.
  PER Q=     99.7       .3       .0
   AREA=   5968.8    121.1      5.4
    VEL=     14.3      2.2      1.1

*SECNO 30.195

3265 DIVIDED FLOW

    30.19    15.34  1225.14  1224.39      .00  1228.13     3.00      .02      .02  1236.30
  100000.       0.   99518.     482.       0.    7146.     199.    2469.     357.   1228.50
      .28      .00    13.93     2.55     .025     .025     .025     .000  1208.80  9077.04
  .003403       5.       5.       5.        6        8        0      .00  1231.12 10664.92


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1225.14

STA=    9077.   10000.   10274.   10327.   10665.
  PER Q=     93.5       .5       .0       .0
   AREA=   7145.4    172.2     14.1      2.3
    VEL=     13.9      2.7      1.4       .5

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    14.68  1229.38      .00      .00  1230.26      .88     1.91      .21  1239.10
  100000.       0.  100000.       0.       0.   13313.       0.    2792.     396.   1233.70
      .33      .00     7.51      .00     .025     .025     .025     .000  1214.70  9387.42
  .000754    1280.    1370.    1030.        2        0        0      .00  1346.83 10734.25


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1229.38

STA=    9397.   10777.
  PER Q=    100.0
   AREA=  13313.0
    VEL=      7.5

*SECNO 30.815
    30.82    14.77  1230.77      .00      .00  1231.79     1.02     1.49      .04  1236.50
  100000.       0.  100000.       0.       0.   12353.       0.    3332.     450.   1251.50
      .39      .00     8.10      .00     .025     .025     .025     .000  1215.00  9622.09
  .000892    1350.    1830.    1390.        3        0        0      .00  1255.36 10877.46
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Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	AA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 30.82 CWSEL= 1230.77

STA= 9622. 11136.
PER Q= 100.0
AREA= 12352.5
VEL= 8.1

*SECNO 31.028

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3695 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

31.03	19.86	1232.55	1232.55	.00	1236.01	3.45	1.64	.73	1228.00
100000.	15263.	76706.	8030.	1838.	4812.	551.	3578.	480.	1212.70
.41	8.31	15.94	14.57	.025	.025	.025	.000	1212.70	9525.05
.003049	1060.	1100.	1100.	20	11	0	.00	1085.42	10927.73

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1232.55

STA=	9525.	9534.	9660.	9682.	9882.	9897.	10127.	10290.	10323.	10772.	10828.
PER Q=	.0	2.9	.3	.2	.0	1.4	8.1	2.4	76.7	8.0	
AREA=	7.6	402.8	53.7	50.7	10.3	255.4	809.8	237.3	4912.5	551.3	
VEL=	2.9	7.1	5.8	2.5	2.5	5.3	10.0	10.2	15.9	14.6	

*SECNO 31.029

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.03	20.51	1233.31	.00	.00	1236.09	2.78	.01	.07	1228.00
100000.	17887.	74429.	7694.	2334.	5148.	594.	3579.	480.	1212.70
.41	7.65	14.46	12.95	.025	.025	.025	.000	1212.70	9520.94
.002292	5.	5.	5.	7	0	0	.00	1228.77	10829.82

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICCNT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1233.31

STA=	9521.	9534.	9560.	9683.	9757.	9882.	9905.	10127.	10290.	10323.	10772.	10830.
PER Q=	.1	3.5	.4	.1	.5	.1	2.0	8.7	2.6	74.4	7.7
AREA=	15.9	496.6	70.8	33.7	144.6	24.7	354.4	923.9	269.6	5148.4	593.6
VEL=	3.2	7.1	5.0	1.7	3.1	2.9	5.5	9.5	9.7	14.5	12.9

*SECNO 31.301

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.30	15.96	1237.06	.00	.00	1237.71	.55	1.40	.21	1225.50
100000.	17023.	82329.	549.	3294.	12256.	140.	3955.	529.	1220.70
.47	5.18	5.72	4.62	.025	.025	.025	.000	1220.10	9351.22
.000564	1190.	1440.	1390.	2	0	0	.00	1994.52	10894.67

FLOW DISTRIBUTION FOR SECNO= 31.30 CWSEL= 1237.05

STA=	8951.	9104.	9140.	9276.	9394.	9690.	10869.	10885.
PER Q=	.3	.0	.1	1.2	15.4	82.3	.5
AREA=	206.1	24.7	59.7	390.7	2613.8	12255.8	140.4
VEL=	1.3	1.1	1.1	3.3	5.9	5.7	4.6

*SECNO 31.522

3265 DIVIDED FLOW

31.52	13.50	1237.90	.00	.00	1238.82	.92	1.03	.09	1244.50
100000.	15451.	84549.	0.	2138.	10890.	0.	4335.	587.	1264.30
.51	7.23	7.76	.00	.025	.025	.025	.000	1224.40	9059.53
.001623	1120.	1160.	1650.	3	0	0	.00	2458.48	11509.50

FLOW DISTRIBUTION FOR SECNO= 31.52 CWSEL= 1237.90

STA=	8070.	8081.	8179.	8273.	8335.	8402.	8484.	8527.	8775.	8783.	11539.
PER Q=	.0	1.4	4.3	5.3	3.2	.8	.0	.3	.0	84.5
AREA=	16.5	288.5	552.5	530.3	402.8	197.2	26.1	119.9	4.4	10890.0
VEL=	2.9	4.9	7.9	10.0	7.9	4.3	1.7	2.3	1.7	7.8

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 31.725

3265 DIVIDED FLOW

31.73	10.25	1239.75	.00	.00	1240.84	1.09	1.97	.05	1246.20
100000.	18892.	65590.	14418.	2161.	7634.	2460.	4649.	656.	1237.10
.55	8.74	8.74	5.86	.025	.025	.025	.000	1229.50	7959.52
.002117	870.	1070.	1530.	3	0	0	.00	2872.48	12345.22

FLOW DISTRIBUTION FOR SECNO= 31.73 CWSEL= 1239.75

STA=	7960.	8551.	8698.	8793.	8963.	11020.	11826.	11976.	12219.	12345.
PER Q=	4.5	11.0	3.2	.2	65.7	4.1	5.1	5.0	.2	
AREA=	692.6	1037.8	394.7	56.0	7633.6	939.7	681.2	775.7	62.0	
VEL=	5.7	10.5	8.3	3.4	8.7	4.4	7.5	6.4	3.1	

*SECNO 31.895

3255 DIVIDED FLOW

31.90	13.87	1241.97	.00	.00	1243.05	1.08	2.21	.00	1246.10
100000.	34313.	65687.	0.	3828.	8193.	0.	4918.	718.	1246.30
.58	8.96	8.02	.00	.025	.025	.025	.000	1228.10	9329.57
.002487	920.	980.	1000.	2	0	0	.00	2580.48	11759.63

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1241.97

STA=	8330.	8592.	8752.	8914.	9151.	9171.	12146.
PER Q=	9.6	7.2	9.7	9.5	.3	65.7	
AREA=	1076.5	815.3	975.1	904.3	55.8	8193.2	
VEL=	9.0	8.9	8.9	10.5	5.7	8.0	

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 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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	7.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	6.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

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  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 6

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.35      9.38  1208.38       .00  1217.31  1210.28      1.90       .00       .00  1218.00
  120000.        0.  120000.        0.       0.  10854.        0.        0.        0.  1220.00
      .00       .00     11.06       .00     .025     .025      .025      .000  1199.00  5026.72
  .001990        0.        0.        0.        0        0         5       .00  1272.61  5299.33


FLOW DISTRIBUTION FOR SECNO=     28.35          CWSEL=   1208.38

STA=    5027.    5340.
  PER Q=     100.0
   AREA=  10854.3
    VEL=     11.1

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.646

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7195 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    28.65     14.53  1211.73  1211.73       .00  1215.69      3.95      4.02       .52  1213.70
  120000.      5302.  114640.       58.      733.     7049.       35.      327.       42.  1213.00
      .03      7.23     15.26      1.67      .025      .025      .025      .000  1197.20  9402.85
  .003653     1650.     1520.     1450.         3        14         0       .00  1129.82 11089.52


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1211.73

STA=    9403.    9502.    9637.    9592.   10770.   11085.   11090.
  PER Q=       .5       3.3       .6     95.5       .0       .0
   AREA=    140.5     477.2    115.7   7048.6     33.4      1.3
    VEL=      4.5       8.3      5.9     15.3      1.7      1.7

*SECNO 28.831
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TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

28.83	17.29	1215.29	.00	.00	1217.00	.71	.98	.33	1204.70
120000.	71090.	35446.	12465.	10818.	4704.	2953.	622.	76.	1207.10
.07	6.57	7.75	4.21	.025	.025	.025	.000	1199.00	9217.14
.000453	950.	1000.	1010.	2	0	0	.00	1889.86	11178.10

FLOW DISTRIBUTION FOR SECNO= 28.83 CWSEL= 1215.29

STA=	9217.	9280.	9450.	9515.	9860.	10000.	10186.	10496.	10651.	10954.	11123.	11178.
PER Q=	2.4	20.7	4.1	12.9	9.1	11.0	30.4	6.3	3.7	.2	.1	
AREA=	543.2	2938.6	760.2	2936.3	1553.1	2086.5	4704.5	1390.4	1312.9	166.2	93.3	
VEL=	5.2	6.5	6.4	5.3	5.3	6.3	7.7	5.4	3.4	1.9	1.8	

*SECNO 29.017

29.02	17.58	1215.68	.00	.00	1217.63	.95	.56	.07	1209.40
120000.	27557.	85596.	6937.	4928.	9915.	1773.	1030.	121.	1215.30
.10	5.59	8.63	3.86	.025	.025	.025	.000	1199.10	9126.79
.000699	1000.	1020.	1020.	2	0	0	.00	1969.99	11096.69

FLOW DISTRIBUTION FOR SECNO= 29.02 CWSEL= 1215.68

STA=	9127.	9179.	9445.	9862.	10620.	10637.	10693.	10750.	11097.
PER Q=	1.0	10.5	11.4	71.3	.1	.8	1.4	3.4	
AREA=	270.2	2055.9	2591.6	9915.1	41.0	239.9	335.6	1156.1	
VEL=	4.6	6.1	5.3	8.6	2.8	4.1	5.1	3.5	

*SECNO 29.221

29.22	15.82	1217.32	.00	.00	1218.57	1.24	.95	.09	1208.00
120000.	40088.	71499.	8413.	4563.	7595.	1832.	1378.	163.	1213.50
.14	8.79	9.41	4.59	.025	.025	.025	.000	1201.50	9200.26
.001081	950.	1020.	970.	2	0	0	.00	1713.52	10913.78

FLOW DISTRIBUTION FOR SECNO= 29.22 CWSEL= 1217.32

STA=	9200.	9234.	9409.	9685.	10403.	10756.	10900.	10914.
PER Q=	.9	13.5	19.0	59.6	4.6	2.3	.1	
AREA=	178.2	1773.4	2611.5	7594.6	1227.8	571.2	33.2	
VEL=	5.9	9.1	8.7	9.4	4.5	4.9	3.4	

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  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      XTN      ELMIN    SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*SECNO 29.473
    29.47    15.58  1218.58      .00      .00  1219.78     1.20     1.21      .00  1205.70
  120000.   24123.   78721.   17157.    2630.    8393.    4088.    1768.     213.   1216.00
      .17     9.17     9.38     4.20     .025     .025     .025     .000  1203.00  9129.57
  .000955    1030.    1300.     970.        3        0        0      .00  2246.47 11376.14


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1218.58

STA=    9130.    9151.    9370.   10097.   11008.   11300.   11376.
  PER Q=       .5     19.5     55.6      6.8      6.5      1.0
   AREA=    116.5   2513.5   8392.7   2354.3   1452.8    281.0
    VEL=      5.3      9.4      9.4      3.5      5.4      4.4

*SECNO 29.576

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    29.58    21.43  1219.83      .00      .00  1220.48      .55      .55      .05  1214.90
  120000.   20597.   37621.   61682.    2733.    4565.   13358.    2186.     273.   1210.80
      .22     7.57     8.24     4.62     .025     .025     .025     .000  1198.40  8822.53
  .000452     920.    1060.    1020.        2        0        0      .00  2930.39 11810.29


FLOW DISTRIBUTION FOR SECNO=     29.58          CWSEL=   1219.83

STA=    8823.    8958.    9013.    9284.    9516.    9869.   10000.   11121.   11446.   11569.   11810.
  PER Q=     14.2      3.0     31.4     12.3      9.0      3.0      5.8      4.8      3.4      9.1
   AREA=  2139.6    593.5   4565.3   2812.6   2092.2    838.8   2591.7   1580.3   1799.7   1544.0
    VEL=      8.0      5.1      8.2      5.3      5.2      4.4      2.6      3.6      5.6      5.3

*SECNO 29.981

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3585 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY
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  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3720 CRITICAL DEPTH ASSUMED
    29.98     12.98  1222.08   1222.08       .00  1224.85      2.77      1.35       .53  1222.90
  120000.     1439.   73747.   44814.      310.    4978.     4164.     2653.      339.   1225.00
     .25      4.54     14.81    10.76      .025     .025      .025      .000  1209.10  8941.29
  .003273     1530.    1500.    1180.        20       16         0       .00  1546.57 10919.29


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1222.09

STA=    8941.    9055.    9139.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10789.   10919.
  PER Q=      .8       .4     61.5       .4      2.1     11.5      9.2      8.4      4.4       .9       .6
   AREA=   193.0    116.8   4978.3     67.3    274.7   1390.6    745.1    949.2    657.0     82.1     96.0
    VEL=     4.9      4.2      14.8      6.3      9.0      10.1     14.8     11.8      3.0     11.1      7.1

*SECNO 29.992

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    29.98     14.05  1223.15       .00       .00  1224.95      1.81       .01       .10  1222.90
  120000.     2998.   62991.   54011.      539.    5717.     5027.     2554.      340.   1225.00
     .25      5.57     11.02    10.74      .025     .025      .025      .000  1209.10  9937.19
  .002549       5.        5.       5.         9        0         0       .00  1874.80 10924.81


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1223.15

STA=    8937.    8944.    9055.    9163.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10788.   10925.
  PER Q=      .0      1.5       .9     52.5       .5      2.7     14.4     10.0      9.7      6.1       .9       .8
   AREA=     5.9    310.3    222.4   5716.9     97.8    342.2   1682.1    833.2    998.8    852.5     98.0    132.6
    VEL=     2.7      6.1      4.9     11.0      5.5      9.4      10.3     14.4     11.7      8.5     11.2      7.1

*SECNO 30.194

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7135 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WIN      ELMIN    SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICCNT    CORAR    TOPWID   ENDST


   30.19    17.09  1225.89  1225.89      .00  1229.36     3.47     3.47      .50  1236.30
 120000.       0.  117894.    2115.       0.    7826.     548.    2910.     383.   1229.50
     .27      .00    15.06     3.96     .025     .025     .025     .000  1208.80  9073.83
 .003592    1120.    1120.    1170.        3       11        0      .00  1469.08 10749.54


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1225.89

STA=    9074.   10000.   10024.   10274.   10404.   10640.   10735.   10750.
  PER Q=     98.2       .0      1.4       .2       .1       .1       .0
   AREA=   7825.2      7.1    361.0     83.5     32.0     61.4      2.7
    VEL=     15.1      3.0      4.5      2.7      2.1      2.5      1.2

*SECNO 30.195

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

   30.19    18.09  1226.88      .00      .00  1229.46     2.58      .01      .09  1236.30
 120000.       0.  114729.    5271.       0.    8726.    1223.    2911.     384.   1229.50
     .27      .00    13.15     4.31     .025     .025     .025     .000  1208.80  9069.85
 .002418       5.       5.       5.        7        0        0      .00  1688.42 10784.35


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1225.98

STA=    9070.   10000.   10024.   10274.   10495.   10640.   10735.   10784.
  PER Q=     95.6       .1      2.7       .7       .3       .5       .1
   AREA=   8726.5     18.8    610.0    261.4    142.9    156.7     33.5
    VEL=     13.1      3.4      5.3      3.3      2.9      4.1      2.3

*SECNO 30.459

3301 HV CHANGED MORE THAN HVINS

   30.46    15.64  1230.34      .00      .00  1231.38     1.05     1.77      .15  1239.10
 120000.       0.  120000.       0.       0.   14608.       0.    3292.     429.   1233.70
     .32      .00     8.21      .00     .025     .025     .025     .000  1214.70  9379.04
 .000911    1290.    1370.    1030.        2        0        0      .00  1364.74 10743.78
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TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1230.34

STA= 9379. 10777.
PER Q= 100.0
AREA= 14607.6
VEL= 8.2

*SECNO 30.815

30.82	15.92	1231.82	.00	.00	1233.01	1.20	1.59	.04	1235.50
120000.	0.	120000.	0.	0.	13578.	0.	3886.	484.	1251.60
.37	.00	8.77	.00	.025	.025	.025	.000	1216.00	9512.25
.000926	1350.	1830.	1390.	3	0	0	.00	1278.21	10890.46

FLOW DISTRIBUTION FOR SECNO= 30.82 CWSEL= 1231.82

STA= 9512. 11136.
PER Q= 100.0
AREA= 13677.9
VEL= 8.8

*SECNO 31.028

3235 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

31.03	21.04	1233.74	1233.74	.00	1237.27	3.53	1.64	.70	1222.00
120000.	23350.	87657.	8993.	2650.	5342.	619.	4166.	516.	1212.70
.39	9.91	16.41	14.53	.025	.025	.025	.000	1212.70	9519.55
.002810	1050.	1100.	1100.	20	11	0	.00	1247.44	10831.03

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1233.74

STA=	9519.	9534.	9660.	9683.	9757.	9882.	9910.	10000.	10127.	10230.	10323.	10772.	10931.
PER Q=	.1	3.9	.5	.2	.7	.1	.0	2.3	9.0	2.7	73.0	7.5	
AREA=	22.2	550.9	80.6	65.7	198.7	35.9	12.8	405.0	999.8	298.2	5342.4	618.8	
VEL=	3.9	8.4	7.2	2.9	4.3	3.7	2.0	6.8	11.0	11.2	16.4	14.5	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 31.029

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.03	21.58	1234.38	.00	.00	1237.34	2.96	.01	.06	1228.00
120000.	26055.	85254.	8681.	3135.	5628.	657.	4167.	516.	1212.70
.40	9.31	15.15	13.22	.025	.025	.025	.000	1212.70	9490.35
.002234	5.	5.	5.	7	0	0	.00	1299.62	10932.81

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1234.38

STA=	9490.	9560.	10127.	10280.	10323.	10772.	10933.
PER Q=	4.6	5.1	9.4	2.9	71.0	7.2
AREA=	671.2	1061.7	1096.9	315.6	5628.5	656.8
VEL=	8.0	5.7	10.4	10.6	15.1	13.2

*SECNO 31.301

3301 HV CHANGED MORE THAN HVINS

31.30	18.11	1238.21	.00	.00	1238.93	.72	1.36	.22	1225.50
120000.	22389.	96843.	768.	4266.	13612.	151.	4600.	567.	1220.70
.45	5.25	7.11	4.77	.025	.025	.025	.000	1220.10	9799.56
.000550	1190.	1440.	1390.	2	0	0	.00	2086.32	10885.89

FLOW DISTRIBUTION FOR SECNO= 31.30 CWSEL= 1238.21

STA=	8800.	8867.	9104.	9155.	9276.	9384.	9690.	10968.	10996.
PER Q=	.0	.9	.1	.3	1.6	15.7	80.7	.5
AREA=	51.2	475.8	79.3	198.6	505.6	2965.5	13612.3	160.9
VEL=	1.2	2.2	1.9	1.9	3.9	6.3	7.1	4.8

*SECNO 31.522

3265 DIVIDED FLOW

31.52	14.56	1239.06	.00	.00	1239.92	.86	.95	.04	1244.50
120000.	20393.	99607.	0.	2873.	13227.	0.	5052.	631.	1264.30
.50	7.10	7.53	.00	.025	.025	.025	.000	1224.40	8064.79
.001365	1120.	1150.	1650.	3	0	0	.00	2749.26	11510.89

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 31.52 CWSEL= 1239.06

STA=	8065.	8081.	8179.	8273.	8335.	8402.	8484.	8559.	8654.	8775.	8790.	11539.
PER Q=	.1	1.9	4.4	5.0	3.3	1.2	.2	.1	.9	.0	83.0	
AREA=	32.9	401.2	660.5	601.8	480.2	292.0	100.2	31.4	255.4	17.0	13227.1	
VEL=	3.4	5.6	8.1	10.0	8.1	5.1	2.4	2.1	3.6	2.4	7.5	

*SECNO 31.725

3255 DIVIDED FLOW

31.72	11.09	1240.59	.00	.00	1241.57	1.08	1.58	.06	1246.20
120000.	22082.	77279.	20639.	2590.	8751.	3519.	5438.	709.	1237.10
.53	8.53	8.83	5.87	.025	.025	.025	.000	1229.50	7958.40
.001809	870.	1070.	1530.	2	0	0	.00	3275.93	12357.27

FLOW DISTRIBUTION FOR SECNO= 31.73 CWSEL= 1240.59

STA=	7958.	8561.	8698.	8809.	8966.	11020.	11525.	11995.	12089.	12219.	12367.
PER Q=	4.9	10.1	3.2	.3	64.4	3.1	5.3	4.1	4.2	.4	
AREA=	867.3	1152.0	473.9	96.8	8750.7	942.5	997.8	753.1	653.7	161.5	
VEL=	5.3	10.5	9.0	3.7	8.8	4.0	6.4	5.5	7.5	3.2	

*SECNO 31.996

3255 DIVIDED FLOW

31.90	14.43	1242.53	.00	.00	1243.75	1.23	2.05	.04	1245.10
120000.	41056.	78944.	0.	4303.	9245.	0.	5754.	775.	1245.30
.55	9.54	8.54	.00	.025	.025	.025	.000	1222.10	9324.51
.002519	920.	980.	1000.	2	0	0	.00	2755.28	11772.79

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1242.53

STA=	8325.	8592.	8752.	9014.	9151.	9173.	12146.
PER Q=	8.9	7.2	8.7	9.1	.3	55.8	
AREA=	1225.4	905.2	1122.5	981.1	57.5	9245.5	
VEL=	8.7	8.6	8.3	11.1	5.1	8.5	

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**************************************************
  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
**************************************************


T1
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        8.        0.        0.   .002000      .00        .0        0.  1217.310      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7.000      .000    -1.000      .000      .000      .000      .000      .000      .000    15.000
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
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   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


*PROF 7

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.36    10.21  1209.21      .00  1217.31  1211.36     2.14      .00      .00  1219.00
  140000.       0.  140000.       0.       0.   11917.       0.       0.       0.   1220.00
      .00      .00    11.75      .00     .025     .025     .025     .000  1199.00  5024.41
  .001996       0.       0.       0.        0        0        5      .00  1277.84  6302.25


FLOW DISTRIBUTION FOR SECNO=     28.36          CWSEL=   1209.21

STA=    5024.    6340.
  PER Q=    100.0
   AREA=  11917.2
    VEL=     11.7

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.646

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7195 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    29.55    16.26  1213.46  1213.46      .00  1216.78     3.32     3.63      .35  1213.70
  140000.   11189.  126966.    1846.    1460.    8360.     462.     399.      52.   1213.00
      .03     7.56    15.19     4.00     .025     .025     .025     .000  1197.20  9351.92
  .002889    1650.    1520.    1450.        3       14        0      .00  1587.79 11100.70


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1213.46

STA=    9352.    9637.    9913.   10770.   11101.
  PER Q=      5.4      1.5     90.7      1.3
   AREA=   1065.9    394.5   8359.9    461.9
    VEL=      8.5      5.5     15.2      4.0

*SECNO 28.831
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	IDCNT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

28.83	18.18	1217.18	.00	.00	1217.99	.81	.96	.25	1204.70
140000.	82719.	41316.	15965.	11685.	4982.	3541.	732.	93.	1207.10
.07	7.08	8.29	4.51	.025	.025	.025	.000	1199.00	9213.89
.000481	950.	1000.	1010.	2	0	0	.00	1964.65	11192.64

FLOW DISTRIBUTION FOR SECNO= 28.83 CWSEL= 1217.18

STA=	9214.	9280.	9450.	9516.	9960.	10000.	10196.	10496.	10651.	10995.	11123.	11193.
PER Q=	2.4	19.9	4.1	13.5	8.2	11.1	29.5	5.5	4.2	.4	.2	
AREA=	500.9	3090.4	919.1	3243.6	1678.3	2252.4	4981.5	1529.4	1596.9	265.5	149.0	
VEL=	5.5	9.0	5.9	5.8	6.8	6.9	9.3	6.0	3.7	2.2	2.2	

*SECNO 29.017

29.02	19.50	1217.50	.00	.00	1218.54	1.04	.59	.07	1209.40
140000.	34207.	95305.	9497.	5515.	10622.	2240.	1181.	140.	1215.30
.10	6.09	9.07	4.24	.025	.025	.025	.000	1199.10	9122.11
.000693	1000.	1020.	1020.	2	0	0	.00	2023.01	11145.12

FLOW DISTRIBUTION FOR SECNO= 29.02 CWSEL= 1217.50

STA=	9122.	9179.	9445.	9862.	10620.	10627.	10593.	10750.	11145.
PER Q=	1.1	10.9	12.4	59.8	.1	1.0	1.6	4.1	
AREA=	320.9	2313.7	2980.0	10621.7	57.1	292.3	388.5	1501.7	
VEL=	4.9	6.6	5.9	9.1	3.5	4.7	5.6	3.8	

*SECNO 29.221

29.22	16.72	1218.22	.00	.00	1219.59	1.37	.85	.10	1209.00
140000.	46329.	81548.	12124.	4999.	8238.	2292.	1568.	182.	1213.50
.13	9.27	9.90	5.29	.025	.025	.025	.000	1201.50	9197.43
.001072	950.	1020.	970.	2	0	0	.00	1718.91	10916.34

FLOW DISTRIBUTION FOR SECNO= 29.22 CWSEL= 1218.22

STA=	9197.	9234.	9409.	9585.	10403.	10756.	10900.	10916.
PER Q=	.9	13.3	18.9	59.2	5.7	2.8	.1	
AREA=	209.5	1930.5	2959.6	8238.1	1544.7	700.1	46.7	
VEL=	6.1	9.6	9.3	9.9	5.2	5.6	3.8	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 29.473

3255 DIVIDED FLOW

29.47	16.53	1219.53	.00	.00	1220.77	1.24	1.17	.01	1205.70
140000.	26979.	87771.	25250.	2852.	9084.	5309.	2004.	232.	1216.00
.17	9.43	9.66	4.75	.025	.025	.025	.000	1203.00	8882.21
.000912	1030.	1300.	970.	2	0	0	.00	2268.51	11385.94

FLOW DISTRIBUTION FOR SECNO= 29.47 CWSEL= 1219.53

STA=	8852.	9151.	9370.	10097.	11008.	11300.	11386.
PER Q=	.5	18.7	62.7	9.6	7.3	1.2	
AREA=	140.2	2721.5	9083.7	3220.7	1729.9	358.1	
VEL=	5.4	9.6	9.7	4.2	5.9	4.5	

*SECNO 29.675

3301 HV CHANGED MORE THAN HVINS

29.68	22.37	1220.77	.00	.00	1221.45	.68	.63	.05	1214.90
140000.	22766.	40922.	76312.	2913.	4822.	15740.	2481.	294.	1210.90
.21	7.82	8.49	4.85	.025	.025	.025	.000	1199.40	8822.10
.000446	920.	1060.	1020.	2	0	0	.00	2993.95	11816.05

FLOW DISTRIBUTION FOR SECNO= 29.68 CWSEL= 1220.77

STA=	8822.	8958.	9013.	9284.	9616.	9869.	9994.	10893.	11121.	11445.	11592.	11659.	11816.
PER Q=	13.3	3.0	29.2	12.5	9.2	3.2	4.4	3.6	5.5	3.2	5.2	7.7	
AREA=	2267.9	644.8	4922.0	3125.9	2330.9	932.5	2471.3	1301.7	1897.7	975.4	1033.7	1680.5	
VEL=	8.2	6.4	8.5	5.6	5.5	4.8	2.5	3.9	4.1	4.6	7.1	6.4	

*SECNO 29.981

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3555 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	CLOB	CCH	CROB	NLOB	ACH	AROB	VCH	TWA	LEFT/RIGHT

```
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


3720 CRITICAL DEPTH ASSUMED
   29.98    13.71  1222.81  1222.81      .00  1225.58     2.77     1.40      .63  1222.90
  140000.    2943.   75185.   61871.     462.    5435.    4750.    3006.     366.   1225.00
     .24     6.37    13.93    13.03     .025     .025     .025     .000  1209.10  8938.50
 .004149    1530.    1500.    1180.       20       15        0      .00  1822.31 10923.04


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1222.81

STA=    9939.    9055.    9161.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10788.   10923.
  PER Q=      1.4       .7     53.7       .5      2.6     14.0     10.1      9.6      5.7       .9       .7
   AREA=    276.3    185.5   5435.0     87.4    320.6   1599.9    805.3    944.1    789.9     93.2    120.3
    VEL=      6.9      5.6     13.8      7.8     11.3     12.4     17.5     14.3     10.1     13.5      9.5

*SECNO 29.982

3255 DIVIDED FLOW

   29.98    14.19  1223.29      .00      .00  1225.64     2.36      .02      .04  1222.90
  140000.    3693.   73330.   62978.     569.    5928.    5136.    3007.     366.   1225.00
     .24     5.49    12.58    12.26     .025     .025     .025     .000  1209.10  8936.63
 .003369       5.       5.       5.        6        0        0      .00  1876.92 10925.50


FLOW DISTRIBUTION FOR SECNO=     29.99          CWSEL=   1223.29

STA=    8937.    8944.    9055.    9163.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10788.   10926.
  PER Q=      .0      1.6      1.0     52.4       .5      2.7     14.4      9.9      9.5      5.1       .9       .8
   AREA=      6.8    325.1    236.9   5827.9    102.0    350.7   1718.5    844.1   1006.2    876.9     99.8    137.5
    VEL=      3.2      7.1      5.8     12.5      7.4     10.8     11.7     15.3     13.4      9.8     12.8      8.1

*SECNO 30:194

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7195 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   30.19    19.24  1227.04  1227.04      .00  1230.39     3.35     3.65      .30  1235.30
  140000.       0.  133129.    6871.       0.    9869.    1344.    3290.     413.   1228.50
     .27      .00    15.01     5.11     .025     .025     .025     .000  1208.80  9059.22
 .003095    1120.    1120.    1170.        3       11        0      .00  1695.99 10789.79


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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
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  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IOC      ICONT    CORAR    TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1227.04

STA=    9059.   10000.   10024.   10274.   10495.   10640.   10736.   10790.
  PER Q=     95.1       .1      2.9       .8       .4       .6       .1
   AREA=   8868.8     21.1    549.0    295.7    165.5    171.7     41.4
    VEL=     15.0      4.0      6.2      4.0      3.6      4.9      2.8

*SECNO 30.195

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    30.19    19.04  1227.84      .00      .00  1230.47     2.63      .01      .07  1235.30
  140000.       0.  129297.   10703.       0.    9611.    1997.    3292.     413.   1229.50
      .27      .00    13.45     5.39     .025     .025     .025     .000  1208.80  9066.00
  .002272       5.       5.       5.        7        0        0      .00  1741.34 10817.91


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1227.94

STA=    9066.   10000.   10024.   10274.   10495.   10640.   10736.   10818.
  PER Q=     92.4       .1      3.9      1.6       .9      1.0       .2
   AREA=   9510.7     35.3    850.9    473.4    282.4    248.9     96.0
    VEL=     13.5      4.1      6.4      4.7      4.4      5.4      3.1

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    16.50  1231.20      .00      .00  1232.42     1.22     1.90      .14  1239.10
  140000.       0.  140000.       0.       0.   15792.       0.    3714.     459.   1233.70
      .31      .00     9.87      .00     .025     .025     .025     .000  1214.70  9363.55
  .000871    1290.    1370.    1030.        2        0        0      .00  1389.79 10752.35


FLOW DISTRIBUTION FOR SECNO=     30.45          CWSEL=   1231.20

STA=    9354.   10777.
  PER Q=    100.0
   AREA=  15791.5
    VEL=      8.9
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
```

```
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 30.815

3265 DIVIDED FLOW

    30.82    16.77  1232.77      .00      .00  1234.14     1.37     1.69      .04  1235.50
  140000.      22.  139978.       0.      21.   14906.       0.    4360.     516.   1251.60
      .36     1.05     9.39      .00     .025     .025     .025     .000  1216.00  9476.13
  .000957    1350.    1830.    1390.        3        0        0      .00  1347.15 10902.30


FLOW DISTRIBUTION FOR SECNO=     30.82          CWSEL=   1232.77

STA=    9476.    9514.    9524.   11136.
  PER Q=       .0       .0    100.0
   AREA=     16.5      4.5  14906.0
    VEL=      1.1      1.1      9.4

*SECNO 31.029

3235 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    31.03    21.97  1234.57  1234.57      .00  1239.39     3.82     1.69      .74  1229.00
  140000.   31361.   98616.   10023.    3292.    5717.     669.    4669.     550.   1212.70
      .39     9.53    17.25    14.99     .025     .025     .025     .000  1212.70  9490.82
  .002939    1050.    1100.    1100.       20       11        0      .00  1316.55 10833.35


FLOW DISTRIBUTION FOR SECNO=     31.03          CWSEL=   1234.57

STA=    9481.    9560.   10127.   10290.   10323.   10772.   10833.
  PER Q=      4.6      5.5      9.5      2.9     70.4      7.2
   AREA=    705.3   1145.7   1116.8    324.1   5716.5    669.7
    VEL=      9.2      6.7     11.9     12.1     17.3     15.0

*SECNO 31.029
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.03	22.91	1235.51	.00	.00	1238.49	2.99	.01	.08	1228.00
140000.	35795.	94648.	9556.	4108.	6142.	728.	4570.	550.	1212.70
.38	9.71	15.41	13.13	.025	.025	.025	.000	1212.70	9188.59
.002058	5.	5.	5.	7	0	0	.00	1448.15	10836.01

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1235.51

STA=	9189.	9660.	9882.	10127.	10280.	10323.	10772.	10836.
PER Q=	5.4	3.3	4.1	9.9	2.9	67.5	6.8	
AREA=	912.1	740.8	829.2	1251.4	364.9	6142.4	727.9	
VEL=	9.2	5.2	5.9	11.0	11.2	15.4	13.1	

*SECNO 31.301

3301 HV CHANGED MORE THAN HVINS

31.30	19.13	1239.23	.00	.00	1240.01	.78	1.31	.22	1225.60
140000.	28267.	110845.	888.	5197.	14814.	180.	5158.	604.	1220.70
.44	5.44	7.48	4.93	.025	.025	.025	.000	1220.10	9758.80
.000543	1190.	1440.	1380.	2	0	0	.00	2133.15	10836.95

FLOW DISTRIBUTION FOR SECNO= 31.30 CWSEL= 1239.23

STA=	8754.	8867.	9104.	9155.	9276.	9384.	9590.	10868.	10887.
PER Q=	.2	1.5	.2	.6	1.9	15.8	79.2	.6	
AREA=	143.6	717.2	131.1	311.9	616.3	3277.0	14913.8	180.2	
VEL=	1.6	2.9	2.6	2.6	4.4	6.7	7.5	4.9	

*SECNO 31.522

3265 DIVIDED FLOW

31.52	15.65	1240.05	.00	.00	1240.91	.86	.87	.02	1244.50
140000.	24571.	115429.	0.	3576.	15297.	0.	5675.	669.	1264.30
.49	6.87	7.55	.00	.025	.025	.025	.000	1224.40	8050.60
.001131	1120.	1160.	1650.	3	0	0	.00	2813.06	11511.99

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VCH	TWA	LEFT/RIGHT

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 31.52 CWSEL= 1240.05

STA=	8051.	8081.	8179.	8273.	8335.	8402.	8484.	8503.	8654.	8775.	8796.	11539.
PER Q=	.1	2.1	4.3	4.6	3.2	1.5	.4	.1	1.1	.1	92.4	
AREA=	51.5	498.6	753.9	563.6	547.1	373.8	202.9	74.1	376.1	34.4	15296.8	
VEL=	3.6	5.9	8.0	9.7	8.1	5.5	2.9	2.5	4.3	2.8	7.5	

*SECNO 31.725

3265 DIVIDED FLOW

31.73	11.95	1241.35	.00	.00	1242.41	1.06	1.44	.05	1246.20
140000.	25555.	87007.	27428.	3144.	9769.	4539.	6130.	750.	1237.10
.52	8.13	9.91	5.04	.025	.025	.025	.000	1229.50	7957.33
.001594	870.	1070.	1530.	2	0	0	.00	3512.01	12392.90

FLOW DISTRIBUTION FOR SECNO= 31.73 CWSEL= 1241.35

STA=	7957.	8504.	8698.	8909.	9299.	11020.	11420.	11926.	11976.	12219.	12383.
PER Q=	3.0	11.5	3.2	.5	52.1	3.9	3.9	5.2	5.8	.7	
AREA=	746.6	1535.0	558.2	203.8	9769.0	1115.9	1059.6	920.0	1154.4	270.4	
VEL=	5.5	9.9	8.0	3.4	8.9	4.9	5.2	8.0	7.0	3.7	

*SECNO 31.896

3265 DIVIDED FLOW

31.90	14.99	1243.09	.00	.00	1244.44	1.35	1.95	.09	1246.10
140000.	49107.	90854.	39.	4779.	10344.	39.	5492.	825.	1246.30
.54	10.28	8.78	1.00	.025	.025	.025	.000	1228.10	9319.48
.002527	920.	980.	1000.	3	0	0	.00	3178.39	12949.48

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1243.09

STA=	8319.	8592.	8752.	9014.	9151.	9175.	12145.	12949.
PER Q=	9.3	7.4	9.0	9.0	.4	54.9	.0	
AREA=	1376.3	995.5	1299.2	1057.4	80.5	10344.5	38.7	
VEL=	9.4	10.4	10.0	11.9	5.5	9.8	1.0	

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  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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	9.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	8.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

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  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


*PROF 8

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.36    11.00  1210.00      .00  1217.31  1212.38     2.39      .00      .00  1218.00
  160000.       0.  160000.       0.       0.   12927.       0.       0.       0.   1220.00
      .00      .00    12.39      .00     .025     .025     .025     .000  1199.00  5022.21
  .001998       0.       0.       0.        0        0        5      .00  1282.80  6305.01


FLOW DISTRIBUTION FOR SECNO=     28.36          CWSEL=   1210.00

STA=    5022.    6340.
  PER Q=    100.0
   AREA=  12927.5
    VEL=     12.4

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.646

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    28.65    17.00  1214.20  1214.20      .00  1217.67     3.47     3.63       33  1213.70
  160000.   15579.  140658.    3752.    1895.    8973.     710.     420.      54.   1213.00
      .03     3.22    15.58     5.28     .025     .025     .025     .000  1197.20  9354.36
  .002899    1650.    1520.    1450.        4       14        0      .00  1750.68 11105.54


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1214.20

STA=    9355.    9537.    9946.   10770.   11105.
  PER Q=      7.4      2.3     97.9      2.3
   AREA=   1273.8    621.0   8973.1    710.4
    VEL=      9.3      6.0     15.7      5.3

*SECNO 28.831

3301 HV CHANGED MORE THAN HVINS

    28.83    19.01  1218.01      .00      .00  1218.91      .91      .99      .26  1204.70
  160000.   94005.   45938.   20057.   12494.    5239.    4124.     806.      96.   1207.10
      .07     7.52     8.77     4.86     .025     .025     .025     .000  1199.00  9210.87
  .000503     950.    1000.    1010.        2        0        0      .00  1995.30 11205.17


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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
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  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1218.01

STA=    9211.    9280.    9450.    9515.    9860.   10000.   10186.   10495.   10651.   10993.   11123.   11206.
  PER Q=      2.4     19.2      4.0     13.9      8.2     11.1     28.7      6.7      4.9       .6       .3
   AREA=    657.1   3231.8    973.9   3529.5   1794.7   2406.8   5239.3   1658.8   1879.6    373.3    212.5
    VEL=      5.8      9.5      7.4      5.3      7.3      7.4      8.8      6.5      4.2      2.7      2.5

*SECNO 29.017
    29.02    19.35  1218.45      .00      .00  1219.58     1.13      .50      .07  1209.40
  160000.   40955.  105769.   12365.    6241.   11262.    2702.    1294.     143.   1215.30
      .10     5.55     9.48     4.58     .025     .025     .025     .000  1199.10  9117.95
  .000701    1000.    1020.    1020.        2        0        0      .00  2071.17 11169.03


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1219.45

STA=    9119.    9179.    9445.    9862.   10520.   10637.   10693.   10750.   11189.
  PER Q=      1.2     11.2     13.1     55.7       .2      1.1      1.7      4.8
   AREA=    370.7   2539.3   3332.0  11252.4     71.7    339.8    436.4   1854.1
    VEL=      5.2      7.1      5.3      9.5      4.0      5.2      6.1      4.1

*SECNO 29.221
    29.22    17.55  1219.05      .00      .00  1220.54     1.49      .85      .11  1209.00
  160000.   52511.   91463.   15026.    5400.    8828.    2714.    1717.     195.   1213.50
      .13     9.72    10.36     5.90     .025     .025     .025     .000  1201.50  9194.93
  .001071     950.    1020.     970.        0        0        0      .00  1723.85 10918.69


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1219.05

STA=    9195.    9234.    9409.    9695.   10403.   10756.   10900.   10919.
  PER Q=      1.0     13.1     18.8     57.2      6.7      3.2       .2
   AREA=    240.4   2074.4   3085.1   9827.8   1835.2    818.2     61.1
    VEL=      5.3     10.1      9.7     10.4      5.8      6.2      4.1

*SECNO 29.473

3255 DIVIDED FLOW

    29.47    17.42  1220.42      .00      .00  1221.70     1.27     1.14      .02  1205.70
  150000.   29740.   96408.   33952.    3096.    9735.    5467.    2196.     237.   1216.00
      .16     9.61     9.93     5.23     .025     .025     .025     .000  1203.00  8874.66
  .000874    1030.    1300.     970.        2        0        0      .00  2296.98 11395.18
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        OLOB     OCH      OROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
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FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1220.42

STA=    8275.    8903.    9151.    9370.   10097.   11008.   11300.   11395.
  PER Q=       .0       .6     18.0     60.3     12.0      7.9      1.3
   AREA=     20.0    158.6   2917.5   9734.6   4036.9   1991.0    439.1
    VEL=      1.4      5.6      9.9      9.9      4.7      6.3      4.9

*SECNO 29.675

3301 HV CHANGED MORE THAN HVINS

    29.53    23.26  1221.66      .00      .00  1222.37      .70      .51      .06  1214.90
  160000.   24680.   43943.   91377.    3082.    5064.   17995.    2728.     299.   1210.80
      .21     9.01     8.68     5.08     .025     .025     .025     .000  1199.40  8321.60
  .000437     920.    1060.    1020.        2        0        0      .00  2999.87 11821.47


FLOW DISTRIBUTION FOR SECNO=     29.58          CWSEL=   1221.56

STA=    8822.    8958.    9013.    9294.    9515.    9859.    9994.   10893.   11121.   11446.   11592.   11569.   11821.
  PER Q=      12.5      2.9     27.5     12.6      9.3      3.3      6.0      4.0      6.0      3.4      5.0      7.4
   AREA=    2399.2    693.1   5053.9   3421.1   2555.8   1044.2   3251.9   1513.3   2177.1   1105.1   1102.2   1814.0
    VEL=      9.4      5.7      8.7      5.9      5.8      5.1      3.0      4.3      4.4      4.9      7.3      5.5

*SECNO 29.991

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3595 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    29.98    14.04  1223.14  1223.14      .00  1226.36     3.22     1.42      .76  1222.90
  160000.    3995.   83998.   72017.     537.    5711.    5021.    3301.     372.   1225.00
      .23     7.42    14.71    14.34     .025     .025     .025     .000  1209.10  9937.22
  .004728    1530.    1500.    1180.       20       14        0      .00  1874.68 10824.77


FLOW DISTRIBUTION FOR SECNO=     29.99          CWSEL=   1223.14

STA=    8937.    8944.    9055.    9163.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10788.   10825.
  PER Q=       .0      1.6       .9     52.5       .5      2.7     14.4     10.0      9.7      6.0       .9       .8
   AREA=      5.8    309.5    221.6   5710.7     97.6    341.8   1680.1    932.6    987.8    851.1     97.9    132.4
    VEL=      3.5      8.1      5.6     14.7      8.5     12.5     13.7     19.2     15.7     11.4     14.9      9.4
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     WLOB     WCH      WROB     XNL      XNCH     XNR      WTN      FLMIN     SSTA
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*SECNO 29.992

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    29.99    14.89  1223.99      .00      .00  1226.46     2.47      .02      .08  1222.90
  160000.    5328.   82893.   71779.     729.    6413.    5711.    3302.     372.   1225.00
      .23     7.31    12.93    12.57     .025     .025     .025     .000  1209.10  9933.99
  .003137       5.       5.       5.       11        0        0      .00  1888.11 10829.14


FLOW DISTRIBUTION FOR SECNO=     29.99          CWSEL=   1223.99

STA=    8934.    8944.    9055.    9153.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10799.   10829.
  PER Q=      .0      2.0      1.3     51.8       .6      2.8     14.5      9.3      9.4      5.5       .9       .9
   AREA=    12.8    402.8    313.0   6412.6    125.7    395.1   1910.4    901.4   1098.1   1005.5    109.7    165.4
    VEL=     3.9      7.9      5.7     12.9      7.5     11.3     12.2     15.5     13.7     10.4     13.1      8.3

*SECNO 30.194

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    30.19    13.94  1227.74  1227.74      .00  1231.28     3.55     3.53      .32  1235.33
  160000.       0.  149364.   11636.       0.    9510.    1998.    3619.     419.   1228.50
      .26      .00    15.60     5.13     .025     .025     .025     .000  1209.80  9956.43
  .003092    1120.    1120.    1170.        4       11        0      .00  1735.33 10814.10


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1227.74

STA=    9056.   10000.   10024.   10274.   10495.   10640.   10736.   10814.
  PER Q=     92.7       .1      3.8      1.5       .9       .9       .2
   AREA=   9509.6     33.2    823.5    449.4    266.6    239.4     87.3
    VEL=     15.5      4.7      7.3      5.3      5.0      6.1      3.6
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
```

*SECNO 30.195

3301 HV CHANGED MORE THAN HVINS

30.19	19.96	1228.66	.00	.00	1231.38	2.72	.01	.09	1236.30
160000.	0.	143377.	16623.	0.	10374.	2667.	3620.	419.	1223.50
.26	.00	13.82	6.23	.025	.025	.025	.000	1208.80	9052.71
.002197	5.	5.	5.	8	0	0	.00	1793.78	10846.50

FLOW DISTRIBUTION FOR SECNO= 30.19 CWSEL= 1228.66

STA=	9063.	10000.	10024.	10274.	10495.	10640.	10736.	10946.
PER Q=	99.6	.2	4.8	2.4	1.4	1.3	.4	
AREA=	10374.3	53.4	1056.0	654.1	401.3	327.4	174.8	
VEL=	13.8	4.8	7.3	5.7	5.5	6.3	3.8	

*SECNO 30.459

3301 HV CHANGED MORE THAN HVINS

30.46	17.26	1231.96	.00	.00	1233.36	1.40	1.25	.13	1239.10
160000.	0.	160000.	0.	0.	15959.	0.	4090.	466.	1239.70
.30	.00	9.49	.00	.025	.025	.025	.000	1214.70	9353.76
.000930	1290.	1370.	1030.	2	0	0	.00	1406.19	10759.96

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1231.96

STA=	9354.	10777.
PER Q=	100.0	
AREA=	15959.3	
VEL=	9.5	

*SECNO 30.915

3265 DIVIDED FLOW

30.82	17.53	1233.53	.00	.00	1235.18	1.54	1.77	.04	1236.50
160000.	149.	159851.	0.	76.	16020.	0.	4772.	525.	1251.60
.35	1.97	9.98	.00	.025	.025	.025	.000	1216.00	9456.15
.001010	1350.	1830.	1390.	2	0	0	.00	1395.74	10912.89

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	OCH	OROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

```
FLOW DISTRIBUTION FOR SECNO=     30.82          CWSEL=   1233.53

STA=    9456.    9514.    9534.   11136.
  PER Q=       .1       .0     99.9
   AREA=     58.3     17.5  16019.6
    VEL=      2.1      1.7     10.0

*SECNO 31.028

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3695 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    31.03    22.79  1235.49  1235.49      .00  1239.40     3.92     1.71      .71  1228.00
  160000.   40748.  108314.   10938.    4090.    6129.     725.    5111.     560.   1212.70
      .37     9.99    17.67    15.07     .025     .025     .025     .000  1212.70  9189.12
  .002715    1060.    1100.    1100.       20       11        0      .00  1443.01 10835.92


FLOW DISTRIBUTION FOR SECNO=     31.03          CWSEL=   1235.49

STA=    9189.    9550.    9892.   10127.   10280.   10323.   10772.   10936.
  PER Q=      5.3      3.2      4.1      9.9      2.9     67.7      6.8
   AREA=    903.7    734.0    821.7   1256.7    363.6   6128.6    726.0
    VEL=      9.4      7.0      7.9     12.6     12.8     17.7     15.1

*SECNO 31.029

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    31.03    23.63  1236.33      .00      .00  1239.49     3.17      .01      .08  1228.00
  160000.   45131.  104352.   10505.    4896.    5503.     780.    5112.     560.   1212.70
      .37     9.22    16.05    13.47     .025     .025     .025     .000  1212.70  9117.42
  .002069       5.       5.       5.        8        0        0      .00  1537.28 10839.25
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```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        OLOB     OCH      OROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
```

```
FLOW DISTRIBUTION FOR SECNO=     31.03          CWSEL=   1236.33

STA=    9117.    9560.    9882.   10127.   10280.   10323.   10772.   10838.
  PER Q=      6.1      4.1      4.9     10.2      3.0     65.2      6.6
   AREA=   1167.1    919.3   1025.7   1393.9    399.5   6503.2    780.0
    VEL=      8.4      7.1      7.6     11.8     11.9     16.0     13.5

*SECNO 31.301

3301 HV CHANGED MORE THAN HVINS

    31.30    20.07  1240.17      .00      .00  1241.02      .85     1.30      .23  1225.60
  160000.   34515.  124476.    1009.    6100.   15925.     199.    5549.     616.   1220.70
      .42     5.66     7.82     5.07     .025     .025     .025     .000  1220.10  8711.46
  .000533    1190.    1440.    1380.        2        0        0      .00  2176.48 10887.94


FLOW DISTRIBUTION FOR SECNO=     31.30          CWSEL=   1240.17

STA=    8711.    8967.    9104.    9155.    9276.    9384.    9590.   10858.   10898.
  PER Q=       .3      2.0       .4       .9      2.2     15.8     77.8       .5
   AREA=    270.7    940.6    179.0    426.0    718.7   3565.2  15925.4    199.0
    VEL=      2.0      3.5      3.2      3.2      4.9      7.1      7.9      5.1

*SECNO 31.522

3255 DIVIDED FLOW

    31.52    16.58  1240.98      .00      .00  1241.94      .85      .82      .00  1244.50
  160000.   29145.  130855.       0.    4328.   17240.       0.    6229.     683.   1254.30
      .45     5.73     7.59      .00     .025     .025     .025     .000  1224.40  8055.68
  .000977    1120.    1160.    1550.        2        0        0      .00  2956.42 11513.03


FLOW DISTRIBUTION FOR SECNO=     31.52          CWSEL=   1240.98

STA=    8057.    8273.    8335.    8402.    8775.    9263.   11539.
  PER Q=      5.7      4.3      3.1      4.0       .2     81.8
   AREA=   1504.0    721.6    609.8   1376.1    115.3  17240.4
    VEL=      7.1      9.5      8.1      4.7      2.1      7.5

*SECNO 31.725
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```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        OLOB     OCH      OROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
```

3265 DIVIDED FLOW

31.73	12.62	1242.12	.00	.00	1243.14	1.02	1.25	.05	1246.20
160000.	29666.	95750.	34584.	3924.	10805.	5597.	6752.	769.	1237.10
.50	7.56	8.85	6.19	.025	.025	.025	.000	1229.50	7956.35
.001384	870.	1070.	1530.	2	0	0	.00	3761.01	12393.16

FLOW DISTRIBUTION FOR SECNO= 31.73 CWSEL= 1242.12

STA=	7956.	9504.	8698.	8809.	9308.	11020.	11420.	11826.	11976.	12219.	12393.
PER Q=	3.7	10.9	3.2	.8	59.8	4.7	4.7	5.2	6.0	1.0
AREA=	1148.7	1785.0	643.8	346.1	10804.6	1424.8	1382.1	1035.4	1351.9	393.1
VEL=	6.1	9.9	7.9	3.7	8.9	5.3	6.4	8.0	7.1	4.1

*SECNO 31.996

3265 DIVIDED FLOW

31.90	15.50	1243.50	.00	.00	1245.04	1.45	1.77	.13	1246.10
160000.	55259.	104378.	363.	5215.	11429.	156.	7166.	847.	1246.30
.53	10.60	9.13	2.19	.025	.025	.025	.000	1228.10	9314.91
.002550	920.	980.	1000.	2	0	0	.00	3299.05	13003.50

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1243.60

STA=	8315.	8592.	8752.	9014.	9151.	9177.	12146.	13003.
PER Q=	9.3	7.2	9.0	8.6	.4	55.2	.2
AREA=	1515.9	1076.8	1402.5	1126.8	93.2	11428.7	155.8
VEL=	9.8	10.8	10.2	12.3	6.9	9.1	2.2

T1
T2
T3

J1	ICHECK .	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	10.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLOC	IBW	CHNIM	ITRACE
	9.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

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*PROF 9

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.35    11.75  1210.75      .00  1217.31  1213.36     2.61      .00      .00  1218.00
  180000.       0.  180000.       0.       0.   13893.       0.       0.       0.   1220.00
     .00      .00    12.96      .00     .025     .025     .025     .000  1199.00  5020.13
  .001999       0.       0.       0.        0        0        5      .00  1287.51  6307.64


FLOW DISTRIBUTION FOR SECNO=     28.36          CWSEL=   1210.75

STA=    5020.    6340.
  PER Q=    100.0
   AREA=  13893.1
    VEL=     13.0

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.645

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    28.65    17.69  1214.89  1214.89      .00  1218.50     3.62     3.50      .30  1213.70
  180000.   20176.  153943.    5881.    2299.    9535.     940.     469.      54.   1213.00
     .03     8.78    16.15     6.25     .025     .025     .025     .000  1197.20  9348.41
  .002926    1650.    1520.    1450.        3       18        0      .00  1761.54 11109.95


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1214.89

STA=    9348.    9537.    9946.   10770.   11095.   11110.
  PER Q=      8.1      3.1     95.5      3.1       .1
   AREA=   1469.1    831.1   9534.6    893.8     46.5
    VEL=      9.9      5.7     15.1      5.3      4.8

*SECNO 28.831

3301 HV CHANGED MORE THAN HVINS

    28.83    19.77  1219.77      .00      .00  1219.77     1.00     1.01      .25  1204.70
  180000.  105113.   50430.   24457.   13241.    5477.    4573.     875.      95.   1207.10
     .05     7.94     9.21     5.23     .025     .025     .025     .000  1199.00  9209.09
  .000523     950.    1000.    1010.        2        0        0      .00  2010.54 11218.63
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
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```
FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1218.77

STA=    9208.    9280.    9450.    9516.    9850.   10000.   10186.   10496.   10551.   10593.   11123.   11219.
  PER Q=      2.4     18.6      4.0     14.2      8.2     11.0     28.0      6.8      5.5       .8       .4
   AREA=    711.1   3351.9    924.3   3792.9   1902.0   2548.9   5475.7   1777.9   2140.7    473.2    280.9
    VEL=      6.1      9.9      7.8      6.7      7.7      7.8      9.2      6.9      4.6      3.2      2.8

*SECNO 29.017
    29.02    20.13  1219.23      .00      .00  1220.45     1.21      .51      .07  1209.40
  180000.   47540.  117015.   15445.    6822.   11853.    3161.    1400.     144.  1215.30
      .10     6.97     9.87     4.89     .025     .025     .025     .000  1199.10  9113.95
  .000710    1000.    1020.    1020.        2        0        0      .00  2115.56 11229.50


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1219.23

STA=    9114.    9179.    9445.    9862.   10620.   10637.   10593.   10750.   11230.
  PER Q=      1.3     11.5     13.7     65.0       .2      1.2      1.9      5.4
   AREA=    419.7   2745.3   3556.4  11952.7     85.2    383.5    490.5   2211.7
    VEL=      5.4      7.5      5.7      9.9      4.6      5.7      5.6      4.4

*SECNO 29.221
    29.22    19.31  1219.81      .00      .00  1221.42     1.51      .35      .12  1209.00
  190000.   59548.  101250.   20101.    5790.    9393.    3114.    1956.     189.  1213.50
      .12    10.15    10.79     5.45     .025     .025     .025     .000  1201.50  9192.39
  .001071     950.    1020.     970.        2        0        0      .00  1728.50 10920.89


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1219.81

STA=    9192.    9234.    9409.    9695.   10403.   10756.   10900.   10921.
  PER Q=      1.0     12.9     18.5     55.3      7.5      3.5       .2
   AREA=    271.5   2209.8   3298.3   9393.0   2108.6    929.4     76.4
    VEL=      5.5     10.5     10.2     10.3      6.4      5.7      4.4

*SECNO 29.473

3255 DIVIDED FLOW

    29.47    18.25  1221.25      .00      .00  1222.57     1.31     1.11      .03  1205.70
  190000.   32481.  104831.   42688.    3329.   10338.    7548.    2376.     239.  1216.00
      .15     9.76    10.14     5.55     .025     .025     .025     .000  1203.00  9857.55
  .000845    1030.    1300.     970.        2        0        0      .00  2323.37 11403.74
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     DSTA
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```
FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1221.25

STA=    9868.    9987.    9912.    9151.    9370.   10097.   11098.   11300.   11404.
  PER Q=       .0       .0       .6     17.4     58.2     13.9      9.3      1.5
   AREA=     21.5     28.4    179.6   3099.1  10338.1   4793.5   2233.0    521.7
    VEL=      1.9      1.9      5.8     10.1     10.1      5.2      6.7      5.1

*SECNO 29.676

3301 HV CHANGED MORE THAN HVINS

    29.58    24.09  1222.49      .00      .00  1223.22      .73      .60      .06  1214.90
  190000.   26531.   45852.  106617.    3241.    5290.   20103.    2960.     301.   1210.90
      .20     9.19     8.86     5.30     .025     .025     .025     .000  1199.40  9821.14
 .000429     920.    1060.    1020.        2        0        0      .00  3005.39 11926.54


FLOW DISTRIBUTION FOR SECNO=     29.59          CWSEL=   1222.49

STA=    8621.    8959.    9012.    9284.    9616.    9859.    9994.   10893.   11121.   11445.   11592.   11659.   11827.
  PER Q=     11.9      2.8     25.0     12.5      9.3      3.4      7.5      4.4      6.4      3.5      4.9      7.2
   AREA=  2502.8    739.2   5289.6   3696.5   2765.6   1149.5   3999.7   1710.9   2447.2   1225.1   1156.1   1943.0
    VEL=      8.6      6.9      8.9      6.1      5.1      5.4      3.4      4.6      4.7      5.2      7.5      6.7

*SECNO 29.991

3255 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3535 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    29.99    14.59  1223.59  1223.59      .00  1227.11     3.42     1.38      .81  1222.90
  190000.    5490.   93672.   80939.     662.    6168.    5470.    3595.     374.   1225.00
      .23     9.30    15.19    14.78     .025     .025     .025     .000  1209.10  8935.11
 .004556    1530.    1600.    1180.       20       14        0      .00  1883.44 10827.62


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1223.69

STA=    8935.    8944.    9055.    9163.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10788.   10828.
  PER Q=       .0      1.8      1.2     52.0       .6      2.8     14.5      9.5      9.5      6.4       .9       .8
   AREA=     10.1    370.4    281.2   6158.3    115.5    376.6   1830.3    877.4   1059.7    951.8    105.6    153.5
    VEL=      4.3      9.0      7.6     15.2      8.9     13.2     14.2     19.5     16.1     12.0     15.4      9.7
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
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*SECNO 29.992

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

   29.99    15.43  1224.53      .00      .00  1227.20     2.57      .02      .07  1222.90
  190000.    6985.   92514.   80601.     856.    6873.    6167.    3586.     374.   1225.00
     .23     8.05    13.46    13.07     .025     .025     .025     .000  1209.10  8931.87
 .003107       5.       5.       5.        7        0        0      .00  1896.91 10832.01


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1224.53

STA=    8932.    8944.    9055.    9163.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10788.   10832.
  PER Q=      .0      2.2      1.6     51.4       .6      2.8     14.6      9.9      9.3      5.9       .9       .9
   AREA=    18.8    454.0    372.9   6873.3    145.1    430.1   2051.3    946.4   1170.2   1106.5    117.4    189.1
    VEL=     4.4      8.5      7.5     13.5      8.0     11.9     12.7     16.9     14.2     11.0     13.7      8.6

*SECNO 30.194

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   30.19    19.54  1228.34  1228.34      .00  1232.11     3.77     3.54      .33  1235.30
  190000.       0.  163238.   15762.       0.   10069.    2392.    3930.     423.   1228.50
     .25      .00    15.21     7.01     .025     .025     .025     .000  1208.80  9064.02
 .003134    1120.    1120.    1170.        4       11        0      .00  1768.44 10835.09


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1228.34

STA=    9064.   10000.   10024.   10274.   10495.   10640.   10736.   10835.
  PER Q=     90.7       .1      4.5      2.1      1.2      1.2       .3
   AREA=  10068.5     45.8    974.1    592.0    353.9    296.1    140.6
    VEL=     16.2      5.3      8.2      6.4      6.0      7.1      4.2
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

```
*SECNO 30.195

3301 HV CHANGED MORE THAN HVINS

   30.19    20.57  1229.37      .00      .00  1232.22     2.95      .01      .09  1236.30
  180000.       0.  157269.   22731.       0.   11044.    3279.    3932.     423.   1228.50
     .25      .00    14.24     6.93     .025     .025     .025     .000  1208.80  9059.95
 .002156       5.       5.       5.       11        0        0      .00  1811.54 10971.40


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1229.37

STA=    9950.   10000.   10024.   10274.   10495.   10640.   10735.   10971.
 PER Q=     87.4       .2      5.5      3.0      1.8      1.5       .5
  AREA=  11043.7     70.3   1234.7    811.5    504.8    395.8    262.5
   VEL=     14.2      5.7      8.0      6.5      6.3      7.1      4.3

*SECNO 30.459

3301 HV CHANGED MORE THAN HVINS

   30.45    17.95  1232.65      .00      .00  1234.23     1.59     1.89      .13  1239.10
  180000.       0.  180000.       0.       0.   17835.       0.    4425.     470.   1233.70
     .28      .00    10.09      .00     .025     .025     .025     .000  1214.70  9351.80
 .000985    1290.    1370.    1030.        2        0        0      .00  1415.05 10766.85


FLOW DISTRIBUTION FOR SECNO=     30.45          CWSEL=   1232.65

STA=    9952.   10777.
 PER Q=    100.0
  AREA=  17834.8
   VEL=     10.1

*SECNO 30.815

3255 DIVIDED FLOW

   30.92    18.42  1234.42      .00      .00  1236.13     1.71     1.96      .04  1236.50
  180000.     390.  179610.       0.     148.   17074.       0.    5160.     529.   1251.50
     .33     2.64    10.52      .09     .025     .025     .025     .000  1216.00  9440.35
 .001050    1350.    1830.    1390.        3        0        0      .00  1438.28 10922.76
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

```
FLOW DISTRIBUTION FOR SECNO=     30.82          CWSEL=   1234.42

STA=   9440.    9471.    9514.    9544.   11136.
  PER Q=       .0       .1       .0     99.8
   AREA=     22.9     87.7     37.3  17074.4
    VEL=      1.6      3.1      2.2     10.5

*SECNO 31.028

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3695 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    31.03    23.53  1236.23  1236.23      .00  1240.33     4.09     1.74      .71  1229.00
  180000.   50272.  117960.   11868.    4808.    6465.     774.    5527.     566.   1212.70
      .35    10.46    19.23    15.33     .025     .025     .025     .000  1212.70  9118.55
  .002691     1060.    1100.    1100.       20       11        0      .00  1527.58 10838.01


FLOW DISTRIBUTION FOR SECNO=     31.03          CWSEL=   1236.23

STA=    9119.    9650.    9882.   10127.   10280.   10323.   10772.   10938.
  PER Q=      5.0      4.0      4.8     10.1      3.0     55.5      5.6
   AREA=   1136.7    900.2   1004.6   1370.9    395.8   6464.5    774.4
    VEL=      9.5      8.0      8.5     13.3     13.5     18.2     15.3

*SECNO 31.029

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    31.03    24.49  1237.19      .00      .00  1240.42     3.24      .01      .09  1228.00
  180000.   55565.  112972.   11364.    5817.    6991.     839.    5529.     567.   1212.70
      .35     9.57    16.39    13.56     .025     .025     .025     .000  1212.70  9106.10
  .001998       5.       5.       5.        6        0        0      .00  1616.49 10840.67
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

```
FLOW DISTRIBUTION FOR SECNO=     31.03          CWSEL=   1237.19

STA=    9106.    9660.    9892.   10127.   10280.   10323.   10772.   10841.
  PER Q=      7.0      4.8      5.7     10.3      3.0     62.9      5.3
   AREA=   1515.3   1111.4   1237.4   1515.8    436.7   6891.5    833.1
    VEL=      8.3      7.8      8.3     12.3     12.4     16.4     13.6

*SECNO 31.301

3301 HV CHANGED MORE THAN HVINS

    31.30    20.92  1241.02      .00      .00  1241.94      .91     1.28      .23  1225.50
  180000.   41052.  137817.    1131.    5978.   16925.     217.    6114.     625.   1220.70
      .40     5.88     8.14     5.22     .025     .025     .025     .000  1220.10  9585.56
  .000539    1190.    1440.    1380.        2        0        0      .00  2303.27 10898.83


FLOW DISTRIBUTION FOR SECNO=     31.30          CWSEL=   1241.02

STA=    8536.    8706.    8867.    9104.    9155.    9275.    9384.    9590.   10998.   10889.
  PER Q=       .0       .5      2.5       .5      1.1      2.4     15.8     76.5       .5
   AREA=     43.4    407.4   1141.5    222.1    528.5    810.8   3924.3  16924.9    215.7
    VEL=       .7      2.5      3.9      3.7      3.7      5.3      7.4      8.1      5.2

*SECNO 31.522

3255 DIVIDED FLOW

    31.52    17.45  1241.85      .00      .00  1242.72      .87      .78      .00  1244.50
  180000.   34074.  145926.       0.    5179.   19061.       0.    6754.     597.   1264.30
      .45     6.58     7.56      .00     .025     .025     .025     .000  1224.40  8053.01
  .000971    1120.    1160.    1650.        2        0        0      .00  3184.07 11514.00


FLOW DISTRIBUTION FOR SECNO=     31.52          CWSEL=   1241.85

STA=    8053.    8273.    8335.    8402.    8654.    9304.   11539.
  PER Q=      5.7      4.1      3.0      3.0      2.1     81.1
   AREA=   1694.6    775.8    668.5   1107.3    932.2  19061.4
    VEL=      7.1      9.5      8.1      5.0      4.0      7.7

*SECNO 31.725
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

3265 DIVIDED FLOW

31.73	13.40	1242.90	.00	.00	1243.87	.97	1.12	.03	1245.20
190000.	34777.	102748.	42474.	4770.	11862.	6552.	7350.	786.	1237.10
.48	7.29	8.66	5.39	.025	.025	.025	.000	1229.50	7955.32
.001234	870.	1070.	1530.	2	0	0	.00	3910.78	12403.58

FLOW DISTRIBUTION FOR SECNO= 31.73 CWSEL= 1242.90

STA=	7955.	8355.	8561.	8699.	8809.	9318.	11020.	11202.	11525.	11826.	11976.	12219.	12404.
PER Q=	3.2	3.4	8.3	3.2	1.1	57.1	3.2	3.7	4.0	5.2	5.3	1.3	
AREA=	1119.6	922.8	1467.0	729.8	530.7	11861.7	929.7	1409.5	1093.5	1151.5	1540.3	527.8	
VEL=	5.2	5.7	10.2	7.9	3.9	9.7	6.2	4.7	5.5	9.1	7.3	4.5	

*SECNO 31.996

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.90	15.05	1244.15	.00	.00	1245.64	1.49	1.61	.15	1245.10
190000.	61152.	117811.	1038.	5698.	12617.	349.	7816.	969.	1246.30
.51	10.73	9.34	2.97	.025	.025	.025	.000	1228.10	9309.97
.002397	920.	980.	1000.	2	0	0	.00	3482.08	13054.39

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1244.15

STA=	8310.	8592.	8752.	9014.	9151.	9211.	12146.	13054.
PER Q=	19.3	7.1	8.9	8.3	.4	55.5	.5
AREA=	1559.1	1164.5	1546.3	1201.7	116.7	12616.5	349.4
VEL=	10.0	11.0	10.4	12.4	6.8	9.3	3.0

ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	11.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PREVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	10.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

```
*PROF 10

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.35    12.52  1211.52      .00  1217.31  1214.32     2.81      .00      .00  1218.00
  200000.       0.  200000.       0.       0.   14879.       0.       0.       0.   1220.00
      .00      .00    13.44      .00     .025     .025     .025     .000  1199.00  5018.00
  .001974       0.       0.       0.        0        0        4      .00  1292.31  6310.31


FLOW DISTRIBUTION FOR SECNO=     28.35          CWSEL=   1211.52

STA=    5018.    6340.
  PER Q=    100.0
   AREA=  14878.6
    VEL=     13.4

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.646

3301 HV CHANGED MORE THAN HVINS

7195 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    28.65    13.27  1215.47  1215.47      .00  1219.23     3.92     3.59      .30  1213.70
  200000.   24784.  167163.    8053.    2648.   10014.    1139.     503.      54.   1213.00
      .03     9.35    15.59     7.07     .025     .025     .025     .000  1197.20  9342.91
  .002929    1550.    1520.    1450.        3       11        0      .00  1770.92 11113.72


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1215.47

STA=    9343.    9537.    9946.   10770.   11085.   11114.
  PER Q=      8.6      3.8     23.6      3.9       .2
   AREA=   1637.6   1010.6  10014.1   1077.1     61.8
    VEL=     10.5      7.5     15.7      7.2      5.3

*SECNO 28.831

3301 HV CHANGED MORE THAN HVINS

    28.83    20.50  1219.50      .00      .00  1220.58     1.09     1.03      .27  1204.70
  200000.  116117.   54816.   29067.   13955.    5703.    5204.     938.      97.   1207.10
      .06     8.32     9.61     5.59     .025     .025     .025     .000  1199.00  9205.44
  .000540     950.    1000.    1010.        2        0        0      .00  2025.05 11230.49
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```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
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```
FLOW DISTRIBUTION FOR SECNO=     28.93          CWSEL=   1219.50

STA=    9205.    9280.    9450.    9516.    9860.   10000.   10186.   10496.   10651.   10993.   11123.   11230.
  PER Q=      2.4     18.0      4.0     14.4      8.2     11.0     27.4      6.9      6.0      1.0       .5
   AREA=    764.5   3485.8    972.4   4043.7   2004.1   2584.3   5702.7   1991.3   2389.4    563.3    355.0
    VEL=      6.4     10.3      8.2      7.1      8.1      8.2      9.6      7.3      5.1      3.7      3.1

*SECNO 29.017
    29.02    20.98  1219.98      .00      .00  1221.27     1.30      .53      .06  1209.40
  200000.   54271.  126965.   18763.    7395.   12423.    3634.    1499.     145.   1215.30
      .09     7.35    10.22     5.16     .025     .025     .025     .000  1199.10  9110.17
 .000715    1000.    1020.    1020.       3        0        0      .00  2158.40 11258.57


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1219.98

STA=    9110.    9179.    9445.    9862.   10620.   10637.   10693.   10750.   11269.
  PER Q=      1.3     11.6     14.2     53.5       .2      1.3      1.8      5.0
   AREA=    470.0   2945.2   3959.6  12422.7     98.2    425.8    523.1   2596.7
    VEL=      5.7      7.9      7.1     10.2      5.0      5.1      7.0      4.6

*SECNO 29.221
    29.22    19.03  1220.53      .00      .00  1222.27     1.73      .95      .13  1209.00
  200000.   54759.  110952.   24290.    6135.    9899.    3498.    1987.     199.   1213.50
      .12    10.56    11.21     6.96     .025     .025     .025     .000  1201.50  9190.12
 .001076     950.    1020.     970.       2        0        0      .00  1732.83 10922.95


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1220.53

STA=    9190.    9234.    9409.    9685.   10403.   10756.   10900.   10922.
  PER Q=      1.0     12.9     18.5     55.5      9.2      3.7       .2
   AREA=    302.1   2335.9   3495.6   9899.4   2363.0   1032.9     92.2
    VEL=      5.9     11.0     10.5     11.2      6.9      7.3      4.7

*SECNO 29.473

3255 DIVIDED FLOW

    29.47    19.05  1222.05      .00      .00  1223.40     1.35     1.09      .04  1206.70
  200000.   35203.  113018.   51779.    3565.   10916.    8590.    2547.     241.   1216.00
      .15     9.87    10.35     6.03     .025     .025     .025     .000  1203.00  9850.96
 .000920    1030.    1300.     970.       2        0        0      .00  2348.63 11411.93
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    VLOB1    VLCH     VLOB2    ITRIAL   IOC      ICONT    CORAR    TOPWID     ENDST
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```
FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1222.05

STA=    8951.    8937.    8921.    9151.    9370.   10097.   11008.   11300.   11412.
  PER Q=       .0       .1       .6     16.9     56.5     15.6      8.7      1.6
   AREA=     39.3     51.9    201.0   3273.0  10915.6   5517.7   2464.6    607.3
    VEL=      2.2      2.3      5.9     10.3     10.4      5.7      7.1      5.2

*SECNO 29.676

3301 HV CHANGED MORE THAN HVINS

    29.68    24.89  1223.29      .00      .00  1224.04      .75      .58      .06  1214.90
  200000.   28318.   49546.  122036.    3393.    5505.   22124.    3180.     303.   1210.90
      .20     9.35     9.02     5.52     .025     .025     .025     .000  1198.40  8320.70
  .000422     920.    1050.    1020.        2        0        0      .00  3010.68 11831.38


FLOW DISTRIBUTION FOR SECNO=     29.69          CWSEL=   1223.29

STA=    9321.    9958.    9013.    9284.    9516.    9969.    9994.   10993.   11121.   11446.   11592.   11569.   11831.
  PER Q=      11.4      2.8     24.8     12.6      9.4      3.5      9.7      4.5      5.8      3.6      4.7      7.0
   AREA=    2611.9    781.3   5505.4   3959.9   2955.3   1248.2   4705.4   1899.6   2705.5   1341.8   1227.2   2070.2
    VEL=      9.7      7.1      9.0      6.4      5.3      5.5      3.7      4.9      5.0      5.4      7.7      5.8

*SECNO 29.691

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3695 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    29.99    15.08  1224.18  1224.18      .00  1227.83     3.65     1.36      .97  1222.90
  200000.    7023.  103315.   99561.     774.    6577.    5873.    3854.     377.   1225.00
      .22     9.08    15.71    15.27     .025     .025     .025     .000  1209.10  9933.24
  .004493    1530.    1600.    1180.       20       21        0      .00  1891.25 10930.16


FLOW DISTRIBUTION FOR SECNO=     29.99          CWSEL=   1224.18

STA=    8933.    8944.    9055.    9163.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10798.   10830.
  PER Q=       .0      2.1      1.4     51.7       .6      2.8     14.5      9.1      9.4      5.5       .9       .9
   AREA=     14.8    424.6    334.4   5576.8    132.8    407.6   1964.2    917.4   1123.9   1041.5    112.4    173.7
    VEL=      4.8      9.7      8.4     15.7      9.3     13.8     14.8     19.9     16.6     12.7     16.0     10.1
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       CLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
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*SECNO 29.982

3301 HV CHANGED MORE THAN HVINS

    29.98    15.96  1225.06      .00      .00  1227.92     2.87      .02      .09  1222.90
  200000.     8517.  102065.   89417.     978.    7314.    6606.    3956.     377.   1225.00
      .22     8.71    13.95    13.54     .025     .025     .025     .000  1209.10  9929.85
 .003079       5.       5.       5.        7        0        0      .00  1904.89 10834.74


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1225.06

STA=    8930.    8944.    9055.    9163.   10000.   10041.   10104.   10378.   10459.   10590.   10774.   10788.   10835.
  PER Q=       .1      2.4      1.9     51.0       .7      2.9     14.6      8.6      9.1      7.0       .9      1.0
   AREA=     25.7    522.5    430.2   7314.2    166.9    463.5   2205.6    999.5   1239.4   1203.3    124.8    213.1
    VEL=      4.8      9.3      8.3     14.0      8.4     12.4     13.3     17.4     14.7     11.6     14.2      8.9

*SECNO 30.194

3301 HV CHANGED MORE THAN HVINS

7195 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    30.19    20.15  1229.95  1228.95      .00  1232.99     3.93     3.50      .32  1235.30
  200000.       0.  177395.   22605.       0.   10542.    2910.    4227.     426.   1228.50
      .24      .00    16.67     7.77     .025     .025     .025     .000  1208.80  9061.57
 .003095     1120.    1120.    1170.        4       11        0      .00  1794.89 10855.45


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1228.95

STA=    9062.   10000.   10024.   10274.   10495.   10540.   10736.   10956.
  PER Q=     93.7       .2      5.1      2.5      1.5      1.4       .5
   AREA=  10642.0     60.2   1127.5    717.1    442.7    354.9    207.9
    VEL=     15.7      5.1      9.0      7.3      7.0      7.9      4.8

*SECNO 30.195

3301 HV CHANGED MORE THAN HVINS

    30.19    21.17  1229.97      .00      .00  1232.99     3.01      .01      .09  1235.30
  200000.       0.  171107.   28893.       0.   11611.    3808.    4229.     426.   1228.50
      .24      .00    14.74     7.59     .025     .025     .025     .000  1208.80  9057.44
 .002167       5.       5.       5.        7        0        0      .00  1826.15 10893.59
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
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FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1229.97

STA=    9057.   10000.   10024.   10274.   10495.   10640.   10736.   10875.   10884.
  PER Q=     85.6       .3      6.0      3.4      2.1      1.8       .9       .0
   AREA=  11510.5     84.5   1385.6    944.4    592.3    453.5    346.3      1.9
    VEL=     14.7      6.4      8.7      7.3      7.1      7.8      5.1      1.1

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    18.59  1233.29      .00      .00  1235.06     1.77     1.95      .12  1239.10
  200000.       0.  200000.       0.       0.   18748.       0.    4751.     473.   1233.70
      .29      .00    10.67      .00     .025     .025     .025     .000  1214.70  9243.97
  .001337    1280.    1370.    1030.        2        0        0      .00  1423.29 10773.26


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1233.29

STA=    9350.   10777.
  PER Q=    100.0
   AREA=  18749.1
    VEL=     10.7

*SECNO 30.815

3355 DIVIDED FLOW

    30.82    19.16  1235.16      .00      .00  1237.04     1.88     1.94      .03  1235.50
  200000.     738.  199262.       0.     233.   18068.       0.    5528.     534.   1251.60
      .32     3.17    11.03      .00     .025     .025     .025     .000  1215.00  9425.55
  .001087    1350.    1830.    1390.        3        0        0      .00  1477.94 10931.95


FLOW DISTRIBUTION FOR SECNO=     30.82          CWSEL=   1235.16

STA=    9426.    9471.    9514.    9552.   11136.
  PER Q=       .1       .2       .1     99.6
   AREA=     50.6    119.9     62.5  18067.6
    VEL=      2.1      3.9      2.7     11.0

*SECNO 31.028
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        OLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3695 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

31.03	24.19	1236.88	1236.83	.00	1241.18	4.30	1.78	.73	1228.00	
200000.	59985.	127218.	12797.	5490.	6757.	818.	5921.	572.	1212.70	
.34	10.93	18.83	15.55	.025	.025	.025	.000	1212.70	9110.02	
.002706	1050.	1100.	1100.	20	11	0	.00	1600.25	10829.93	

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1236.89

STA=	9110.	9660.	9982.	10127.	10280.	10323.	10772.	10840.
PER Q=	5.7	4.5	5.4	10.3	3.0	63.5	5.4	
AREA=	1397.0	1044.8	1164.0	1470.1	423.8	6756.9	817.8	
VEL=	9.5	8.8	9.3	14.0	14.2	18.9	15.5	

*SECNO 31.029

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.03	25.29	1237.99	.00	.00	1241.29	3.31	.01	.10	1229.00	
200000.	56652.	121150.	12198.	5720.	7255.	894.	5923.	572.	1212.70	
.34	9.92	16.70	13.64	.025	.025	.025	.000	1212.70	9095.51	
.001935	5.	5.	5.	4	0	0	.00	1657.57	10842.93	

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1237.99

STA=	9096.	9660.	9982.	10127.	10280.	10323.	10772.	10843.
PER Q=	9.0	5.5	5.4	10.4	3.0	60.6	6.1	
AREA=	1982.9	1290.9	1435.3	1639.1	471.5	7254.5	894.4	
VEL=	8.5	8.5	8.9	12.7	12.9	16.7	13.6	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 31.301

3301 HV CHANGED MORE THAN HVINS

31.30	21.72	1241.82	.00	.00	1242.79	.97	1.26	.23	1225.50
200000.	47913.	150833.	1253.	7908.	17860.	234.	6556.	633.	1220.70
.39	6.05	8.45	5.36	.025	.025	.025	.000	1220.10	8453.34
.000539	1190.	1440.	1380.	2	0	0	.00	2436.33	10889.67

FLOW DISTRIBUTION FOR SECNO= 31.30 CWSEL= 1241.82

STA=	8453.	8706.	8867.	9104.	9155.	9276.	9384.	9690.	10868.	10890.
PER Q=	.1	.8	2.9	.5	1.3	2.5	15.8	75.4	.5	
AREA=	191.4	535.6	1329.5	262.5	624.7	895.9	4065.9	17860.5	234.0	
VEL=	1.1	3.1	4.4	4.1	4.1	5.5	7.8	8.4	5.4	

*SECNO 31.522

3265 DIVIDED FLOW

31.52	18.28	1242.69	.00	.00	1243.55	.87	.75	.01	1244.50
200000.	39485.	150515.	0.	6151.	20773.	0.	7255.	709.	1264.30
.43	5.42	7.73	.00	.025	.025	.025	.000	1224.40	8049.55
.000793	1120.	1160.	1550.	2	0	0	.00	3348.70	11514.91

FLOW DISTRIBUTION FOR SECNO= 31.52 CWSEL= 1242.69

STA=	8050.	8273.	8335.	8484.	8775.	9343.	11539.
PER Q=	5.8	3.9	4.9	3.5	.3	80.3	
AREA=	1376.5	826.8	1313.5	1419.7	714.5	20772.9	
VEL=	7.2	9.4	7.3	4.9	2.3	7.7	

*SECNO 31.725

3265 DIVIDED FLOW

31.73	14.13	1243.63	.00	.00	1244.58	.95	1.01	.02	1245.20
200000.	39789.	110410.	49801.	5627.	12898.	7672.	7921.	801.	1237.10
.47	7.07	8.55	5.49	.025	.025	.025	.000	1229.50	7472.53
.001095	870.	1070.	1530.	2	0	0	.00	4020.11	12413.45

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 31.73 CWSEL= 1243.69

STA=	7473.	8169.	8551.	8598.	8809.	9327.	11020.	11202.	11525.	11926.	11976.	12219.	12413.
PER Q=	3.1	4.3	7.8	3.2	1.5	55.2	3.4	4.3	4.1	5.1	6.3	1.6	
AREA=	1007.6	1480.6	1557.3	811.3	750.5	12897.7	1053.8	1720.2	1241.5	1251.4	1718.8	665.8	
VEL=	6.1	5.8	10.0	7.9	4.0	8.6	6.4	5.0	6.7	8.1	7.4	4.7	

*SECNO 31.895

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.90	16.61	1244.71	.00	.00	1246.23	1.51	1.48	.17	1245.10
200000.	68202.	129613.	2186.	6220.	13893.	613.	8443.	888.	1246.30
.50	10.97	9.33	3.57	.025	.025	.025	.000	1229.10	9304.88
.002290	920.	990.	1000.	2	0	0	.00	3809.87	13086.23

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1244.71

STA=	8305.	8592.	8752.	9014.	9151.	9246.	12145.	13086.
PER Q=	9.4	7.1	9.0	8.1	.5	54.8	1.1	
AREA=	1830.2	1255.0	1594.8	1279.1	160.7	13893.5	612.6	
VEL=	10.3	11.3	10.6	12.6	5.4	9.3	3.6	

MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	12.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	ISW	CHNIM	ITRACE
	15.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

01/01/80 07:25:08

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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*PROF 11

CCHV=    .300 CEHV=    .500
*SECNO 28.358
    28.35    13.35  1212.35      .00  1217.31  1215.44     3.09      .00      .00  1218.00
  225000.       0.  225000.       0.       0.   15962.       0.       0.       0.   1220.00
      .00      .00    14.10      .00     .025     .025     .025     .000  1199.00  5015.69
  .001998       0.       0.       0.        0        0        4      .00  1297.56  6313.24


FLOW DISTRIBUTION FOR SECNO=     28.35          CWSEL=   1212.35

STA=    5015.    6340.
  PER Q=    100.0
   AREA=  15961.9
    VEL=     14.1

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 28.645

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    28.65    18.92  1216.12  1216.12      .00  1220.21     4.09     3.51      .30  1213.70
  225000.   30680.  193434.   10896.    3046.   10556.    1366.     543.      54.   1213.00
      .03    10.07    17.38     7.97     .025     .025     .025     .000  1197.20  9335.59
  .002858    1650.    1520.    1450.        3       11        0      .00  1781.29 11117.98


FLOW DISTRIBUTION FOR SECNO=     28.65          CWSEL=   1216.12

STA=    9337.    9502.    9637.    9946.   10770.   11035.   11118.
  PER Q=      3.2      6.0      4.5     81.5      4.5       .2
   AREA=    763.0   1069.7   1213.2  10555.7   1294.1     81.8
    VEL=      9.3     12.5      8.3     17.4      8.1      5.8

*SECNO 28.931

3301 HV CHANGED MORE THAN HVINS

    28.83    21.35  1220.35      .00      .00  1221.56     1.20     1.06      .29  1204.70
  225000.  129761.   60202.   35037.   14791.    5957.    5936.    1011.      97.   1207.10
      .06     9.77    10.09     6.00     .025     .025     .025     .000  1199.00  9202.34
  .000560     950.    1000.    1010.        3        0        0      .00  2042.01 11244.35
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
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STA=    9202.    9280.    9450.    9516.    9860.   10000.   10186.   10496.   10551.   10993.   11123.   11244.
  PER Q=      2.5     17.5      4.0     14.7      8.1     11.0     26.8      7.0      6.5      1.3       .7
   AREA=    929.3   3530.6   1029.5   4336.7   2123.4   2842.5   5956.9   2023.9   2579.9    579.5    452.4
    VEL=      6.7     10.8      8.7      7.6      8.6      8.7     10.1      7.8      5.6      4.2      3.4

*SECNO 29.017
    29.02    21.76  1220.86      .00      .00  1222.25     1.39      .54      .05  1209.40
  225000.   62595.  139138.   23167.    8050.   13093.    4227.    1614.     147.   1215.30
      .09     7.79    10.53     5.49     .025     .025     .025     .000  1199.10  9105.73
  .000721    1000.    1020.    1020.       3        0        0      .00  2208.76 11314.49


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1220.86

STA=    9106.    9179.    9445.    9862.   10620.   10637.   10693.   10750.   11314.
  PER Q=      1.4     11.8     14.7     51.8       .3      1.4      1.9      6.7
   AREA=    532.7   3190.1   4337.7  13092.6    113.5    475.4    573.2   3065.1
    VEL=      5.9      8.3      7.6     10.6      5.6      5.6      7.5      4.9

*SECNO 29.221
    29.22    19.99  1221.38      .00      .00  1223.27     1.89      .87      .15  1208.00
  225000.   72357.  122994.   29659.    6557.   10511.    3932.    2140.     191.   1213.50
      .11    11.04    11.70     7.54     .025     .025     .025     .000  1201.50  9187.43
  .001082     950.    1020.     970.       2        0        0      .00  1737.95 10925.38


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1221.38

STA=    9187.    9234.    9409.    9685.   10403.   10756.   10900.   10925.
  PER Q=      1.1     12.7     18.4     54.7      8.9      4.0       .3
   AREA=    340.5   2485.1   3731.4  10510.7   2654.1   1155.3    112.8
    VEL=      7.2     11.5     11.1     11.7      7.5      7.8      5.1

*SECNO 29.473

3255 DIVIDED FLOW

    29.47    19.99  1222.99      .00      .00  1224.39     1.40     1.07      .05  1205.70
  225000.   38507.  123005.   63398.    3865.   11604.    9839.    2747.     243.   1216.00
      .15     9.99    10.90     6.44     .025     .025     .025     .000  1203.00  9852.97
  .000792    1030.    1300.     970.       2        0        0      .00  2378.72 11421.69
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        OLOB     OCH      OROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
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FLOW DISTRIBUTION FOR SECNO= [illegible]

STA=	8853.	8887.	8931.	9151.	9370.	10097.	11003.	11300.	11422.
PER Q=	.1	.1	.6	16.4	54.7	17.4	9.1	1.7	
AREA=	67.4	89.2	227.9	3480.2	11603.8	6380.6	2740.6	717.9	
VEL=	2.5	2.6	6.0	10.6	10.6	6.1	7.5	5.4	

*SECNO 29.576

3301 HV CHANGED MORE THAN HVINS

29.58	25.83	1224.23	.00	.00	1225.02	.79	.57	.05	1214.90
225000.	30499.	53027.	141484.	3575.	5763.	24538.	3439.	305.	1210.90
.19	8.53	9.20	5.77	.025	.025	.025	.000	1198.40	8820.17
.000413	920.	1060.	1020.	2	0	0	.00	3016.98	11837.15

FLOW DISTRIBUTION FOR SECNO= 29.68 CWSEL= 1224.23

STA=	8920.	8959.	9013.	9284.	9516.	9869.	9994.	10883.	11121.	11446.	11592.	11659.	11837.
PER Q=	10.9	2.7	23.6	12.6	9.4	3.5	10.1	4.9	7.1	3.8	4.5	5.9	
AREA=	2742.2	832.7	5752.7	4273.9	3205.5	1367.1	5546.6	2124.7	3013.5	1479.7	1300.1	2226.9	
VEL=	8.9	7.3	9.2	5.6	5.6	5.9	4.1	5.2	5.3	5.7	8.0	6.9	

*SECNO 29.991

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3995 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

29.99	15.69	1224.79	1224.79	.00	1228.68	3.90	1.32	.93	1222.90
225000.	9086.	115240.	100674.	915.	7085.	5379.	4173.	390.	1225.00
.21	9.93	16.27	15.79	.025	.025	.025	.000	1209.10	8930.90
.004351	1530.	1500.	1190.	20	14	0	.00	1900.95	10833.32

FLOW DISTRIBUTION FOR SECNO= 29.98 CWSEL= 1224.79

STA=	8931.	8944.	9055.	9163.	10000.	10041.	10104.	10378.	10459.	10590.	10774.	10788.	10833.
PER Q=	.1	2.3	1.7	51.2	.7	2.9	14.6	8.8	9.2	5.9	.9	.9	
AREA=	22.0	492.1	400.4	7085.0	155.9	446.2	2130.6	967.1	1203.5	1153.1	120.9	200.4	
VEL=	5.5	10.6	9.4	16.3	9.7	14.4	15.4	20.4	17.2	13.4	16.5	10.4	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

29.98	16.52	1225.62	.00	.00	1229.78	3.16	.02	.07	1222.90
225000.	10516.	114041.	100442.	1109.	7779.	7070.	4175.	380.	1225.00
.21	9.49	14.66	14.21	.025	.025	.025	.000	1209.10	8927.72
.003131	5.	5.	5.	6	0	0	.00	1909.90	10837.62

FLOW DISTRIBUTION FOR SECNO= 29.98 CWSEL= 1225.62

STA=	8828.	8944.	9055.	9163.	10000.	10041.	10104.	10378.	10459.	10590.	10774.	10789.	10833.
PER Q=	.1	2.6	2.0	50.7	.9	2.9	14.5	9.3	9.0	7.1	.9	1.0
AREA=	34.1	594.0	490.4	7778.4	189.4	498.7	2357.4	1034.8	1312.1	1305.1	132.5	240.0
VEL=	5.3	10.1	9.1	14.7	9.2	13.2	14.0	18.1	15.4	12.3	14.9	9.4

*SECNO 30.194

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

30.19	20.92	1229.62	1229.62	.00	1233.90	4.17	3.53	.31	1235.30
225000.	0.	194897.	30103.	0.	11275.	3495.	4576.	429.	1229.50
.23	.00	17.29	9.51	.025	.025	.025	.000	1208.80	9058.97
.003094	1120.	1120.	1170.	5	11	0	.00	1818.86	10877.73

FLOW DISTRIBUTION FOR SECNO= 30.19 CWSEL= 1229.62

STA=	9059.	10000.	10024.	10274.	10495.	10640.	10735.	10876.
PER Q=	96.5	.2	5.7	3.2	1.9	1.6	.7
AREA=	11275.3	76.1	1296.4	865.8	540.6	419.4	296.6
VEL=	17.3	7.1	9.9	8.2	7.9	8.8	5.5

*SECNO 30.195

3301 HV CHANGED MORE THAN HVINS

30.19	21.87	1230.57	.00	.00	1233.90	3.23	.01	.09	1235.30
225000.	0.	188096.	36914.	0.	12266.	4426.	4577.	429.	1229.50
.23	.00	15.33	8.34	.025	.025	.025	.000	1208.80	9054.66
.002189	5.	5.	5.	10	0	0	.00	1840.36	10895.02

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
STA=    9955.   10000.   10024.   10274.   10495.   10540.   10735.   10875.   10995.
  PER Q=     93.6      .3      6.5      4.0      2.4      2.0      1.2       .0
   AREA=  12255.8    100.9   1559.5   1097.6    593.1    520.1    443.3     11.3
    VEL=     15.3      7.2      9.4      8.1      7.9      8.5      6.0      1.9

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    19.34  1234.04      .00      .00  1235.05     2.00     2.02      .12  1239.10
  225000.       0.  225000.       0.       0.   19818.       0.    5134.     477.   1233.70
      .27      .00    11.35      .60     .025     .025     .025     .000  1214.70  9347.95
  .001098    1280.    1370.    1030.        2        0        0      .00  1430.97 10778.92


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1234.04

STA=    9348.   10777.
  PER Q=    100.0
   AREA=  19917.9
    VEL=     11.4

*SECNO 30.815

3295 DIVIDED FLOW

    30.82    20.02  1235.02      .00      .00  1238.11     2.09     2.04      .03  1236.50
  225000.    1325.  223674.       0.     354.   19244.       0.    5960.     538.   1251.60
      .21     2.74    11.52      .00     .025     .025     .025     .000  1215.00  9439.46
  .001131    1350.    1330.    1390.        3        0        0      .00  1524.11 10942.70


FLOW DISTRIBUTION FOR SECNO=     30.82          CWSEL=   1235.02

STA=    9403.    9471.    9514.    9563.   11135.
  PER Q=      .1       .3       .1     99.4
   AREA=     95.8    157.5    100.1  19244.4
    VEL=      2.7      4.7      3.2     11.6

*SECNO 31.029
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
```

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3585 20 TRIALS ATTEMPTED WSEL,CWSEL
3593 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

31.03	24.96	1237.66	1237.66	.00	1242.18	4.52	1.82	.73	1229.00
225000.	72817.	138270.	13914.	6346.	7106.	871.	6386.	578.	1212.70
.33	11.47	19.46	15.97	.025	.025	.025	.000	1212.70	9099.85
.002702	1060.	1100.	1100.	20	11	0	.00	1640.73	10942.00

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1237.66

STA=	9100.	9660.	9882.	10127.	10280.	10323.	10772.	10942.
PER Q=	7.5	5.2	6.1	10.4	-3.0	51.5	6.2	
AREA=	1729.5	1217.4	1354.2	1589.5	457.3	7105.9	871.1	
VEL=	9.9	9.7	10.1	14.7	14.9	19.5	16.0	

*SECNO 31.029

3255 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.03	25.12	1239.92	.00	.00	1242.30	3.49	.01	.10	1229.00
225000.	90191.	131532.	13278.	7679.	7530.	954.	6387.	578.	1212.70
.33	10.44	17.24	13.91	.025	.025	.025	.000	1212.70	9084.56
.001929	5.	5.	5.	8	0	0	.00	1679.76	10845.26

FLOW DISTRIBUTION FOR SECNO= 31.03 CWSEL= 1239.92

STA=	9095.	9660.	9882.	10127.	10280.	10323.	10772.	10845.
PER Q=	9.0	5.1	7.0	10.5	3.0	59.5	5.9	
AREA=	2299.6	1476.6	1640.0	1765.5	507.5	7629.9	954.4	
VEL=	8.9	9.3	9.5	13.4	13.5	17.2	13.9	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

31.30	22.65	1242.75	.00	.00	1243.79	1.04	1.26	.24	1225.50
225000.	56987.	165607.	1407.	9195.	18953.	255.	7075.	545.	1220.70
.37	5.20	8.79	5.51	.025	.025	.025	.000	1220.10	8022.45
.000539	1190.	1440.	1390.	2	0	0	.00	2968.19	10990.65

FLOW DISTRIBUTION FOR SECNO= 31.30 CWSEL= 1242.75

STA=	8022.	8306.	8706.	8967.	9104.	9155.	9276.	9384.	9690.	10398.	10991.
PER Q=	.0	.4	1.1	3.3	.5	1.5	2.7	15.7	74.0	.5	
AREA=	57.5	500.5	685.9	1551.1	310.0	737.9	998.5	4352.9	18953.5	255.2	
VEL=	.5	1.5	3.5	4.3	4.5	4.5	5.1	8.1	8.9	5.5	

*SECNO 31.522

3265 DIVIDED FLOW

31.52	19.24	1243.64	.00	.00	1244.52	.38	.71	.32	1244.50
225000.	45855.	178145.	0.	7419.	22784.	0.	7851.	729.	1264.30
.42	5.32	7.92	.00	.025	.025	.025	.000	1224.40	9045.51
.000719	1120.	1150.	1650.	2	0	0	.00	3429.34	11515.98

FLOW DISTRIBUTION FOR SECNO= 31.52 CWSEL= 1243.64

STA=	9045.	9273.	9395.	9484.	9775.	9988.	11539.
PER Q=	5.8	3.7	4.8	3.9	1.5	79.2	
AREA=	2093.7	896.5	1457.5	1700.7	1291.0	22784.2	
VEL=	7.3	9.4	7.4	5.2	2.8	7.3	

*SECNO 31.725

3265 DIVIDED FLOW

31.73	15.02	1244.52	.00	.00	1245.43	.91	.90	.01	1245.20
225000.	46531.	119608.	59862.	6830.	14164.	8913.	8603.	824.	1237.10
.46	5.81	8.44	5.60	.025	.025	.025	.000	1229.50	7465.12
.000958	870.	1070.	1530.	2	0	0	.00	4312.75	12544.95

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA=	7465.	8169.	8551.	8598.	8809.	9337.	11020.	11202.	11525.	11525.	11976.	12219.	12545.
PER Q=	3.3	4.8	7.4	3.2	2.0	53.2	3.5	5.0	4.3	5.0	6.4	1.9	
AREA=	1253.6	1828.8	1589.4	909.7	1139.3	14154.3	1225.6	2095.3	1420.1	1394.1	1934.3	843.7	
VEL=	5.9	5.9	9.8	7.9	4.0	9.4	6.6	5.4	6.8	8.1	7.4	5.0	

*SECNO 31.396

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

31.90	17.33	1245.43	.00	.00	1245.92	1.49	1.32	.17	1245.10
225000.	75930.	144792.	4278.	6612.	15633.	1055.	9199.	918.	1245.30
.49	10.99	9.26	4.05	.025	.025	.025	.000	1228.10	8299.43
.002089	920.	980.	1000.	2	0	0	.00	4172.50	13121.47

FLOW DISTRIBUTION FOR SECNO= 31.90 CWSEL= 1245.43

STA=	8299.	8592.	8752.	8905.	9014.	9151.	9291.	12146.	13121.
PER Q=	9.4	5.9	3.1	5.9	7.8	.5	54.4	1.9	
AREA=	2038.0	1369.5	816.6	1066.0	1376.9	244.9	15532.9	1055.9	
VEL=	10.4	11.4	9.5	12.5	12.7	5.8	9.3	4.1	

MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

G DRAINAGE ENGINEERING,J

SUMMARY PRINTOUT

	SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
	28.359	20000.00	3659.03	1202.65	3.65	1199.00	20000.00	5.47	1236.61	5042.55	6279.26
	28.358	40000.00	5576.99	1204.19	5.19	1199.00	40000.00	7.17	1245.30	5038.35	6284.57
	28.359	60000.00	7112.06	1205.42	6.42	1199.00	60000.00	8.44	1254.01	5034.95	6289.96
	28.359	80000.00	8465.45	1206.50	7.50	1199.00	80000.00	9.45	1260.77	5031.96	6292.73
	28.359	100000.00	9728.67	1207.49	8.49	1199.00	100000.00	10.28	1267.04	5029.18	6296.23
	28.358	120000.00	10954.34	1208.38	9.38	1199.00	120000.00	11.06	1272.61	5026.72	6299.33
	28.358	140000.00	11917.24	1209.21	10.21	1199.00	140000.00	11.75	1277.34	5024.41	6302.25
	28.358	160000.00	12927.49	1210.00	11.00	1199.00	160000.00	12.38	1282.80	5022.21	6305.01
	28.358	180000.00	13893.09	1210.75	11.75	1199.00	180000.00	12.96	1287.51	5020.13	6307.64
	28.359	200000.00	14878.62	1211.52	12.52	1199.00	200000.00	13.44	1292.31	5018.00	6310.31
	28.359	225000.00	15961.90	1212.35	13.35	1199.00	225000.00	14.10	1297.56	5015.68	6313.24
	28.645	20000.00	2831.30	1205.02	7.92	1197.20	20000.00	7.06	519.55	10164.91	10684.56
	28.645	40000.00	3870.92	1206.90	9.70	1197.20	40000.00	10.33	590.75	10124.07	10704.82
	28.645	60000.00	4572.59	1208.19	10.99	1197.20	59956.83	12.90	637.92	10080.52	10718.54
	28.645	80000.00	5431.22	1209.19	11.98	1197.20	79449.34	15.05	820.27	9892.19	10729.25
*	28.645	100000.00	6563.16	1210.49	13.28	1197.20	97612.20	15.95	922.09	9445.75	10743.19
*	28.645	120000.00	7815.69	1211.73	14.53	1197.20	114640.00	16.25	1129.82	9402.86	11089.52
*	28.646	140000.00	10282.17	1213.46	16.26	1197.20	125965.60	15.19	1587.79	9351.92	11100.70
*	28.645	160000.00	11579.37	1214.20	17.00	1197.20	140663.20	15.68	1750.69	9354.85	11105.54
*	28.645	180000.00	12774.12	1214.89	17.69	1197.20	153943.10	16.15	1751.54	9348.41	11109.95
*	28.646	200000.00	13801.23	1215.47	18.27	1197.20	167163.20	16.69	1770.82	9342.91	11113.72
*	28.646	225000.00	14967.64	1215.12	18.92	1197.20	183433.70	17.38	1781.29	9336.69	11117.98

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
28.831	20000.00	3718.77	1206.49	7.49	1199.00	9198.21	5.52	961.64	9252.78	10488.48
28.831	40000.00	7116.28	1209.33	10.33	1199.00	16410.45	6.45	1388.76	9242.45	10711.44
28.831	60000.00	10420.04	1211.55	12.55	1199.00	22824.60	6.91	1554.20	9234.39	10798.59

28.831	120000.00	18485.29	1216.29	17.29	1199.00	39445.51	7.75	1999.85	9217.14	11178.10
28.831	140000.00	20206.93	1217.12	18.18	1199.00	41316.38	8.29	1964.55	9213.89	11192.64
28.831	160000.00	21857.42	1218.01	19.01	1199.00	45937.62	8.77	1995.30	9210.87	11205.17
28.831	180000.00	23390.42	1218.77	19.77	1199.00	50429.84	9.21	2010.54	9208.09	11218.63
28.831	200000.00	24861.40	1219.50	20.50	1199.00	54816.33	9.61	2025.05	9205.44	11230.49
28.831	225000.00	26593.59	1220.36	21.36	1199.00	60201.64	10.09	2042.01	9202.34	11244.35
29.017	20000.00	3147.92	1207.55	8.45	1199.10	19922.98	6.42	721.15	9172.62	10599.18
29.017	40000.00	5354.01	1210.03	10.93	1199.10	39532.27	7.85	1091.71	9160.13	10750.00
29.017	60000.00	8173.25	1212.03	12.93	1199.10	53978.36	8.40	1640.03	9150.09	10855.67
29.017	80000.00	11301.60	1213.85	14.75	1199.10	65050.72	8.36	1792.83	9140.95	10950.17
29.017	100000.00	14126.00	1215.38	16.28	1199.10	75399.73	8.44	1895.48	9133.26	11029.74
29.017	120000.00	16615.40	1216.69	17.58	1199.10	85595.69	8.63	1959.89	9126.79	11096.68
29.017	140000.00	18475.87	1217.60	18.50	1199.10	95305.81	9.07	2023.01	9122.11	11145.12
29.017	160000.00	20205.35	1218.45	19.35	1199.10	105759.30	9.48	2071.17	9117.86	11189.03
29.017	180000.00	21835.17	1219.23	20.13	1199.10	117014.80	9.87	2115.55	9113.95	11229.50
29.017	200000.00	23441.30	1219.99	20.88	1199.10	125955.50	10.22	2159.40	9110.17	11268.57
29.017	225000.00	25370.32	1220.86	21.76	1199.10	139138.00	10.63	2208.75	9105.73	11314.49
29.221	20000.00	3110.47	1209.44	7.94	1201.50	15359.08	7.22	1015.55	9225.14	10240.79
29.221	40000.00	4690.55	1211.67	10.17	1201.50	32441.26	9.01	929.52	9400.00	10329.52
29.221	60000.00	7462.39	1213.37	11.87	1201.50	39797.87	8.37	1260.60	9212.74	10902.43
29.221	80000.00	9596.02	1214.80	13.30	1201.50	51321.59	8.87	1699.38	9209.20	10906.59
29.221	100000.00	11960.53	1216.14	14.64	1201.50	61607.84	9.14	1705.39	9204.00	10910.39
29.221	120000.00	13999.85	1217.32	15.82	1201.50	71499.66	9.41	1713.52	9200.26	10913.78
29.221	140000.00	15528.20	1218.22	16.72	1201.50	81548.34	9.90	1713.91	9197.43	10916.34
29.221	160000.00	16942.15	1219.05	17.55	1201.50	91463.16	10.36	1723.85	9194.83	10918.69
29.221	180000.00	18277.04	1219.81	18.31	1201.50	101250.30	10.79	1728.50	9192.39	10920.89
29.221	200000.00	19522.02	1220.53	19.03	1201.50	110952.50	11.21	1732.83	9190.12	10922.95
29.221	225000.00	20999.81	1221.38	19.88	1201.50	122934.00	11.70	1737.95	9187.43	10925.39
29.473	20000.00	4246.12	1211.41	8.41	1203.00	15784.51	4.80	919.63	9143.29	11302.12
29.473	40000.00	6700.37	1213.88	10.88	1203.00	30709.63	6.15	1096.45	9150.00	11300.00
29.473	60000.00	8140.91	1215.04	12.04	1203.00	44985.94	7.72	1223.09	9135.39	11339.63
29.473	80000.00	10056.60	1216.32	13.32	1203.00	58439.17	8.66	2218.83	9133.96	11352.79
29.473	100000.00	12632.47	1217.48	14.48	1203.00	69327.68	9.14	2232.95	9131.77	11364.73
29.473	120000.00	15110.87	1218.58	15.58	1203.00	78720.55	9.39	2245.47	9129.67	11376.14
29.473	140000.00	17254.02	1219.53	16.53	1203.00	87771.09	9.66	2258.51	8982.21	11385.94
29.473	160000.00	19297.58	1220.42	17.42	1203.00	96408.03	9.90	2296.98	8874.66	11395.18
29.473	180000.00	21215.02	1221.25	18.25	1203.00	104831.30	10.14	2323.37	8867.66	11403.74
29.473	200000.00	23070.53	1222.05	19.05	1203.00	113018.30	10.35	2348.63	8860.96	11411.93
29.473	225000.00	25307.55	1222.99	19.99	1203.00	123005.20	10.60	2378.72	8852.97	11421.69

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
29.676	20000.00	5054.61	1211.96	13.56	1198.40	11280.10	4.61	1231.23	8827.01	11762.34
29.676	40000.00	6550.31	1214.49	16.09	1198.40	24011.65	7.72	1110.74	9850.00	9964.56
29.676	60000.00	11255.56	1215.10	17.70	1198.40	25175.89	7.09	2117.34	8824.71	11787.58
29.676	80000.00	14517.21	1217.58	19.18	1198.40	28801.82	7.54	2439.40	8822.88	11796.57

	29.576	130000.00	20556.59	1219.32	21.43	1199.40	37520.66	8.24	2930.39	9922.53	11910.23
	29.576	140000.00	23474.25	1220.77	22.37	1198.40	40922.35	8.49	2993.95	9922.10	11915.05
	29.576	150000.00	26140.82	1221.55	23.26	1199.40	43942.52	8.68	2999.87	9921.60	11921.47
	29.576	160000.00	28633.96	1222.49	24.09	1198.40	46851.87	8.85	3005.39	9921.14	11926.54
	29.576	200000.00	31022.54	1223.29	24.89	1198.40	49545.23	9.02	3010.69	9920.70	11931.38
	29.576	225000.00	33875.60	1224.23	25.83	1198.40	53026.60	9.20	3016.98	9920.17	11937.15
*	29.991	20000.00	1789.90	1214.74	5.64	1209.10	18163.45	11.92	441.77	9475.84	10513.30
*	29.991	40000.00	3562.31	1217.53	8.43	1209.10	32526.17	12.45	873.67	9466.00	10795.67
*	29.991	60000.00	5275.13	1219.11	10.01	1209.10	43696.35	12.90	1216.22	9450.43	10903.87
*	29.991	80000.00	6535.52	1220.17	11.07	1209.10	54911.14	13.90	1363.13	9908.54	10909.37
*	29.991	100000.00	7733.77	1220.95	11.85	1209.10	55683.57	15.05	1459.06	9937.80	10913.39
*	29.991	120000.00	9452.16	1222.03	12.98	1209.10	73747.05	14.81	1545.57	8941.28	10919.23
*	29.991	140000.00	10546.64	1222.31	13.71	1209.10	75195.46	13.83	1622.31	9932.50	10923.04
*	29.991	160000.00	11268.75	1223.14	14.04	1209.10	83999.24	14.71	1874.59	9937.22	10924.77
*	29.991	180000.00	12300.27	1223.69	14.59	1209.10	93671.63	15.19	1893.44	9935.11	10927.52
*	29.991	200000.00	13224.13	1224.18	15.08	1209.10	103315.30	15.71	1891.25	9933.24	10930.15
*	29.991	225000.00	14377.25	1224.79	15.69	1209.10	115240.30	16.27	1920.95	9930.90	10933.32
	29.992	20000.00	1987.42	1215.19	6.09	1209.10	17941.65	10.79	459.44	9474.29	10519.46
	29.992	40000.00	4423.33	1218.40	9.30	1209.10	30295.56	10.07	1140.95	9462.95	10900.14
	29.992	60000.00	5777.79	1219.53	10.43	1209.10	42700.54	11.95	1263.10	9043.13	10805.98
	29.992	80000.00	7395.76	1220.71	11.61	1209.10	53312.39	12.58	1445.18	8980.05	10912.18
*	29.992	100000.00	7937.01	1221.12	12.02	1209.10	54999.92	14.59	1494.98	9958.74	10914.23
	29.992	120000.00	11282.72	1223.15	14.05	1209.10	62990.95	11.02	1974.80	8937.19	10924.81
	29.992	140000.00	11532.55	1223.29	14.19	1209.10	73329.59	12.58	1876.92	8936.68	10925.50
	29.992	160000.00	12852.51	1223.99	14.89	1209.10	82892.91	12.93	1889.11	8933.99	10929.14
	29.992	180000.00	13996.25	1224.53	15.43	1209.10	92513.63	13.45	1896.91	8931.87	10932.01
	29.992	200000.00	14998.78	1225.05	15.95	1209.10	102065.30	13.95	1904.29	8929.85	10934.74
	29.992	225000.00	15957.03	1225.62	16.52	1209.10	114041.30	14.66	1909.90	8927.72	10937.52
	30.194	20000.00	2569.58	1219.04	10.24	1208.80	20000.00	7.91	520.07	9115.21	9635.22
	30.194	40000.00	4158.17	1221.65	12.85	1208.80	40000.00	9.62	829.04	9099.86	9927.90
	30.194	60000.00	5275.39	1222.98	14.18	1208.80	60000.00	11.37	951.35	9090.53	9941.89
	30.194	80000.00	6059.44	1223.89	15.09	1208.80	80000.00	13.20	966.69	9084.81	9951.50
	30.194	100000.00	7095.39	1224.93	16.13	1209.80	99725.55	14.31	1171.27	9078.30	10307.20
*	30.194	120000.00	9373.89	1225.89	17.09	1208.80	117983.80	15.06	1459.08	9073.93	10749.54
*	30.194	140000.00	10213.19	1227.04	18.24	1208.80	133129.40	15.01	1695.99	9069.22	10789.78
*	30.194	160000.00	11407.92	1227.74	18.94	1208.80	148364.10	15.50	1735.33	9066.43	10814.10
*	30.194	180000.00	12450.94	1228.34	19.54	1208.80	163239.10	15.21	1758.44	9064.02	10835.09
*	30.194	200000.00	13552.02	1228.95	20.15	1208.80	177395.40	15.67	1794.89	9061.57	10855.45
*	30.194	225000.00	14770.17	1229.62	20.82	1208.80	194996.70	17.29	1818.86	9058.87	10877.73

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
30.195	20000.00	2566.95	1219.06	10.26	1208.80	20000.00	7.79	520.66	9115.12	9635.78
30.195	40000.00	4169.60	1221.67	12.87	1208.80	40000.00	9.59	929.27	9098.78	9928.05
30.195	60000.00	5293.58	1223.01	14.21	1208.80	60000.00	11.33	951.72	9090.40	9942.12
30.195	80000.00	6144.90	1223.99	15.19	1208.80	79999.99	13.02	958.34	9084.19	9952.53

	30.195	120000.00	9949.74	1226.98	19.09	1208.80	114728.50	13.15	1689.42	9059.96	10794.85
	30.195	140000.00	11597.63	1227.84	19.04	1208.80	129296.50	13.45	1741.34	9066.00	10817.91
	30.195	160000.00	13041.34	1228.65	19.86	1208.80	143377.30	13.82	1793.76	9062.71	10846.50
	30.195	180000.00	14323.10	1229.37	20.57	1208.80	157269.00	14.24	1811.54	9059.85	10871.40
	30.195	200000.00	15418.90	1229.97	21.17	1208.80	171106.70	14.74	1826.15	9057.44	10883.59
	30.195	225000.00	16691.57	1230.67	21.87	1208.80	188085.50	15.33	1840.36	9054.66	10895.02
	30.458	20000.00	4001.92	1221.84	7.14	1214.70	20000.00	5.00	1102.59	9423.25	10575.62
	30.458	40000.00	7267.38	1224.61	9.91	1214.70	40000.00	5.50	1205.72	9405.33	10612.05
	30.458	60000.00	9441.13	1226.40	11.70	1214.70	60000.00	6.36	1236.82	9398.65	10635.45
	30.458	80000.00	11493.55	1228.02	13.32	1214.70	80000.00	6.96	1328.17	9392.53	10720.70
	30.458	100000.00	13313.03	1229.38	14.68	1214.70	100000.00	7.51	1346.83	9387.42	10734.25
	30.458	120000.00	14607.58	1230.34	15.64	1214.70	120000.00	8.21	1364.74	9379.04	10743.78
	30.458	140000.00	15791.57	1231.20	16.50	1214.70	140000.00	8.87	1388.79	9363.56	10752.35
	30.458	160000.00	16859.28	1231.96	17.26	1214.70	160000.00	9.49	1406.19	9353.76	10759.95
	30.458	180000.00	17834.76	1232.65	17.95	1214.70	180000.00	10.09	1415.05	9351.80	10766.85
	30.458	200000.00	18748.06	1233.29	18.59	1214.70	200000.00	10.67	1423.29	9349.97	10773.26
	30.458	225000.00	19818.11	1234.04	19.34	1214.70	224999.80	11.35	1430.97	9347.85	10778.82
	30.815	20000.00	4302.79	1223.93	7.93	1216.00	20000.00	4.65	1096.12	9740.44	10925.55
	30.815	40000.00	6574.27	1225.10	10.10	1216.00	40000.00	5.08	1070.51	9729.49	10800.00
	30.815	60000.00	9734.69	1227.87	11.87	1216.00	60000.00	6.83	1205.03	9549.40	10854.43
	30.815	80000.00	10715.75	1229.45	13.45	1216.00	80000.00	7.47	1231.14	9634.49	10865.62
	30.815	100000.00	12352.51	1230.77	14.77	1216.00	100000.00	8.10	1255.36	9622.09	10877.45
	30.815	120000.00	13677.91	1231.82	15.82	1216.00	120000.00	8.77	1278.21	9612.25	10890.46
	30.815	140000.00	14926.91	1232.77	16.77	1216.00	139977.80	9.39	1347.15	9476.13	10902.30
	30.815	160000.00	16095.38	1233.63	17.63	1216.00	159850.50	9.98	1395.74	9456.15	10912.88
	30.815	180000.00	17222.31	1234.42	18.42	1216.00	179610.10	10.52	1438.28	9440.35	10922.76
	30.815	200000.00	18300.55	1235.16	19.16	1216.00	199261.50	11.03	1477.84	9425.65	10931.95
	30.815	225000.00	19599.97	1236.02	20.02	1216.00	223574.00	11.62	1524.11	9408.46	10942.70
	31.028	20000.00	1720.97	1224.65	11.95	1212.70	17559.36	11.54	327.34	10478.29	10805.63
*	31.028	40000.00	3096.91	1227.74	15.04	1212.70	34950.54	13.19	625.73	10170.73	10814.27
*	31.028	60000.00	4590.01	1229.78	17.08	1212.70	50421.90	14.15	822.99	9579.73	10819.95
*	31.028	80000.00	5953.72	1231.23	18.53	1212.70	64300.78	15.25	926.87	9532.37	10824.03
*	31.028	100000.00	7201.32	1232.56	19.85	1212.70	75705.38	15.94	1085.42	9525.06	10827.73
*	31.028	120000.00	8610.85	1233.74	21.04	1212.70	87557.32	16.41	1247.44	9519.55	10831.03
*	31.028	140000.00	9577.23	1234.57	21.87	1212.70	98615.80	17.25	1316.55	9490.82	10833.36
*	31.028	160000.00	10934.31	1235.49	22.79	1212.70	108313.90	17.67	1443.01	9189.12	10835.92
*	31.028	180000.00	12045.89	1236.23	23.53	1212.70	117360.20	18.23	1527.98	9118.55	10838.01
*	31.028	200000.00	13064.27	1236.88	24.18	1212.70	127217.50	18.83	1600.25	9110.02	10839.83
*	31.028	225000.00	14322.75	1237.66	24.95	1212.70	138269.50	19.46	1640.73	9099.85	10842.00

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
31.029	20000.00	1772.96	1224.81	12.11	1212.70	17557.86	11.20	335.08	10470.99	10806.07
31.029	40000.00	3522.53	1228.52	15.82	1212.70	34617.93	11.53	726.03	9530.34	10815.46
31.029	60000.00	5078.88	1230.35	17.65	1212.70	49593.28	12.97	957.87	9556.30	10821.57
31.029	80000.00	6614.69	1231.99	19.29	1212.70	62510.51	13.72	1018.57	9528.14	10826.17

31.029	120000.00	9420.53	1234.89	21.36	1212.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31.029	140000.00	10978.78	1235.51	22.81	1212.70	94548.46	15.41	1448.15	9189.59	10836.01
31.029	160000.00	12178.77	1236.33	23.53	1212.70	104352.40	16.05	1537.23	9117.42	10839.25
31.029	180000.00	13546.22	1237.19	24.49	1212.70	112971.80	16.39	1616.49	9106.10	10840.67
31.029	200000.00	14858.71	1237.99	25.29	1212.70	121149.60	16.70	1557.57	9095.51	10842.93
31.029	225000.00	16263.69	1239.82	26.12	1212.70	131531.70	17.24	1679.76	9084.56	10845.25
31.301	20000.00	3917.31	1228.78	8.59	1220.10	19253.50	5.32	843.84	9522.30	10375.98
31.301	40000.00	7529.48	1232.07	11.97	1220.10	35754.66	5.53	1296.71	9367.19	10979.44
31.301	60000.00	10750.02	1234.16	14.06	1220.10	51123.31	5.79	1599.89	9314.74	10891.52
31.301	80000.00	13219.18	1235.71	15.61	1220.10	67010.57	6.28	1510.27	9102.04	10883.25
31.301	100000.00	15680.16	1237.05	16.96	1220.10	82328.53	6.72	1984.52	8851.22	10884.67
31.301	120000.00	18039.10	1239.21	18.11	1220.10	96842.59	7.11	2086.32	8799.56	10885.88
31.301	140000.00	20191.07	1239.23	19.13	1220.10	110845.10	7.48	2133.15	8753.80	10886.95
31.301	160000.00	22224.63	1240.17	20.07	1220.10	124475.70	7.82	2176.42	8711.46	10887.94
31.301	180000.00	24119.54	1241.02	20.92	1220.10	137816.80	8.14	2303.27	8585.56	10888.83
31.301	200000.00	26002.00	1241.82	21.72	1220.10	150833.40	8.45	2436.33	8453.34	10889.67
31.301	225000.00	28414.11	1242.75	22.65	1220.10	165606.70	8.79	2589.19	8022.46	10890.55
* 31.522	20000.00	2156.22	1230.92	6.52	1224.40	19215.75	9.51	829.50	8244.03	11501.85
31.522	40000.00	4038.55	1233.01	8.61	1224.40	35507.07	10.02	1125.24	8250.00	11450.00
31.522	60000.00	7292.51	1235.10	10.70	1224.40	53198.13	8.30	1753.71	8081.39	11506.50
31.522	80000.00	10038.92	1236.55	12.15	1224.40	69526.39	8.08	1975.18	8075.29	11508.11
31.522	100000.00	13028.09	1237.90	13.50	1224.40	84549.41	7.76	2459.49	8069.53	11509.50
31.522	120000.00	15099.79	1239.05	14.66	1224.40	99507.44	7.53	2749.25	8064.79	11510.89
31.522	140000.00	18872.81	1240.05	15.65	1224.40	115429.40	7.55	2913.05	8050.60	11511.99
31.522	160000.00	21568.19	1240.93	16.58	1224.40	130854.90	7.59	2955.42	8055.58	11513.03
31.522	180000.00	24239.95	1241.85	17.45	1224.40	145926.40	7.65	3184.07	8053.01	11514.00
31.522	200000.00	26923.75	1242.68	18.28	1224.40	160515.10	7.73	3348.70	8049.55	11514.91
31.522	225000.00	30203.62	1243.64	19.24	1224.40	178145.30	7.82	3429.34	8045.51	11515.98
31.725	20000.00	3388.20	1235.32	5.82	1229.50	16527.12	6.13	1181.54	8010.13	12220.41
31.725	40000.00	5732.20	1237.14	7.64	1229.50	31118.49	7.11	1575.17	8484.74	11950.00
31.725	60000.00	7552.93	1237.96	8.46	1229.50	43120.53	8.16	2200.32	7961.93	12226.75
31.725	80000.00	9742.95	1238.82	9.32	1229.50	55252.13	8.64	2533.54	7960.77	12228.86
31.725	100000.00	12254.43	1239.75	10.25	1229.50	66590.10	8.74	2872.49	7959.52	12345.22
31.725	120000.00	14859.24	1240.59	11.09	1229.50	77279.49	8.83	3276.93	7958.40	12367.27
31.725	140000.00	17451.89	1241.35	11.85	1229.50	87007.13	8.91	3512.01	7957.39	12382.80
31.725	160000.00	20315.55	1242.12	12.62	1229.50	95749.73	8.85	3761.01	7955.35	12393.16
31.725	180000.00	23283.72	1242.90	13.40	1229.50	102748.50	8.55	3910.78	7955.32	12403.59
31.725	200000.00	26196.69	1243.63	14.13	1229.50	110410.30	8.55	4020.11	7472.63	12413.45
31.725	225000.00	29907.17	1244.52	15.02	1229.50	119608.00	8.44	4312.75	7465.12	12544.85

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
31.896	20000.00	3107.83	1237.15	9.05	1228.10	18019.50	7.16	1034.79	8496.04	10815.99
31.896	40000.00	5998.77	1239.36	11.26	1228.10	28515.88	6.94	1751.19	8371.03	11749.36
31.896	60000.00	8583.03	1240.61	12.51	1228.10	39494.53	6.79	2337.81	8341.79	11758.57
31.896	80000.00	10540.25	1241.40	13.30	1228.10	52311.85	7.29	2565.49	8334.65	11764.45
31.896	100000.00	12021.11	1241.97	13.87	1228.10	65697.44	8.02	2680.49	8329.57	11768.63

31.896	140000.00	15182.15	1243.09	14.99	1228.10	90954.29	8.78	3178.39	8319.49	12949.48
31.896	150000.00	16909.71	1243.60	15.50	1228.10	104379.40	9.13	3299.05	8314.91	13003.50
31.896	160000.00	18654.19	1244.15	16.05	1228.10	117810.50	9.34	3482.08	8309.97	13054.39
31.896	200000.00	20725.83	1244.71	16.61	1228.10	129612.70	9.33	3809.37	8304.88	13096.23
31.896	225000.00	23600.75	1245.43	17.33	1228.10	144791.70	9.26	4172.50	8298.43	13121.47

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 28.546 PROFILE= 5 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 28.546 PROFILE= 5 MINIMUM SPECIFIC ENERGY

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CAUTION  SECNO=    28.646  PROFILE= 6  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    28.646  PROFILE= 7  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    28.646  PROFILE= 7  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    28.646  PROFILE= 8  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    28.646  PROFILE= 8  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    28.646  PROFILE= 9  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    28.646  PROFILE= 9  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    28.646  PROFILE=10  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    28.646  PROFILE=10  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    28.646  PROFILE=11  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    28.646  PROFILE=11  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=    29.981  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE= 5  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE= 5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE= 5  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE= 6  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE= 6  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE= 6  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE= 7  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE= 7  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE= 7  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE= 8  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE= 8  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE= 8  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE= 9  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE= 9  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE= 9  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE=10  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE=10  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE=10  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.981  PROFILE=11  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.981  PROFILE=11  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.981  PROFILE=11  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=    29.982  PROFILE= 5  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.982  PROFILE= 5  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION  SECNO=    30.194  PROFILE= 6  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    30.194  PROFILE= 6  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    30.194  PROFILE= 7  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    30.194  PROFILE= 7  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    30.194  PROFILE= 8  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    30.194  PROFILE= 8  MINIMUM SPECIFIC ENERGY
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CAUTION  SECNO=    30.194  PROFILE= 9  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    30.194  PROFILE=10  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    30.194  PROFILE=10  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    30.194  PROFILE=11  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    30.194  PROFILE=11  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=    31.028  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    31.028  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    31.028  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    31.028  PROFILE= 5  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE= 5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE= 5  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    31.028  PROFILE= 6  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE= 6  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE= 6  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    31.028  PROFILE= 7  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE= 7  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE= 7  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    31.028  PROFILE= 8  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE= 8  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE= 8  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    31.028  PROFILE= 9  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE= 9  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE= 9  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    31.028  PROFILE=10  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE=10  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE=10  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    31.028  PROFILE=11  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.028  PROFILE=11  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.028  PROFILE=11  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=    31.522  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    31.522  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    31.522  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
```


THIS RUN EXECUTED 01/01/80 08:05:49

****

HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06

THIS RUN EXECUTED 01/01/80 01:12:05

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**************************************************
 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
**************************************************
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EXISTING CONDITIONS HEC II
WITH EXTRA CROSS-SECTIONS ADDED
TO FEMA BASELINE MODEL

```
T1 SALT RIVER FLOOD INSURANCE STUDY, COUNTRY CLUB TO GRANITE REEF
T2 INPUT FILE:88052EQ.H2I  (EXISTING CONDITIONS)
T3 BY CMG DRAINAGE ENGINEERING,JOB# 88052

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0.       2.       0.       0.   .002000      .00       .0       0.  1217.310    .000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN      ALLDC    IBW     CHNIM    ITRACE

     1.000     .000   -1.000     .000     .000     .000     .000     .000     .000   15.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    33.000   43.000   25.000    1.000    9.000   42.000   14.000   26.000    4.000   53.000


    54.000     .000     .000     .000     .000     .000     .000     .000     .000     .000


NC      .025     .025     .025     .300     .500     .000     .000     .000     .000     .000
QT    11.000 20000.000 40000.000 60000.000 80000.000 100000.000 120000.000 140000.000 160000.000 180000.000
QT 200000.000 225000.000     .000     .000     .000     .000     .000     .000     .000     .000
X1    28.831   24.000 8810.000 10940.000     .000     .000     .000     .000     .000     .000
GR  1220.000 8810.000 1208.000 9930.000 1204.000 9990.000 1204.000 9010.000 1204.000 9100.000
GR  1204.000 9200.000 1204.000 9300.000 1204.000 9400.000 1204.000 9500.000 1204.000 9600.000
GR  1204.000 9700.000 1204.000 9800.000 1204.000 9900.000 1204.000 10000.000 1204.000 10100.000
GR  1204.000 10170.000 1200.000 10250.000 1198.600 10320.000 1200.000 10400.000 1204.000 10450.000
GR  1208.000 10500.000 1212.000 10550.000 1216.000 10890.000 1220.000 10940.000     .000     .000

X1    29.017   24.000 8740.000 11000.000 1000.000 1020.000 1020.000     .000     .000     .000
GR  1226.000 8740.000 1220.000 8870.000 1216.000 8900.000 1212.000 8920.000 1208.000 9150.000
GR  1208.000 9250.000 1208.000 9400.000 1208.000 9500.000 1208.000 9600.000 1208.000 9700.000
GR  1208.000 9900.000 1208.000 9900.000 1204.000 9970.000 1200.000 10010.000 1198.800 10080.000
GR  1200.000 10130.000 1204.000 10190.000 1204.000 10300.000 1204.000 10400.000 1204.000 10500.000
GR  1204.000 10600.000 1208.000 10510.000 1208.000 10920.000 1220.000 11000.000     .000     .000

X1    29.221   21.000 9150.000 11220.000  950.000  970.000 1020.000     .000     .000     .000
GR  1224.000 9150.000 1220.000 9210.000 1208.000 9230.000 1208.000 9400.000 1208.000 9500.000
GR  1208.000 9600.000 1208.000 9700.000 1208.000 9800.000 1204.000 9920.000 1201.000 10000.000
GR  1204.000 10080.000 1208.000 10200.000 1212.000 10280.000 1212.000 10400.000 1212.000 10570.000
GR  1212.000 10700.000 1212.000 10800.000 1212.000 10900.000 1212.000 11000.000 1216.000 11150.000
GR  1224.000 11220.000     .000     .000     .000     .000     .000     .000     .000     .000
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X1	29.470	16.000	9100.000	11730.000	1030.000	970.000	1300.000	.000	.000	.000
GR	1230.000	9100.000	1208.000	9150.000	1204.000	9190.000	1204.000	9270.000	1204.000	9480.000
GR	1202.500	9540.000	1204.000	9570.000	1208.000	9800.000	1208.000	9900.000	1208.000	10020.000
GR	1212.000	10080.000	1216.000	10100.000	1216.000	10500.000	1216.000	11000.000	1216.000	11550.000
GR	1224.000	11730.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	29.523	24.000	8800.000	11435.140	230.000	255.000	255.000	.000	.000	.000
GR	1227.000	8800.000	1203.020	8825.670	1202.820	8895.560	1202.820	8971.110	1203.020	9159.340
GR	1207.000	9202.120	1211.020	9441.670	1211.020	9527.230	1211.020	9655.560	1211.020	9766.790
GR	1215.000	9826.680	1215.020	9912.230	1215.020	9997.790	1215.020	10083.350	1215.020	10168.900
GR	1215.000	10254.460	1215.020	10340.020	1215.020	10425.570	1215.020	10511.130	1215.020	10596.680
GR	1215.000	10682.240	1215.020	11024.470	1215.020	11358.140	1227.020	11435.140	.000	.000
X1	29.573	24.000	8800.000	11583.430	230.000	255.000	255.000	.000	.000	.000
GR	1227.300	8800.000	1203.350	8827.110	1203.150	8890.370	1203.150	8990.740	1203.350	9179.550
GR	1207.300	9224.740	1211.350	9477.760	1211.350	9568.150	1211.350	9703.710	1211.350	9821.190
GR	1215.300	9884.450	1215.350	9974.920	1215.350	10065.190	1215.350	10155.560	1215.350	10245.930
GR	1215.300	10336.310	1215.350	10426.680	1215.350	10517.050	1215.350	10607.420	1215.350	10697.790
GR	1215.300	10788.160	1215.350	11149.640	1215.350	11502.090	1227.350	11583.430	.000	.000
X1	29.623	24.000	8800.000	11731.710	230.000	255.000	255.000	.000	.000	.000
GR	1227.700	8800.000	1203.670	8828.560	1203.470	8895.190	1203.470	8990.370	1203.670	9199.780
GR	1207.700	9247.370	1211.670	9513.890	1211.670	9609.080	1211.670	9751.860	1211.670	9875.500
GR	1215.700	9942.230	1215.670	10037.410	1215.670	10132.600	1215.670	10227.780	1215.670	10322.970
GR	1215.700	10418.150	1215.670	10513.340	1215.670	10608.520	1215.670	10703.710	1215.670	10798.900
GR	1215.700	10894.080	1215.670	11274.820	1215.670	11645.050	1227.670	11731.710	.000	.000
X1	29.676	24.000	8800.000	11880.000	230.000	255.000	255.000	.000	.000	.000
GR	1228.000	8800.000	1204.000	8930.000	1203.800	8900.000	1203.800	9000.000	1204.000	9220.000
GR	1208.000	9270.000	1212.000	9550.000	1212.000	9650.000	1212.000	9800.000	1212.000	9930.000
GR	1216.000	10000.000	1216.000	10100.000	1216.000	10200.000	1216.000	10300.000	1216.000	10400.000
GR	1216.000	10500.000	1216.000	10600.000	1216.000	10700.000	1216.000	10800.000	1216.000	10900.000
GR	1216.000	11000.000	1216.000	11400.000	1216.000	11790.000	1228.000	11880.000	.000	.000
X1	29.751	22.000	9300.000	13405.810	382.500	295.000	400.000	.000	.000	.000
GR	1225.100	9300.000	1219.100	9512.630	1211.100	9675.150	1209.100	9821.040	1204.100	10029.450
GR	1204.100	10237.870	1207.100	10258.720	1211.100	10300.400	1215.100	10487.970	1219.100	10758.920
GR	1219.100	10967.330	1219.100	11175.750	1219.100	11384.170	1219.100	11592.590	1219.100	11801.000
GR	1219.100	12009.420	1219.100	12217.830	1219.100	12426.250	1219.100	12634.650	1219.100	12843.080
GR	1219.100	13259.910	1231.100	13405.810	.000	.000	.000	.000	.000	.000
X1	29.827	22.000	9300.000	12693.870	382.500	295.000	400.000	.000	.000	.000
GR	1225.400	9300.000	1219.400	9558.420	1211.400	9610.100	1209.400	9730.690	1204.400	9902.970
GR	1204.400	10075.250	1207.400	10092.480	1211.400	10126.930	1215.400	10281.990	1219.400	10505.940
GR	1219.400	10678.220	1219.400	10850.500	1219.400	11022.780	1219.400	11195.050	1219.400	11367.330
GR	1219.400	11539.610	1219.400	11711.890	1219.400	11884.170	1219.400	12056.440	1219.400	12228.720
GR	1219.400	12573.280	1231.400	12693.870	.000	.000	.000	.000	.000	.000

X1	29.903	22.000	9300.000	11991.930	392.500	295.000	400.000	.000	.000	.000
GR	1225.700	9300.000	1219.700	9504.210	1211.700	9545.050	1209.700	9640.350	1204.700	9776.490
GR	1204.700	9912.620	1207.700	9926.240	1211.700	9953.470	1215.700	10075.990	1219.700	10252.970
GR	1219.700	10399.110	1219.700	10525.250	1219.700	10661.390	1219.700	10797.530	1219.700	10933.670
GR	1219.700	11069.810	1219.700	11205.940	1219.700	11342.080	1219.700	11478.220	1219.700	11614.360
GR	1219.700	11886.640	1231.700	11991.930	.000	.000	.000	.000	.000	.000
X1	29.931	19.000	9300.000	11911.430	392.500	295.000	400.000	.000	.000	.000
GR	1225.800	9300.000	1220.750	9566.470	1212.750	9619.770	1210.750	9744.120	1205.000	9921.770
GR	1205.000	10099.420	1209.750	10117.180	1212.750	10152.710	1216.750	10312.600	1220.750	10543.540
GR	1220.800	10721.190	1220.750	10898.830	1220.750	11076.480	1220.750	11254.130	1220.750	11431.780
GR	1220.800	11609.430	1220.750	11787.080	1220.750	11911.430	.000	.000	.000	.000
X1	30.194	19.000	9300.000	12099.070	1125.000	1175.000	1125.000	.000	.000	.000
GR	1228.000	9300.000	1222.000	9566.470	1214.000	9619.770	1212.000	9744.120	1207.000	9921.770
GR	1207.000	10099.420	1210.000	10117.180	1214.000	10152.710	1218.000	10312.600	1222.000	10543.540
GR	1222.000	10721.190	1222.000	10898.830	1222.000	11076.480	1222.000	11254.130	1222.000	11431.780
GR	1222.000	11609.430	1222.000	11787.080	1222.000	11964.720	1234.000	12099.070	.000	.000
X1	30.458	15.000	9300.000	10800.000	1285.000	1035.000	1375.000	.000	.000	.000
GR	1239.000	9300.000	1220.000	9420.000	1216.000	9540.000	1216.000	9660.000	1209.000	9750.000
GR	1209.000	9850.000	1216.000	10000.000	1220.000	10060.000	1220.000	10200.000	1220.000	10300.000
GR	1220.000	10400.000	1220.000	10550.000	1224.000	10640.000	1228.000	10740.000	1232.000	10800.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 1

CCHV=    .300 CEHV=    .500
*SECNO 28.831
   28.83     7.42  1206.02      .00  1217.31  1206.40      .38      .00      .00  1220.00
  20000.       0.  20000.       0.       0.    4020.       0.       0.       0.  1220.00
     .30      .00     4.98      .00     .025     .025     .025     .000  1198.60  8909.23
 .001994       0.       0.       0.        0        0        7      .00  1556.01 10475.24


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1206.02

STA=    8909.   10940.
 PER Q=    100.0
  AREA=   4020.0
   VEL=      5.0

*SECNO 29.017
   29.02     9.49  1208.29      .00      .00  1208.69      .40     2.28      .01  1225.00
  20000.       0.  20000.       0.       0.    3951.       0.      93.      39.  1220.00
     .06      .00     5.06      .00     .025     .025     .025     .000  1198.80  9133.23
 .002524    1000.    1020.    1020.        3        0        0      .00  1788.71 10921.94


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1208.29

STA=    9133.   11000.
 PER Q=    100.0
  AREA=   3950.9
   VEL=      5.1

*SECNO 29.221
   29.22     9.27  1210.27      .00      .00  1210.75      .47     2.02      .04  1224.00
  20000.       0.  20000.       0.       0.    3521.       0.     192.      72.  1224.00
     .11      .00     5.52      .00     .025     .025     .025     .000  1201.00  9226.21
 .001595     950.    1020.     970.        2        0        0      .00  1019.25 10245.46


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1210.27

STA=    9226.   11220.
 PER Q=    100.0
  AREA=   3620.9
   VEL=      5.5
```

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 29.470
    29.47      9.02  1211.52       .00       .00  1211.74       .22       .92       .08  1230.00
   20000.        0.   20000.        0.        0.    5299.        0.      315.      101.   1224.00
      .20       .00      3.77      .00      .025      .025      .025      .000  1202.50  9142.00
  .000397     1030.     1300.     970.         3         0         0       .00   930.84 10072.93


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1211.52

STA=    9142.   11730.
  PER Q=    100.0
   AREA=   5298.9
    VEL=      3.8

*SECNO 29.523
    29.52      8.78  1211.60       .00       .00  1211.98       .38       .16       .08  1227.00
   20000.        0.   20000.        0.        0.    4040.        0.      343.      107.   1227.02
      .22       .00      4.95      .00      .025      .025      .025      .000  1202.82  8816.48
  .001025     230.      265.     255.         2         0         0       .00   959.07  9775.55


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1211.60

STA=    8816.   11435.
  PER Q=    100.0
   AREA=   4040.0
    VEL=      5.0

*SECNO 29.573
    29.57      8.76  1211.91       .00       .00  1212.25       .34       .26       .01  1227.30
   20000.        0.   20000.        0.        0.    4248.        0.      369.      113.   1227.35
      .23       .00      4.71      .00      .025      .025      .025      .000  1203.15  8817.42
  .000932     230.      265.     255.         2         0         0       .00  1012.71  9830.13


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1211.91

STA=    8817.   11583.
  PER Q=    100.0
   AREA=   4247.6
    VEL=      4.7
```

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
  Q         QLOB      QCH       OROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 29.523
   29.62      8.71  1212.18       .00       .00  1212.50       .32       .24       .01  1227.70
  20000.        0.   20000.        0.        0.    4410.        0.      395.      119.   1227.67
     .25       .00     4.54       .00      .025      .025      .025      .000  1203.47  9818.45
 .000880      230.     265.      255.         2         0         0       .00  1065.59  9884.04


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1212.18

STA=    8818.   11732.
  PER Q=    100.0
   AREA=   4410.0
    VEL=      4.5

*SECNO 29.576
   29.68      8.63  1212.43       .00       .00  1212.73       .30       .23       .01  1228.00
  20000.        0.   20000.        0.        0.    4553.        0.      422.      126.   1228.00
     .27       .00     4.39       .00      .025      .025      .025      .000  1203.90  9919.45
 .000843      230.     265.      255.         2         0         0       .00  1118.14  9937.60


FLOW DISTRIBUTION FOR SECNO=     29.58          CWSEL=   1212.43

STA=    8819.   11880.
  PER Q=    100.0
   AREA=   4552.6
    VEL=      4.4

*SECNO 29.751
   29.75      8.61  1212.71       .00       .00  1213.13       .43       .34       .05  1225.10
  20000.        0.   20000.        0.        0.    3815.        0.      461.      134.   1231.10
     .29       .00     5.24       .00      .025      .025      .025      .000  1204.10  9562.60
 .000832      383.     400.      295.         2         0         0       .00   713.10 10375.70


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1212.71

STA=    9553.   13405.
  PER Q=    100.0
   AREA=   3815.3
    VEL=      5.2
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 29.827
    29.83      8.61  1213.01       .00       .00  1213.63       .62       .40       .10  1225.40
   20000.        0.   20000.        0.        0.    3154.        0.      493.      140.   1231.40
      .31       .00      6.34      .00      .025      .025      .025      .000  1204.40  9599.72
  .001218     383.      400.     295.         0         0         0       .00    589.47 10189.20


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1213.01

STA=    9500.   12694.
  PER Q=    100.0
   AREA=   3154.0
    VEL=      5.3

*SECNO 29.903
    29.90      8.73  1213.43       .00       .00  1214.39       .95       .59       .15  1225.70
   20000.        0.   20000.        0.        0.    2551.        0.      519.      145.   1231.70
      .32       .00      7.84      .00      .025      .025      .025      .000  1204.70  9536.21
  .001830     383.      400.     295.         2         0         0       .00    470.31 10006.52


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1213.43

STA=    9535.   11982.
  PER Q=    100.0
   AREA=   2551.2
    VEL=      7.8

*SECNO 29.981
    29.98      9.52  1214.52       .00       .00  1215.01       .49       .48       .14  1226.80
   20000.        0.   20000.        0.        0.    3563.        0.      547.      150.   1232.75
      .34       .00      5.61      .00      .025      .025      .025      .000  1205.00  9607.93
  .000860     383.      400.     295.         2         0         0       .00    615.79 10223.72


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1214.52

STA=    9608.   11911.
  PER Q=    100.0
   AREA=   3562.9
    VEL=      5.6
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 30.194
    30.19      8.59  1215.59       .00       .00  1216.18       .59      1.12       .05  1228.00
   20000.        0.   20000.        0.        0.    3240.        0.      635.      165.   1234.00
      .39       .00      6.17      .00      .025      .025      .025      .000  1207.00  9609.21
  .001158    1125.     1125.    1175.         2         0         0       .00   606.88 10216.09


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1215.59

STA=    9609.   12089.
  PER Q=    100.0
   AREA=   3239.7
    VEL=      6.2

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46      8.67  1217.67       .00       .00  1218.77      1.10      2.34       .25  1239.00
   20000.        0.   20000.        0.        0.    2378.        0.      723.      184.   1232.00
      .44       .00      8.41      .00      .025      .025      .025      .000  1209.00  9489.49
  .002747    1285.     1375.    1035.         2         0         0       .00   535.77 10025.26


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1217.67

STA=    9489.   10800.
  PER Q=    100.0
   AREA=   2378.3
    VEL=      8.4
```

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**************************************************
  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
**************************************************
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 2

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83     8.79  1207.39      .00  1217.31  1208.03      .84      .00      .00  1220.00
   40000.       0.   40000.       0.       0.    5215.       0.       0.       0.   1220.00
      .00      .00     6.44      .00     .025     .025     .025     .000  1198.50  9854.43
  .001982       0.       0.       0.        0        0        6      .00  1637.93 10492.35


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1207.39

STA=    9854.   10940.
  PER Q=    100.0
   AREA=   6214.7
    VEL=      5.4

*SECNO 29.017
    29.02    10.77  1209.57      .00      .00  1210.20      .53     2.17      .00  1226.00
   40000.       0.   40000.       0.       0.    6286.       0.     145.      41.   1220.00
      .04      .00     6.35      .00     .025     .025     .025     .000  1198.80  9059.84
  .002279    1000.    1020.    1020.        2        0        0      .00  1870.51 10930.45


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1209.57

STA=    9060.   11000.
  PER Q=    100.0
   AREA=   6285.2
    VEL=      5.4

*SECNO 29.221
    29.22    10.67  1211.67      .00      .00  1212.64      .97     2.27      .17  1224.00
   40000.       0.   40000.       0.       0.    5053.       0.     279.      75.   1224.00
      .03      .00     7.90      .00     .025     .025     .025     .000  1201.00  9223.89
  .002170     950.    1020.     970.        1        0        0      .00  1049.47 10273.35


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1211.67

STA=    9224.   11220.
  PER Q=    100.0
   AREA=   5053.4
    VEL=      7.9
```

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   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


*SECNO 29.470
    29.47    11.12  1213.52      .00      .00  1214.09      .47     1.39      .15  1230.00
   40000.       0.   40000.       0.       0.    7270.       0.     463.     105.   1224.00
      .15      .00     5.50      .00     .025     .025     .025     .000  1202.50  9137.24
  .000570    1030.    1300.     970.        2        0        0      .00   950.82 10088.05


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1213.52

STA=    9137.   11730.
  PER Q=    100.0
   AREA=   7269.5
    VEL=      5.5

*SECNO 29.523
    29.52    10.90  1213.72      .00      .00  1214.39      .67      .20      .10  1227.00
   40000.       0.   40000.       0.       0.    6108.       0.     504.     111.   1227.02
      .16      .00     6.55      .00     .025     .025     .025     .000  1202.82  8814.21
  .001084     230.     265.     255.        2        0        0      .00   993.22  9807.44


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1213.72

STA=    9814.   11435.
  PER Q=    100.0
   AREA=   6108.3
    VEL=      6.5

*SECNO 29.573
    29.57    10.94  1214.09      .00      .00  1214.68      .59      .27      .02  1227.30
   40000.       0.   40000.       0.       0.    5499.       0.     542.     117.   1227.35
      .17      .00     6.16      .00     .025     .025     .025     .000  1203.15  8814.95
  .000949     230.     265.     255.        2        0        0      .00  1050.13  9855.09


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1214.09

STA=    8815.   11583.
  PER Q=    100.0
   AREA=   5498.7
    VEL=      6.2
```

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICCNT	CORAR	TOPWID	ENDST

*SECNO 29.523

29.62	10.93	1214.40	.00	.00	1214.93	.53	.24	.02	1227.70
40000.	0.	40000.	0.	0.	6819.	0.	583.	124.	1227.57
.19	.00	5.87	.00	.025	.025	.025	.000	1203.47	8815.81
.000865	230.	265.	255.	2	0	0	.00	1104.93	9920.74

FLOW DISTRIBUTION FOR SECNO= 29.62 CWSEL= 1214.40

STA= 8816. 11732.
PER Q= 100.0
AREA= 6819.0
VEL= 5.9

*SECNO 29.576

29.68	10.88	1214.68	.00	.00	1215.17	.49	.22	.01	1229.00
40000.	0.	40000.	0.	0.	7107.	0.	625.	131.	1228.00
.19	.00	5.63	.00	.025	.025	.025	.000	1203.80	8816.65
.000804	230.	265.	255.	2	0	0	.00	1160.18	9976.83

FLOW DISTRIBUTION FOR SECNO= 29.68 CWSEL= 1214.68

STA= 8817. 11880.
PER Q= 100.0
AREA= 7106.8
VEL= 5.6

*SECNO 29.751

29.75	10.80	1214.90	.00	.00	1215.72	.82	.39	.16	1225.10
40000.	0.	40000.	0.	0.	5514.	0.	563.	140.	1231.10
.21	.00	7.25	.00	.025	.025	.025	.000	1204.10	9545.43
.001200	393.	400.	295.	2	0	0	.00	933.28	10478.71

FLOW DISTRIBUTION FOR SECNO= 29.75 CWSEL= 1214.90

STA= 9645. 13406.
PER Q= 100.0
AREA= 5513.8
VEL= 7.3

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	SLOPE	BANK ELEV

```
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WIN      ELMIN    SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*SECNO 29.827
   29.83    10.90  1215.30      .00      .00  1216.46     1.16      .57      .17  1225.40
  40000.       0.   40000.       0.       0.    4622.       0.     730.     147.   1231.40
     .22      .00     8.65      .00     .025     .025     .025     .000  1204.40  9584.94
 .001692     383.     400.     295.        2        0        0      .00   692.98 10277.92


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1215.30

STA=    9585.   12694.
  PER Q=    100.0
   AREA=   4621.7
    VEL=      8.7

*SECNO 29.903

3301 HV CHANGED MORE THAN HVINS

   29.90    11.12  1215.82      .00      .00  1217.56     1.75      .81      .29  1225.70
  40000.       0.   40000.       0.       0.    3773.       0.     768.     153.   1231.70
     .23      .00    10.60      .00     .025     .025     .025     .000  1204.70  9524.04
 .002488     393.     400.     295.        0        0        0      .00   557.01 10081.06


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1215.82

STA=    9524.   11982.
  PER Q=    100.0
   AREA=   3773.2
    VEL=     10.6

*SECNO 29.981

3301 HV CHANGED MORE THAN HVINS

   29.98    12.69  1217.69      .00      .00  1218.44      .75      .58      .30  1226.80
  40000.       0.   40000.       0.       0.    5754.       0.     812.     159.   1232.75
     .25      .00     6.95      .00     .025     .025     .025     .000  1205.00  9585.84
 .000955     383.     400.     295.        3        0        0      .00   780.14 10356.98


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1217.69

STA=    9587.   11911.
  PER Q=    100.0
   AREA=   5753.7
    VEL=      7.0
```



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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    FR       HV       HL       CLOSS    BANK ELEV
```

```
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 30.194
    30.19    11.92  1218.82       .00       .00  1219.65       .84      1.17       .04  1228.00
   40000.       0.   40000.        0.        0.    5449.        0.      957.      179.   1234.00
      .29      .00     7.34       .00      .025      .025      .025      .000  1207.00  9587.59
  .001128    1125.    1125.     1175.         3         0         0       .00   772.01 10359.69


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1218.82

STA=    9588.   12089.
  PER Q=    100.0
   AREA=   5449.2
    VEL=      7.3

*SECNO 30.458
    30.46    12.02  1221.02       .00       .00  1222.05      1.03      2.30       .10  1239.00
   40000.       0.   40000.        0.        0.    4914.        0.     1120.      299.   1232.00
      .34      .00     8.14       .00      .025      .025      .025      .000  1209.00  9413.52
  .002736    1295.    1375.     1035.         2         0         0       .00  1159.56 10573.08


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1221.02

STA=    9414.   10800.
  PER Q=    100.0
   AREA=   4914.4
    VEL=      8.1
```

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**************************************************
 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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO DEPTH OWSEL CRIWS WSELK FQ HV U AREA RANK ELEV

```
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTX      ELMIN    SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*PROF 3

CCHV=    .300 CEHV=    .500
*SECNO 28.831
   28.83     9.85  1208.45      .00  1217.31  1209.33      .88      .00      .00  1220.00
  60000.       0.   60000.       0.       0.    7982.       0.       0.       0.   1220.00
     .00      .00     7.52      .00     .025     .025     .025     .000  1139.60  9829.25
 .001999       0.       0.       0.        0        0        6      .00  1675.41 10505.65


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1208.45

STA=    8929.   10940.
  PER Q=    100.0
   AREA=   7981.5
    VEL=      7.5

*SECNO 29.017
   29.02    11.84  1210.64      .00      .00  1211.44      .81     2.09      .02  1226.00
  60000.       0.   60000.       0.       0.    8324.       0.     191.      42.   1220.00
     .04      .00     7.21      .00     .025     .025     .025     .000  1198.80  9998.32
 .002110     1000.    1020.    1020.        2        0        0      .00  1939.27 10937.59


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1210.64

STA=    8998.   11000.
  PER Q=    100.0
   AREA=   8324.4
    VEL=      7.2

*SECNO 29.221
   29.22    12.06  1213.06      .00      .00  1214.10     1.05     2.54      .12  1224.00
  60000.       0.   60000.       0.       0.    7312.       0.     374.      85.   1224.00
     .07      .00     8.21      .00     .025     .025     .025     .000  1201.00  9221.57
 .002983      950.    1020.     970.        2        0        0      .00  1818.04 11039.61


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1213.06

STA=    9222.   11220.
  PER Q=    100.0
   AREA=   7311.8
    VEL=      8.2
```


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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    FQ       HV       HL       QLOSS    BANK ELEV
```

```
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WIN      ELMIN    SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*SECNO 29.470
   29.47    12.63  1215.13      .00      .00  1215.87      .74     1.67      .09  1230.00
  60000.       0.   60000.       0.       0.    8717.       0.     513.     128.   1224.00
     .13      .00     6.88      .00     .025     .025     .025     .000  1202.50  9133.80
 .000712    1030.    1300.     970.        2        0        0      .00   961.83 10095.63


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1215.13

STA=    9134.   11730.
  PER Q=    100.0
   AREA=   8717.5
    VEL=      6.9

*SECNO 29.523
   29.52    12.63  1215.45      .00      .00  1216.22      .77      .33      .02  1227.00
  60000.       0.   60000.       0.       0.    9510.       0.     656.     138.   1227.02
     .14      .00     7.05      .00     .025     .025     .025     .000  1202.82  8812.37
 .002826     230.     255.     255.        3        0        0      .00  2548.52 11360.89


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1215.45

STA=    8812.   11435.
  PER Q=    100.0
   AREA=   8510.3
    VEL=      7.1

*SECNO 29.573
   29.57    13.18  1216.33      .00      .00  1216.83      .51      .53      .08  1227.30
  60000.       0.   60000.       0.       0.   10508.       0.     723.     154.   1227.35
     .15      .00     5.71      .00     .025     .025     .025     .000  1203.15  8812.41
 .001509     230.     255.     255.        2        0        0      .00  2596.36 11508.77


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1216.33

STA=    8812.   11583.
  PER Q=    100.0
   AREA=  10507.8
    VEL=      5.7
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELX    FC       WW       EL       CLOSS    BANK FLOW
```

```
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


*SECNO 29.623
    29.62    13.32  1216.79      .00      .00  1217.22      .43      .35      .02  1227.70
   60000.       0.   60000.       0.       0.   11392.       0.     790.     171.   1227.67
      .16      .00     5.27      .00     .025     .025     .025     .000  1203.47  8812.97
  .001235     230.     265.     255.        2        0        0      .00  2841.05 11554.02


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1216.79

STA=    8813.   11732.
  PER Q=    100.0
   AREA=  11392.3
    VEL=      5.3

*SECNO 29.676
    29.68    13.36  1217.16      .00      .00  1217.54      .38      .31      .01  1228.00
   60000.       0.   60000.       0.       0.   12103.       0.     862.     199.   1228.00
      .18      .00     4.96      .00     .025     .025     .025     .000  1203.80  8813.56
  .001078     230.     265.     255.        2        0        0      .00  2985.11 11798.67


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1217.16

STA=    8814.   11880.
  PER Q=    100.0
   AREA=  12102.9
    VEL=      5.0

*SECNO 29.751

3301 HV CHANGED MORE THAN HVINS

    29.75    13.22  1217.32      .00      .00  1218.25      .93      .44      .28  1225.10
   60000.       0.   60000.       0.       0.    7741.       0.     953.     207.   1231.10
      .19      .00     7.75      .00     .025     .025     .025     .000  1204.10  9526.53
  .001129     383.     400.     295.        2        0        0      .00  1011.94 10638.47


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1217.32

STA=    9527.   13406.
  PER Q=    100.0
   AREA=   7741.2
    VEL=      7.8
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
```

```
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


*SECNO 29.827
    29.83    13.25  1217.65      .00      .00  1219.00     1.36      .54      .21  1225.40
   60000.       0.   60000.       0.       0.    6422.       0.    1018.     216.   1231.40
      .20      .00     9.34      .00     .025     .025     .025     .000  1204.40  9569.73
  .001639     383.     400.     295.        2        0        0      .00   838.18 10407.91


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1217.65

STA=    9570.   12694.
  PER Q=    100.0
   AREA=   6421.8
    VEL=      9.3

*SECNO 29.903

3301 HV CHANGED MORE THAN HVINS

    29.90    13.38  1218.98      .00      .00  1220.19     2.10      .80      .37  1225.70
   60000.       0.   60000.       0.       0.    5162.       0.    1071.     223.   1231.70
      .21      .00    11.62      .00     .025     .025     .025     .000  1204.70  9512.48
  .002514     383.     400.     295.        2        0        0      .00   668.86 10181.33


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1218.98

STA=    9512.   11982.
  PER Q=    100.0
   AREA=   5162.4
    VEL=     11.6

*SECNO 29.981

3301 HV CHANGED MORE THAN HVINS

    29.98    15.24  1220.24      .00      .00  1221.12      .89      .58      .36  1226.80
   60000.       0.   60000.       0.       0.    7946.       0.    1131.     230.   1232.75
      .23      .00     7.55      .00     .025     .025     .025     .000  1205.00  9569.90
  .000944     383.     400.     295.        3        0        0      .00   943.94 10513.83


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1220.24

STA=    9570.   11911.
  PER Q=    100.0
   AREA=   7946.3
    VEL=      7.6
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
```

```
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*SECNO 30.194
   30.19    15.04  1222.04      .00      .00  1222.85      .80     1.70      .02  1228.00
  60000.       0.   60000.       0.       0.    8336.       0.    1341.     273.   1234.00
     .27      .00     7.20      .00     .025     .025     .025     .000  1207.00  9564.59
 .002791    1125.    1125.    1175.        2        0        0      .00  2400.57 11965.16


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1222.04

STA=    9565.   12099.
  PER Q=    100.0
   AREA=   8335.6
    VEL=      7.2

*SECNO 30.458
   30.46    15.27  1224.27      .00      .00  1224.98      .72     2.11      .03  1239.00
  60000.       0.   60000.       0.       0.    8823.       0.    1612.     331.   1232.00
     .33      .00     6.80      .00     .025     .025     .025     .000  1209.00  9393.05
 .000971    1295.    1375.    1035.        2        0        0      .00  1253.60 10545.66


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1224.27

STA=    9393.   10800.
  PER Q=    100.0
   AREA=   8823.2
    VEL=      5.8
```

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**************************************************
  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
**************************************************


T1
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        5.        0.        0.   .002000       .00        .0        0.  1217.310      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4.000      .000    -1.000      .000      .000      .000      .000      .000      .000    15.000
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
```

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 4

CCHV= .300 CEHV= .500

*SECNO 28.831

28.83	10.79	1209.39	.00	1217.31	1210.47	1.09	.00	.00	1220.00
80000.	0.	80000.	0.	0.	9552.	0.	0.	0.	1220.00
.00	.00	8.38	.00	.025	.025	.025	.000	1198.60	8827.59
.001973	0.	0.	0.	0	0	5	.00	1689.62	10517.31

FLOW DISTRIBUTION FOR SECNO= 28.83 CWSEL= 1209.39

STA= 8928. 10940.
PER Q= 100.0
AREA= 9551.8
VEL= 8.4

*SECNO 29.017

29.02	12.78	1211.58	.00	.00	1212.54	.96	2.02	.04	1226.00
80000.	0.	80000.	0.	0.	10180.	0.	231.	43.	1220.00
.04	.00	7.86	.00	.025	.025	.025	.000	1198.80	8944.14
.001998	1000.	1020.	1020.	2	0	0	.00	1999.73	10943.87

FLOW DISTRIBUTION FOR SECNO= 29.02 CWSEL= 1211.58

STA= 8944. 11000.
PER Q= 100.0
AREA= 10180.2
VEL= 7.9

*SECNO 29.221

29.22	12.86	1213.86	.00	.00	1215.15	1.29	2.45	.16	1224.00
80000.	0.	80000.	0.	0.	8791.	0.	453.	98.	1224.00
.07	.00	9.10	.00	.025	.025	.025	.000	1201.00	9220.23
.002937	950.	1020.	970.	2	0	0	.00	1849.64	11059.86

FLOW DISTRIBUTION FOR SECNO= 29.22 CWSEL= 1213.86

STA= 9220. 11220.
PER Q= 100.0
AREA= 8791.3
VEL= 9.1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 29.470

3301 HV CHANGED MORE THAN HVINS

29.47	14.71	1217.21	.00	.00	1217.84	.62	2.49	.20	1230.00
80000.	0.	80000.	0.	0.	12516.	0.	773.	154.	1224.00
.12	.00	6.34	.00	.025	.025	.025	.000	1202.50	9129.08
.001346	1030.	1300.	970.	2	0	0	.00	2541.47	11670.55

FLOW DISTRIBUTION FOR SECNO= 29.47 CWSEL= 1217.21

STA= 9129. 11730.
PER Q= 100.0
AREA= 12516.4
VEL= 6.3

*SECNO 29.523

29.52	14.86	1217.68	.00	.00	1218.17	.49	.29	.04	1227.00
80000.	0.	80000.	0.	0.	14205.	0.	854.	159.	1227.02
.14	.00	5.63	.00	.025	.025	.025	.000	1202.82	8809.98
.000919	230.	265.	255.	2	0	0	.00	2565.20	11375.18

FLOW DISTRIBUTION FOR SECNO= 29.52 CWSEL= 1217.68

STA= 8810. 11435.
PER Q= 100.0
AREA= 14205.2
VEL= 5.5

*SECNO 29.573

29.57	14.92	1217.97	.00	.00	1218.41	.45	.23	.01	1227.30
80000.	0.	80000.	0.	0.	14893.	0.	943.	185.	1227.35
.15	.00	5.37	.00	.025	.025	.025	.000	1203.15	8810.57
.000844	230.	265.	255.	0	0	0	.00	2709.20	11519.77

FLOW DISTRIBUTION FOR SECNO= 29.57 CWSEL= 1217.97

STA= 8811. 11583.
PER Q= 100.0
AREA= 14893.2
VEL= 5.4

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

```
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


*SECNO 29.623
   29.62    14.75  1218.23     .00      .00  1218.64     .41      .22      .01  1227.70
  80000.       0.  80000.       0.       0.  15496.       0.    1035.     202.   1227.57
     .17      .00     5.15     .00     .025     .025     .025     .000  1203.47  8811.25
 .000792    230.     265.    255.        2        0        0      .00  2853.05 11654.31


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1218.23

STA=    8811.   11732.
  PER Q=    100.0
   AREA=  15496.1
    VEL=      5.2

*SECNO 29.675
   29.68    14.67  1218.47     .00      .00  1218.85     .39      .20      .01  1228.00
  80000.       0.  80000.       0.       0.  16028.       0.    1131.     220.   1228.00
     .19      .00     4.99     .00     .025     .025     .025     .000  1203.80  8811.92
 .000756    230.     265.    255.        2        0        0      .00  2996.60 11808.51


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1218.47

STA=    8812.   11880.
  PER Q=    100.0
   AREA=  16028.4
    VEL=      5.0

*SECNO 29.751

3301 HV CHANGED MORE THAN HVINS

   29.75    14.34  1218.44     .00      .00  1219.69    1.25      .40      .43  1225.10
  80000.       0.  80000.       0.       0.   8918.       0.    1246.     239.   1231.10
     .19      .00     8.97     .00     .025     .025     .025     .000  1204.10  9617.80
 .001394    383.     400.    295.        2        0        0      .00  1096.32 10714.12


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1218.44

STA=    9618.   13406.
  PER Q=    100.0
   AREA=   8918.5
    VEL=      9.0
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
```

*SECNO 29.827

3301 HV CHANGED MORE THAN HVINS

29.83	14.43	1218.83	.00	.00	1220.62	1.79	.66	.27	1225.40
80000.	0.	80000.	0.	0.	7449.	0.	1321.	248.	1231.40
.20	.00	10.74	.00	.025	.025	.025	.000	1204.40	9552.14
.001986	383.	400.	295.	0	0	0	.00	911.53	10473.67

FLOW DISTRIBUTION FOR SECNO= 29.83 CWSEL= 1218.83

STA= 9552. 12694.
PER Q= 100.0
AREA= 7449.4
VEL= 10.7

*SECNO 29.903

3301 HV CHANGED MORE THAN HVINS

29.90	14.62	1219.32	.00	.00	1222.05	2.73	.96	.47	1225.70
80000.	0.	80000.	0.	0.	6030.	0.	1393.	256.	1231.70
.21	.00	13.27	.00	.025	.025	.025	.000	1204.70	9506.14
.002992	383.	400.	295.	2	0	0	.00	730.08	10236.23

FLOW DISTRIBUTION FOR SECNO= 29.90 CWSEL= 1219.32

STA= 9506. 11982.
PER Q= 100.0
AREA= 6030.2
VEL= 13.3

*SECNO 29.991

3301 HV CHANGED MORE THAN HVINS

29.98	17.79	1222.79	.00	.00	1223.37	.58	.57	.65	1226.80
80000.	0.	80000.	0.	0.	13057.	0.	1470.	270.	1232.75
.23	.00	6.13	.00	.025	.025	.025	.000	1205.00	9475.79
.001069	383.	400.	295.	6	0	0	.00	2331.39	11808.18

01/01/80 01:12:03

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

```
FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1222.79

STA=    9477.   11911.
  PER Q=    100.0
   AREA=  13057.0
    VEL=      6.1

*SECNO 30.194
    30.19    17.04  1224.04      .00      .00  1224.61      .57     1.23      .01  1228.00
   80000.       0.   80000.       0.       0.   13248.       0.    1810.     332.   1234.00
      .28      .00     6.04      .00     .025     .025     .025     .000  1207.00  9475.73
  .001124    1125.    1125.    1175.        2        0        0      .00  2510.16 11985.89


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1224.04

STA=    9476.   12089.
  PER Q=    100.0
   AREA=  13248.2
    VEL=      6.0

*SECNO 30.459
    30.46    16.37  1225.37      .00      .00  1226.32      .95     1.52      .19  1239.00
   80000.       0.   80000.       0.       0.   10240.       0.    2181.     392.   1232.00
      .33      .00     7.81      .00     .025     .025     .025     .000  1209.00  9386.01
  .001090    1285.    1375.    1035.        1        0        0      .00  1298.51 10674.53


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1225.37

STA=    9386.   10800.
  PER Q=    100.0
   AREA=  10240.2
    VEL=      7.9
```

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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	6.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	5.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

01/01/80 01:12:03

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

```
*PROF 5

CCHV=    .300 CEHV=    .500
*SECNO 29.831
    28.83    11.59  1210.19      .00  1217.31  1211.49     1.30      .00      .00  1220.00
  100000.       0.  100000.       0.       0.   10920.       0.       0.       0.   1220.00
      .00      .00     9.16      .00     .025     .025     .025     .000  1198.50  8926.35
  .001991       0.       0.       0.        0        0        5      .00  1701.06 10527.40


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1210.19

STA=    8926.   10940.
  PER Q=    100.0
   AREA=  10920.3
    VEL=      9.2

*SECNO 29.017
    29.02    13.64  1212.44      .00      .00  1213.53     1.09     1.98      .06  1226.00
  100000.       0.  100000.       0.       0.   11920.       0.     257.      44.   1220.00
      .03      .00     8.39      .00     .025     .025     .025     .000  1198.80  8917.80
  .001885    1000.    1020.    1020.        2        0        0      .00  2031.81 10949.50


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1212.44

STA=    8918.   11000.
  PER Q=    100.0
   AREA=  11919.6
    VEL=      8.4

*SECNO 29.221
    29.22    13.59  1214.59      .00      .00  1216.10     1.51     2.36      .21  1224.00
  100000.       0.  100000.       0.       0.   10147.       0.     526.      89.   1224.00
      .06      .00     9.86      .00     .025     .025     .025     .000  1201.00  9219.02
  .002904     950.    1020.     970.        2        0        0      .00  1878.13 11097.14


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1214.59

STA=    9219.   11220.
  PER Q=    100.0
   AREA=  10147.1
    VEL=      9.9
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

```
*SECNO 29.470

3301 HV CHANGED MORE THAN HVINS

   29.47    15.51  1218.01      .00      .00  1218.74      .72     2.40      .24  1230.00
  100000.       0.  100000.       0.       0.   14674.       0.     896.     156.   1224.00
     .12      .00     6.81      .00     .025     .025     .025     .000  1202.50  9127.24
 .001277    1030.    1300.     970.        3        0        0      .00  2550.38 11677.62


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1218.01

STA=    9127.   11730.
  PER Q=    100.0
   AREA=  14674.1
    VEL=      5.8

*SECNO 29.523
   29.52    15.65  1218.47      .00      .00  1219.05      .59      .29      .04  1227.00
  100000.       0.  100000.       0.       0.   16251.       0.     990.     171.   1227.02
     .13      .00     6.15      .00     .025     .025     .025     .000  1202.82  8909.13
 .000920     230.     265.     255.        2        0        0      .00  2571.16 11390.29


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1218.47

STA=    8809.   11435.
  PER Q=    100.0
   AREA=  16251.0
    VEL=      6.2

*SECNO 29.573
   29.57    15.63  1218.78      .00      .00  1219.31      .53      .23      .02  1227.30
  100000.       0.  100000.       0.       0.   17121.       0.    1092.     187.   1227.35
     .14      .00     5.84      .00     .025     .025     .025     .000  1203.15  8909.64
 .000932     230.     265.     255.        2        0        0      .00  2715.70 11525.34


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1218.78

STA=    8910.   11593.
  PER Q=    100.0
   AREA=  17121.2
    VEL=      5.8
```



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01/01/80    01:12:03

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

```
*SECNO 29.623
   29.62    15.59  1219.05      .00      .00  1219.54      .49      .21      .01  1227.70
  100000.       0.  100000.       0.       0.   17834.       0.    1198.     204.   1227.67
     .15      .00     5.61      .00     .025     .025     .025     .000  1203.47  8810.28
 .000777     230.     265.     255.        2        0        0      .00  2859.87 11670.15


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1219.05

STA=    8810.   11732.
  PER Q=    100.0
   AREA=  17834.0
    VEL=      5.6

*SECNO 29.676
   29.68    15.49  1219.29      .00      .00  1219.75      .45      .20      .01  1228.00
  100000.       0.  100000.       0.       0.   18500.       0.    1309.     222.   1228.00
     .17      .00     5.41      .00     .025     .025     .025     .000  1203.80  8810.88
 .000734     230.     265.     255.        2        0        0      .00  3003.80 11814.69


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1219.29

STA=    8811.   11880.
  PER Q=    100.0
   AREA=  18500.1
    VEL=      5.4

*SECNO 29.751

3301 HV CHANGED MORE THAN HVINS

   29.75    15.42  1219.52      .00      .00  1220.76     1.24      .62      .39  1225.10
  100000.       0.  100000.       0.       0.   11186.       0.    1445.     253.   1231.10
     .18      .00     8.94      .00     .025     .025     .025     .000  1204.10  9590.91
 .005128     383.     400.     295.        2        0        0      .00  3674.07 13264.98


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1219.52

STA=    9591.   13406.
  PER Q=    100.0
   AREA=  11186.1
    VEL=      8.9
```



```
SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
```

```
*SECNO 29.827
   29.83    16.90  1221.30      .00      .00  1222.11      .81     1.23      .13  1225.40
  100000.       0.  100000.       0.       0.   13805.       0.    1560.     284.   1231.40
     .19      .00     7.24      .00     .025     .025     .025     .000  1204.40  9476.65
 .002042     383.     400.     295.        3        0        0      .00  3115.71 12592.36


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1221.30

STA=    9477.   12594.
  PER Q=    100.0
   AREA=  13804.7
    VEL=      7.2

*SECNO 29.903
   29.90    17.35  1222.05      .00      .00  1223.12     1.07      .98      .13  1225.70
  100000.       0.  100000.       0.       0.   12030.       0.    1678.     310.   1231.70
     .21      .00     8.31      .00     .025     .025     .025     .000  1204.70  9424.15
 .002355     383.     400.     295.        2        0        0      .00  2481.17 11905.32


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1222.05

STA=    9424.   11982.
  PER Q=    100.0
   AREA=  12030.3
    VEL=      8.3

*SECNO 29.981
   29.98    18.11  1223.11      .00      .00  1223.92      .81      .72      .08  1226.80
  100000.       0.  100000.       0.       0.   13810.       0.    1797.     332.   1232.75
     .22      .00     7.24      .00     .025     .025     .025     .000  1205.00  9462.61
 .001400     383.     400.     295.        2        0        0      .00  2348.90 11811.51


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1223.11

STA=    9463.   11911.
  PER Q=    100.0
   AREA=  13810.3
    VEL=      7.2
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        OLOB     OCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

```
*SECNO 30.194
    30.19    17.71  1224.71      .00      .00  1225.41      .69     1.45      .04  1228.00
  100000.       0.  100000.       0.       0.   14948.       0.    2168.     395.   1234.00
      .27      .00     6.69      .00     .025     .025     .025     .000  1207.00  9445.87
  .001197    1125.    1125.    1175.        2        0        0      .00  2546.99 11992.85


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1224.71

STA=    9446.   12089.
  PER Q=    100.0
   AREA=  14948.3
    VEL=      6.7

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    17.15  1226.15      .00      .00  1227.39     1.23     1.70      .27  1239.00
  100000.       0.  100000.       0.       0.   11239.       0.    2582.     456.   1232.00
      .31      .00     8.90      .00     .025     .025     .025     .000  1209.00  9381.16
  .001280    1285.    1375.    1035.        2        0        0      .00  1312.57 10693.73


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1226.15

STA=    9381.   10800.
  PER Q=    100.0
   AREA=  11239.3
    VEL=      8.9
```

ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	7.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	6.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

```
*PROF 6

CCHV=    .300 CEHV=    .500
*SECNO 28.831
   28.83    12.34  1210.94      .00  1217.31  1212.44     1.50      .00      .00  1220.00
  120000.       0.  120000.       0.       0.   12201.       0.       0.       0.   1220.00
     .00      .00     9.84      .00     .025     .025     .025     .000  1198.80  8825.10
 .001998       0.       0.       0.        0        0        5      .00  1711.69 10536.79


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1210.94

STA=    8825.   10940.
  PER Q=    100.0
   AREA=  12200.9
    VEL=      9.8

*SECNO 29.017
   29.02    14.43  1213.23      .00      .00  1214.45     1.22     1.92      .08  1226.00
  120000.       0.  120000.       0.       0.   13540.       0.     301.      44.   1220.00
     .03      .00     8.86      .00     .025     .025     .025     .000  1198.80  8913.82
 .001785    1000.    1020.    1020.        2        0        0      .00  2041.09 10954.91


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1213.23

STA=    8914.   11000.
  PER Q=    100.0
   AREA=  13540.1
    VEL=      8.9

*SECNO 29.221
   29.22    14.27  1215.27      .00      .00  1216.98     1.71     2.28      .25  1224.00
  120000.       0.  120000.       0.       0.   11423.       0.     594.      90.   1224.00
     .06      .00    10.51      .00     .025     .025     .025     .000  1201.00  9217.89
 .002871     950.    1020.     970.        2        0        0      .00  1904.55 11122.44


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1215.27

STA=    9218.   11220.
  PER Q=    100.0
   AREA=  11422.9
    VEL=     10.5
```


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```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

```
*SECNO 29.470

3301 HV CHANGED MORE THAN HVINS

    29.47    16.27  1218.77      .00      .00  1219.58      .81     2.33      .27  1230.00
  120000.       0.  120000.       0.       0.   16599.       0.    1012.     157.   1224.00
      .11      .00     7.23      .00     .025     .025     .025     .000  1202.50  9125.53
  .001224    1030.    1300.     970.        3        0        0      .00  2558.69 11684.22


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1218.77

STA=    9126.   11730.
  PER Q=    100.0
   AREA=  16599.4
    VEL=      7.2

*SECNO 29.523
    29.52    16.40  1219.22      .00      .00  1219.90      .69      .28      .04  1227.00
  120000.       0.  120000.       0.       0.   19181.       0.    1119.     172.   1227.02
      .12      .00     6.50      .00     .025     .025     .025     .000  1202.82  9809.33
  .000914     230.     265.     255.        2        0        0      .00  2576.78 11385.10


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1219.22

STA=    9808.   11435.
  PER Q=    100.0
   AREA=  19180.9
    VEL=      5.6

*SECNO 29.573
    29.57    16.39  1219.54      .00      .00  1220.15      .61      .23      .02  1227.30
  120000.       0.  120000.       0.       0.   19192.       0.    1231.     188.   1227.35
      .13      .00     6.25      .00     .025     .025     .025     .000  1203.15  9809.78
  .000821     230.     265.     255.        2        0        0      .00  2721.72 11530.50


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1219.54

STA=    9809.   11563.
  PER Q=    100.0
   AREA=  19192.4
    VEL=      5.3
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
```

```
*SECNO 29.623
    29.62    16.35  1219.82      .00      .00  1220.37      .56      .21      .02  1227.70
  120000.       0.  120000.       0.       0.   20039.       0.    1351.     205.   1227.67
      .14      .00     5.99      .00     .025     .025     .025     .000  1203.47  8809.37
  .000751     230.     265.     255.        2        0        0      .00  2866.28 11675.65


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1219.82

STA=    8809.   11732.
  PER Q=    100.0
   AREA=  20038.7
    VEL=      5.0

*SECNO 29.676
    29.68    16.27  1220.07      .00      .00  1220.58      .52      .20      .01  1228.00
  120000.       0.  120000.       0.       0.   20827.       0.    1475.     223.   1228.00
      .16      .00     5.76      .00     .025     .025     .025     .000  1203.80  8809.92
  .000715     230.     265.     255.        2        0        0      .00  3010.57 11820.49


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1220.07

STA=    8810.   11880.
  PER Q=    100.0
   AREA=  20826.7
    VEL=      5.8

*SECNO 29.751

3301 HV CHANGED MORE THAN HVINS

    29.75    16.20  1220.30      .00      .00  1221.43     1.13      .54      .31  1225.10
  120000.       0.  120000.       0.       0.   14092.       0.    1635.     254.   1231.10
      .17      .00     8.52      .00     .025     .025     .025     .000  1204.10  9549.98
  .003482     383.     400.     295.        2        0        0      .00  3724.55 13274.53


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1220.30

STA=    9550.   13406.
  PER Q=    100.0
   AREA=  14092.0
    VEL=      8.5
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    VLOB     VCH      VROB     ITRIAL   IPC      ICONT    COPAR    TOPWID      ENDST
```

```
*SECNO 29.827
   29.83    17.16  1221.56      .00      .00  1222.61     1.05     1.16      .02  1225.40
  120000.       0.  120000.       0.       0.   14615.       0.    1767.     286.   1231.40
     .19      .00     8.21      .00     .025     .025     .025     .000  1204.40  9465.49
 .002446     383.     400.     295.        3        0        0      .00  3129.49 12594.97


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1221.56

STA=    9465.   12694.
  PER Q=    100.0
   AREA=  14614.7
    VEL=      8.2

*SECNO 29.903
   29.90    17.75  1222.45      .00      .00  1223.77     1.32     1.02      .14  1225.70
  120000.       0.  120000.       0.       0.   13016.       0.    1894.     312.   1231.70
     .20      .00     9.22      .00     .025     .025     .025     .000  1204.70  9410.58
 .002665     383.     400.     295.        2        0        0      .00  2497.79 11909.45


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1222.45

STA=    9411.   11982.
  PER Q=    100.0
   AREA=  13015.8
    VEL=      9.2

*SECNO 29.991
   29.98    18.68  1223.68      .00      .00  1224.65      .97      .78      .10  1225.80
  120000.       0.  120000.       0.       0.   15193.       0.    2023.     334.   1232.75
     .21      .00     7.90      .00     .025     .025     .025     .000  1205.00  9437.05
 .001495     383.     400.     295.        2        0        0      .00  2380.48 11817.53


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1223.68

STA=    9437.   11911.
  PER Q=    100.0
   AREA=  15192.8
    VEL=      7.9
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
```

```
*SECNO 30.194
   30.19    18.41  1225.41      .00      .00  1226.21      .80     1.51      .05  1228.00
 120000.       0.  120000.       0.       0.   16747.       0.    2436.     398.   1234.00
     .25      .00     7.17      .00     .025     .025     .025     .000  1207.00  9414.74
 .001204    1125.    1125.    1175.        2        0        0      .00  2585.39 12000.12


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1225.41

STA=    9415.   12089.
  PER Q=    100.0
   AREA=  16747.3
    VEL=      7.2

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

   30.46    17.87  1226.87      .00      .00  1228.37     1.50     1.81      .35  1239.00
 120000.       0.  120000.       0.       0.   12190.       0.    2892.     460.   1232.00
     .29      .00     9.84      .00     .025     .025     .025     .000  1209.00  9375.63
 .001439    1285.    1375.    1035.        2        0        0      .00  1335.06 10711.69


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1226.87

STA=    9377.   10900.
  PER Q=    100.0
   AREA=  12190.1
    VEL=      9.8
```

ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	8.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	7.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	COBAR	TOPWID	ENDST

```
*PROF 7

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    13.04  1211.64      .00  1217.31  1213.34     1.70      .00      .00  1220.00
  140000.       0.  140000.       0.       0.   13399.       0.       0.       0.   1220.00
      .00      .00    10.45      .00     .025     .025     .025     .000  1198.60  8923.93
  .002006       0.       0.       0.        0        0        5      .00  1721.58 10545.51


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1211.64

STA=    8924.   10940.
  PER Q=    100.0
   AREA=  13399.2
    VEL=     10.4

*SECNO 29.017
    29.02    15.19  1213.99      .00      .00  1215.33     1.34     1.88      .11  1226.00
  140000.       0.  140000.       0.       0.   15085.       0.     333.      44.   1220.00
      .03      .00     9.28      .00     .025     .025     .025     .000  1198.80  8910.04
  .001705    1000.    1020.    1020.        2        0        0      .00  2049.90 10959.94


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1213.99

STA=    8910.   11000.
  PER Q=    100.0
   AREA=  15084.7
    VEL=      9.3

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

    29.22    14.91  1215.91      .00      .00  1217.81     1.90     2.20      .28  1224.00
  140000.       0.  140000.       0.       0.   12652.       0.     558.      91.   1224.00
      .06      .00    11.06      .00     .025     .025     .025     .000  1201.00  9216.81
  .002822     950.    1020.     970.        2        0        0      .00  1929.85 11146.67


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1215.91

STA=    9217.   11220.
  PER Q=    100.0
   AREA=  12561.7
    VEL=     11.1
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IPC      ICONT    CORAR    TOPWID     ENDST
```

```
*SECNO 29.470

3301 HV CHANGED MORE THAN HVINS

    29.47    16.98  1219.48      .00      .00  1220.38      .90     2.27      .30  1230.00
  140000.       0.  140000.       0.       0.   18422.       0.    1122.     158.   1224.00
      .10      .00     7.60      .00     .025     .025     .025     .000  1202.50  9123.91
  .001183    1030.    1300.     970.        3        0        0      .00  2566.53 11590.44


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1219.48

STA=    9124.   11730.
  PER Q=    100.0
   AREA=  18422.2
    VEL=      7.6

*SECNO 29.523
    29.52    17.11  1219.93      .00      .00  1220.69      .76     .27      .04  1227.00
  140000.       0.  140000.       0.       0.   20005.       0.    1239.     174.   1227.02
      .11      .00     7.00      .00     .025     .025     .025     .000  1202.82  8907.57
  .000908     230.     265.     255.        2        0        0      .00  2582.07 11389.64


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1219.93

STA=    8808.   11435.
  PER Q=    100.0
   AREA=  20005.0
    VEL=      7.0

*SECNO 29.573
    29.57    17.11  1220.26      .00      .00  1220.94      .68     .23      .02  1227.30
  140000.       0.  140000.       0.       0.   21150.       0.    1354.     190.   1227.35
      .13      .00     6.62      .00     .025     .025     .025     .000  1203.15  8807.97
  .000811     230.     265.     255.        2        0        0      .00  2727.41 11535.38


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1220.26

STA=    8908.   11583.
  PER Q=    100.0
   AREA=  21150.4
    VEL=      6.6
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        OLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
*SECNO 29.623
    29.62    17.07  1220.54      .00      .00  1221.15      .62      .21      .02  1227.70
  140000.       0.  140000.       0.       0.   22123.       0.    1496.     207.   1227.67
      .14      .00     6.33      .00     .025     .025     .025     .000  1203.47  8909.51
  .000747     230.     265.     255.        2        0        0      .00  2872.33 11680.83


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1220.54

STA=    8809.   11732.
  PER Q=    100.0
   AREA=  22123.0
    VEL=      6.3

*SECNO 29.676
    29.68    17.00  1220.80      .00      .00  1221.37      .57      .19      .01  1228.00
  140000.       0.  140000.       0.       0.   23029.       0.    1633.     225.   1228.00
      .15      .00     6.08      .00     .025     .025     .025     .000  1203.80  8809.00
  .000698     230.     265.     255.        2        0        0      .00  3016.97 11825.97


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1220.80

STA=    9809.   11880.
  PER Q=    100.0
   AREA=  23029.3
    VEL=      6.1

*SECNO 29.751
    29.75    16.94  1221.04      .00      .00  1222.11     1.07      .49      .25  1225.10
  140000.       0.  140000.       0.       0.   16838.       0.    1816.     256.   1231.10
      .16      .00     8.31      .00     .025     .025     .025     .000  1204.10  9511.80
  .002663     383.     400.     295.        2        0        0      .00  3771.63 13283.44


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1221.04

STA=    9512.   13406.
  PER Q=    100.0
   AREA=  16838.1
    VEL=      8.3
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    COBAR    TOPWID     ENDST
```

```
*SECNO 29.827
    29.83    17.61  1222.01      .00      .00  1223.19     1.19     1.03      .05  1225.40
  140000.       0.  140000.       0.       0.   16024.       0.    1957.     288.   1231.40
      .18      .00     8.74      .00     .025     .025     .025     .000  1204.40  9445.16
  .002474     383.     400.     295.        2        0        0      .00  3153.32 12599.47


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1222.01

STA=    9446.   12694.
  PER Q=    100.0
   AREA=  16023.9
    VEL=      8.7

*SECNO 29.903
    29.90    18.19  1222.89      .00      .00  1224.41     1.53     1.05      .17  1225.70
  140000.       0.  140000.       0.       0.   14113.       0.    2106.     314.   1231.70
      .19      .00     9.92      .00     .025     .025     .025     .000  1204.70  9395.78
  .002797     383.     400.     295.        2        0        0      .00  2516.16 11911.94


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1222.89

STA=    9395.   11982.
  PER Q=    100.0
   AREA=  14113.0
    VEL=      9.9

*SECNO 29.981
    29.98    19.24  1224.24      .00      .00  1225.36     1.11      .82      .12  1226.80
  140000.       0.  140000.       0.       0.   16525.       0.    2246.     336.   1232.75
      .20      .00     8.47      .00     .025     .025     .025     .000  1205.00  9412.38
  .001561     383.     400.     295.        2        0        0      .00  2410.97 11823.34


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1224.24

STA=    9412.   11911.
  PER Q=    100.0
   AREA=  16525.5
    VEL=      8.5
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    VLOB1    VLCH     VLOBR    ITRIAL   IPO      ICONT    COPAR    TOPWID      ENDST
```

```
*SECNO 30.194
   30.19    19.07  1226.07      .00      .00  1226.96      .99     1.54      .07  1228.00
  140000.       0.  140000.       0.       0.   18449.       0.    2698.     401.   1234.00
     .24      .00     7.59      .00     .025     .025     .025     .000  1207.00  9385.71
 .001209    1125.    1125.    1175.        2        0        0      .00  2621.19 12006.90


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1226.07

STA=    9396.   12089.
  PER Q=    100.0
   AREA=  18448.7
    VEL=      7.6

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

   30.46    18.52  1227.52      .00      .00  1229.30     1.78     1.90      .44  1239.00
  140000.       0.  140000.       0.       0.   13066.       0.    3195.     464.   1232.00
     .28      .00    10.71      .00     .025     .025     .025     .000  1209.00  9372.51
 .001586    1295.    1375.    1035.        2        0        0      .00  1355.46 10727.97


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1227.52

STA=    9373.   10900.
  PER Q=    100.0
   AREA=  13066.2
    VEL=     10.7
```

ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	9.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	8.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	VLOBL	VLCH	VLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*PROF 8

CCHV=    .300 CEHV=    .500
*SECNO 28.931
    28.83    13.77  1212.37      .00  1217.31  1214.22     1.85      .00      .00  1220.00
  160000.       0.  160000.       0.       0.   14658.       0.       0.       0.   1220.00
      .00      .00    10.92      .00     .025     .025     .025     .000  1198.60  8922.72
  .001998       0.       0.       0.        0        0        5      .00  1758.48 10581.20


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1212.37

STA=    8823.   10940.
  PER Q=    100.0
   AREA=  14658.0
    VEL=     10.9

*SECNO 29.017
    29.02    15.93  1214.73      .00      .00  1216.17     1.44     1.83      .12  1226.00
  160000.       0.  160000.       0.       0.   15612.       0.     356.      45.   1220.00
      .03      .00     9.63      .00     .025     .025     .025     .000  1198.80  8905.33
  .001624    1000.    1020.    1020.        2        0        0      .00  2058.57 10964.90


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1214.73

STA=    8906.   11000.
  PER Q=    100.0
   AREA=  16611.6
    VEL=      9.6

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

    29.22    15.53  1216.53      .00      .00  1218.60     2.07     2.12      .31  1224.00
  160000.       0.  160000.       0.       0.   13867.       0.     723.      91.   1224.00
      .05      .00    11.54      .00     .025     .025     .025     .000  1201.00  9215.78
  .002739     950.    1020.     970.        2        0        0      .00  1938.90 11154.67


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1216.53

STA=    9216.   11220.
  PER Q=    100.0
   AREA=  13867.1
    VEL=     11.5
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    COPAR    TOPWID      ENDST
```

```
*SECNO 29.470

3301 HV CHANGED MORE THAN HVINS

   29.47    17.65  1220.15      .00      .00  1221.13      .98     2.21      .33  1230.00
  160000.       0.  160000.       0.       0.   20131.       0.    1230.     159.   1224.00
     .10      .00     7.95      .00     .025     .025     .025     .000  1202.50  9122.40
 .001154    1030.    1300.     970.        2        0        0      .00  2573.86 11696.26


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1220.15

STA=    9122.   11730.
  PER Q=    100.0
   AREA=  20130.8
    VEL=      7.9

*SECNO 29.523
   29.52    17.78  1220.60      .00      .00  1221.44      .84      .27      .04  1227.00
  160000.       0.  160000.       0.       0.   21749.       0.    1358.     175.   1227.02
     .11      .00     7.35      .00     .025     .025     .025     .000  1202.82  8806.85
 .000900     230.     265.     255.        2        0        0      .00  2587.13 11393.97


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1220.60

STA=    8807.   11435.
  PER Q=    100.0
   AREA=  21749.1
    VEL=      7.4

*SECNO 29.573
   29.57    17.80  1220.95      .00      .00  1221.70      .75      .22      .03  1227.30
  160000.       0.  160000.       0.       0.   23022.       0.    1494.     191.   1227.35
     .12      .00     6.95      .00     .025     .025     .025     .000  1203.15  8807.19
 .000800     230.     265.     255.        2        0        0      .00  2732.83 11540.02


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1220.95

STA=    8807.   11583.
  PER Q=    100.0
   AREA=  23022.0
    VEL=      6.9
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
```

```
*SECNO 29.623
    29.62    17.77  1221.24      .00      .00  1221.92      .69      .20      .02  1227.70
  160000.       0.  160000.       0.       0.   24114.       0.    1637.     208.   1227.67
      .13      .00     6.84      .00     .025     .025     .025     .000  1203.47  8807.69
  .000735     230.     265.     255.        2        0        0      .00  2878.10 11685.78


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1221.24

STA=    8809.   11732.
  PER Q=    100.0
   AREA=  24114.5
    VEL=      6.6

*SECNO 29.676
    29.68    17.69  1221.49      .00      .00  1222.12      .63      .19      .02  1228.00
  160000.       0.  160000.       0.       0.   25135.       0.    1787.     226.   1228.00
      .14      .00     6.37      .00     .025     .025     .025     .000  1203.80  8809.13
  .000683     230.     265.     255.        2        0        0      .00  3023.07 11831.20


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1221.49

STA=    8808.   11880.
  PER Q=    100.0
   AREA=  25135.4
    VEL=      6.4

*SECNO 29.751
    29.75    17.63  1221.73      .00      .00  1222.79     1.04      .45      .21  1225.10
  160000.       0.  160000.       0.       0.   19519.       0.    1992.     257.   1231.10
      .16      .00     8.20      .00     .025     .025     .025     .000  1204.10  9474.98
  .002159     383.     400.     295.        1        0        0      .00  3817.05 13292.03


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1221.73

STA=    9475.   13406.
  PER Q=    100.0
   AREA=  19519.4
    VEL=      8.2
```



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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
*SECNO 29.827
   29.83    18.12  1222.52      .00      .00  1223.80     1.27      .90      .12  1225.40
  160000.       0.  160000.       0.       0.   17663.       0.    2163.     289.   1231.40
     .17      .00     9.06      .00     .025     .025     .025     .000  1204.40  9423.91
 .002364     383.     400.     295.        2        0        0      .00  3180.75 12604.56


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1222.52

STA=    9424.   12694.
  PER Q=    100.0
   AREA=  17659.7
    VEL=      9.1

*SECNO 29.903
   29.90    18.54  1223.34      .00      .00  1225.05     1.71     1.04      .22  1225.70
  160000.       0.  160000.       0.       0.   15245.       0.    2314.     316.   1231.70
     .18      .00    10.49      .00     .025     .025     .025     .000  1204.70  9380.51
 .002353     383.     400.     295.        0        0        0      .00  2534.99 11915.50


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1223.34

STA=    9381.   11982.
  PER Q=    100.0
   AREA=  15245.9
    VEL=     10.5

*SECNO 29.981
   29.98    19.78  1224.78      .00      .00  1226.03     1.25      .84      .14  1226.80
  160000.       0.  160000.       0.       0.   17802.       0.    2456.     338.   1232.75
     .19      .00     8.99      .00     .025     .025     .025     .000  1205.00  9389.19
 .001617     383.     400.     295.        3        0        0      .00  2439.60 11828.79


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1224.78

STA=    9399.   11911.
  PER Q=    100.0
   AREA=  17801.8
    VEL=      9.0
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```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      CROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IOC      ICONT    CORAR    TOPWID     ENDST
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```
*SECNO 30.194
    30.19    19.69  1226.69      .00      .00  1227.68      .98     1.55      .08  1228.00
  150000.       0.  150000.       0.       0.   20094.       0.    2955.     404.   1234.00
      .23      .00     7.96      .00     .025     .025     .025     .000  1207.00  9358.92
  .001209    1125.    1125.    1175.        2        0        0      .00  2655.34 12013.36


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1226.69

STA=    9358.   12089.
  PER Q=    100.0
   AREA=  20093.8
    VEL=      8.0

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    19.12  1228.12      .00      .00  1230.18     2.06     1.97      .54  1239.00
  150000.       0.  150000.       0.       0.   13986.       0.    3491.     469.   1232.00
      .26      .00    11.52      .00     .025     .025     .025     .000  1209.00  9358.72
  .001720    1285.    1375.    1035.        2        0        0      .00  1373.07 10741.79


FLOW DISTRIBUTION FOR SECNO=     30.45          CWSEL=   1228.12

STA=    9369.   10900.
  PER Q=    100.0
   AREA=  13986.0
    VEL=     11.5
```

MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	10.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	9.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*PROF 9

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    14.54  1213.14      .00  1217.31  1215.09     1.96      .00      .00  1220.00
  180000.       0.  180000.       0.       0.   16034.       0.       0.       0.   1220.00
      .00      .00    11.23      .00     .025     .025     .025     .000  1198.60  8821.44
  .001970       0.       0.       0.        0        0        4      .00  1825.03 10646.48


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1213.14

STA=    8821.   10940.
  PER Q=    100.0
   AREA=  16033.9
    VEL=     11.2

*SECNO 29.017
    29.02    16.66  1215.46      .00      .00  1216.99     1.53     1.78      .13  1226.00
  180000.       0.  180000.       0.       0.   18116.       0.     400.      46.   1220.00
      .03      .00     9.94      .00     .025     .025     .025     .000  1198.80  8902.58
  .001548    1000.    1020.    1020.        2        0        0      .00  2067.08 10969.76


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1215.46

STA=    8903.   11000.
  PER Q=    100.0
   AREA=  18115.7
    VEL=      9.9

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

    29.22    16.15  1217.15      .00      .00  1219.37     2.22     2.03      .34  1224.00
  180000.       0.  180000.       0.       0.   15057.       0.     788.      93.   1224.00
      .05      .00    11.95      .00     .025     .025     .025     .000  1201.00  9214.75
  .002647     950.    1020.     970.        2        0        0      .00  1945.28 11160.03


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1217.15

STA=    9215.   11220.
  PER Q=    100.0
   AREA=  15057.0
    VEL=     12.0
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```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
*SECNO 29.470

3301 HV CHANGED MORE THAN HVINS

   29.47    18.30  1220.80      .00      .00  1221.86     1.06     2.14      .35  1230.00
  180000.       0.  180000.       0.       0.   21805.       0.    1338.     160.   1224.00
     .10      .00     8.25      .00     .025     .025     .025     .000  1202.50  9120.92
 .001123    1030.    1300.     970.        2        0        0      .00  2581.02 11701.95


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1220.80

STA=    9121.   11730.
  PER Q=    100.0
   AREA=  21806.2
    VEL=      9.3

*SECNO 29.523
   29.52    18.42  1221.24      .00      .00  1222.16      .92      .26      .04  1227.00
  180000.       0.  180000.       0.       0.   23404.       0.    1476.     176.   1227.02
     .11      .00     7.69      .00     .025     .025     .025     .000  1202.82  8805.16
 .000894     230.     265.     255.        2        0        0      .00  2591.91 11398.07


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1221.24

STA=    8805.   11435.
  PER Q=    100.0
   AREA=  23403.5
    VEL=      7.7

*SECNO 29.573
   29.57    18.45  1221.60      .00      .00  1222.41      .92      .22      .03  1227.30
  180000.       0.  180000.       0.       0.   24802.       0.    1522.     192.   1227.35
     .12      .00     7.26      .00     .025     .025     .025     .000  1203.15  8806.46
 .000792     230.     265.     255.        2        0        0      .00  2737.98 11544.43


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1221.60

STA=    8806.   11583.
  PER Q=    100.0
   AREA=  24802.1
    VEL=      7.3
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
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```
*SECNO 29.623
   29.62    18.42  1221.89      .00      .00  1222.64      .74      .20      .02  1227.70
  180000.       0.  180000.       0.       0.   26012.       0.    1777.     209.   1227.67
     .13      .00     6.92      .00     .025     .025     .025     .000  1203.47  8806.90
 .000724     230.     265.     255.        2        0        0      .00  2883.58 11590.48


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1221.89

STA=    8807.   11732.
  PER Q=    100.0
   AREA=  26011.7
    VEL=      6.9

*SECNO 29.676
   29.68    18.36  1222.15      .00      .00  1222.84      .69      .18      .02  1228.00
  180000.       0.  180000.       0.       0.   27144.       0.    1939.     227.   1228.00
     .14      .00     5.63      .00     .025     .025     .025     .000  1203.90  8807.30
 .000671     230.     265.     255.        2        0        0      .00  3028.88 11836.18


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1222.15

STA=    8807.   11880.
  PER Q=    100.0
   AREA=  27144.1
    VEL=      5.6

*SECNO 29.751
   29.75    18.30  1222.40      .00      .00  1223.43     1.03      .42      .17  1225.10
  180000.       0.  180000.       0.       0.   22077.       0.    2165.     259.   1231.10
     .15      .00     8.15      .00     .025     .025     .025     .000  1204.10  9440.26
 .001840     393.     400.     295.        0        0        0      .00  3859.87 13300.13


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1222.40

STA=    9440.   13406.
  PER Q=    100.0
   AREA=  22077.3
    VEL=      8.2
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
*SECNO 29.827
   29.83    18.65  1223.05      .00      .00  1224.40     1.34      .81      .15  1225.40
  180000.       0.  180000.       0.       0.   19355.       0.    2355.     291.   1231.40
     .15      .00     9.30      .00     .025     .025     .025     .000  1204.40  9401.05
 .002231     383.     400.     295.        2        0        0      .00  3208.95 12610.00


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1223.05

STA=    9401.   12594.
  PER Q=    100.0
   AREA=  19355.4
    VEL=      9.3

*SECNO 29.903

3301 HV CHANGED MORE THAN HVINS

   29.90    19.10  1223.80      .00      .00  1225.67     1.87     1.01      .26  1225.70
  180000.       0.  180000.       0.       0.   16405.       0.    2519.     318.   1231.70
     .17      .00    10.97      .00     .025     .025     .025     .000  1204.70  9365.01
 .002956     383.     400.     295.        1        0        0      .00  2554.11 11919.12


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1223.80

STA=    9365.   11982.
  PER Q=    100.0
   AREA=  16405.2
    VEL=     11.0

*SECNO 29.981
   29.98    20.28  1225.28      .00      .00  1226.57     1.39      .85      .14  1226.80
  180000.       0.  180000.       0.       0.   19029.       0.    2692.     341.   1232.75
     .18      .00     9.46      .00     .025     .025     .025     .000  1205.00  9367.16
 .001563     383.     400.     295.        3        0        0      .00  2466.81 11833.97


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1225.28

STA=    9367.   11911.
  PER Q=    100.0
   AREA=  19028.7
    VEL=      9.5
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
*SECNO 30.194
   30.19    20.27  1227.27      .00      .00  1228.35     1.07     1.59      .09  1228.00
 180000.       0.  180000.       0.       0.   21652.       0.    3207.     407.   1234.00
     .22      .00     8.31      .00     .025     .025     .025     .000  1207.00  9332.11
 .001212    1125.    1125.    1175.        2        0        0      .00  2687.30 12019.40


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1227.27

STA=    9332.   12089.
  PER Q=    100.0
   AREA=  21652.5
    VEL=      8.3

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

   30.46    19.67  1228.67      .00      .00  1231.02     2.35     2.03      .64  1239.00
 180000.       0.  180000.       0.       0.   14647.       0.    3780.     472.   1232.00
     .25      .00    12.29      .00     .025     .025     .025     .000  1209.00  9365.23
 .001944    1285.    1375.    1035.        2        0        0      .00  1384.84 10750.07


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1228.57

STA=    9365.   10800.
  PER Q=    100.0
   AREA=  14647.1
    VEL=     12.3
```

MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FO
	0.	11.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	10.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*PROF 10

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    15.19  1213.79      .00  1217.31  1215.88     2.09      .00      .00  1220.00
  200000.       0.  200000.       0.       0.   17246.       0.       0.       0.   1220.00
      .00      .00    11.60      .00     .025     .025     .025     .000  1198.60  8820.35
  .001988       0.       0.       0.        0        0        4      .00  1891.70 10702.05


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1213.79

STA=    8820.   10940.
  PER Q=    100.0
   AREA=  17245.7
    VEL=     11.6

*SECNO 29.017
    29.02    17.34  1216.14      .00      .00  1217.77     1.53     1.75      .14  1226.00
  200000.       0.  200000.       0.       0.   19512.       0.     430.      46.   1220.00
      .03      .00    10.25      .00     .025     .025     .025     .000  1198.80  8898.96
  .001501    1000.    1020.    1020.        2        0        0      .00  2075.29 10974.25


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1216.14

STA=    8899.   11000.
  PER Q=    100.0
   AREA=  19511.7
    VEL=     10.3

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

    29.22    16.74  1217.74      .00      .00  1220.10     2.37     1.97      .37  1224.00
  200000.       0.  200000.       0.       0.   16205.       0.     849.      93.   1224.00
      .05      .00    12.34      .00     .025     .025     .025     .000  1201.00  9213.77
  .002569     950.    1020.     970.        2        0        0      .00  1951.41 11165.19


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1217.74

STA=    9214.   11220.
  PER Q=    100.0
   AREA=  16204.7
    VEL=     12.3
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
*SECNO 29.470

3301 HV CHANGED MORE THAN HVINS

   29.47    18.92  1221.42      .00      .00  1222.55     1.13     2.08      .37  1230.00
 200000.       0.  200000.       0.       0.   23441.       0.    1440.     151.   1224.00
     .09      .00     8.53      .00     .025     .025     .025     .000  1202.50  9119.49
 .001093    1030.    1300.     970.        2        0        0      .00  2587.99 11707.48


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1221.42

STA=    9119.   11730.
  PER Q=    100.0
   AREA=  23441.1
    VEL=      9.5

*SECNO 29.523
   29.52    19.04  1221.86      .00      .00  1222.86      .99      .26      .04  1227.00
 200000.       0.  200000.       0.       0.   25040.       0.    1588.     177.   1227.02
     .10      .00     7.99      .00     .025     .025     .025     .000  1202.82  8805.49
 .000983     230.     255.     255.        1        0        0      .00  2596.63 11402.12


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1221.86

STA=    8805.   11435.
  PER Q=    100.0
   AREA=  25039.5
    VEL=      8.0

*SECNO 29.573
   29.57    19.08  1222.23      .00      .00  1223.11      .88      .22      .03  1227.30
 200000.       0.  200000.       0.       0.   26525.       0.    1744.     193.   1227.35
     .11      .00     7.54      .00     .025     .025     .025     .000  1203.15  8805.74
 .000784     230.     255.     255.        2        0        0      .00  2742.95 11548.70


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1222.23

STA=    8806.   11583.
  PER Q=    100.0
   AREA=  26525.3
    VEL=      7.5
```

```
   29.62    19.06  1222.53      .00      .00  1223.33      .80      .20      .02  1227.70
  200000.       0.  200000.       0.       0.   27847.       0.    1910.     210.   1227.67
     .12      .00     7.18      .00     .025     .025     .025     .000  1203.47  8805.14
 .000714     230.     265.     255.        2        0        0      .00  2888.88 11695.02


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1222.53

STA=    8806.   11732.
  PER Q=    100.0
   AREA=  27847.0
    VEL=      7.2

*SECNO 29.676
   29.68    19.00  1222.80      .00      .00  1223.53      .73      .18      .02  1228.00
  200000.       0.  200000.       0.       0.   29087.       0.    2093.     228.   1228.00
     .13      .00     6.88      .00     .025     .025     .025     .000  1203.80  8805.50
 .000559     230.     265.     255.        2        0        0      .00  3034.49 11840.99


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1222.80

STA=    8807.   11690.
  PER Q=    100.0
   AREA=  29087.4
    VEL=      6.9

*SECNO 29.751
   29.75    18.94  1223.04      .00      .00  1224.07     1.03      .39      .15  1225.10
  200000.       0.  200000.       0.       0.   24549.       0.    2329.     260.   1231.10
     .15      .00     8.15      .00     .025     .025     .025     .000  1204.10  9407.07
 .001517     383.     400.     295.        0        0        0      .00  3900.80 13307.88


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1223.04

STA=    9407.   13406.
  PER Q=    100.0
   AREA=  24548.9
    VEL=      8.1
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
```

```
    29.83    19.19  1223.59      .00      .00  1224.99     1.40      .73      .18  1225.40
   200000.       0.  200000.       0.       0.   21095.       0.    2539.     293.   1231.40
      .16      .00     9.48      .00     .025     .025     .025     .000  1204.40  9377.81
  .002092     383.     400.     295.        2        0        0      .00  3237.61 12615.42


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1223.59

STA=    9378.   12694.
  PER Q=    100.0
   AREA=  21094.9
    VEL=      9.5

*SECNO 29.903

3301 HV CHANGED MORE THAN HVINS

    29.90    19.55  1224.25      .00      .00  1225.26     2.00      .97      .30  1225.70
   200000.       0.  200000.       0.       0.   17609.       0.    2717.     320.   1231.70
      .17      .00    11.36      .00     .025     .025     .025     .000  1204.70  9349.03
  .002814     383.     400.     295.        0        0        0      .00  2573.81 11922.84


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1224.25

STA=    9349.   11982.
  PER Q=    100.0
   AREA=  17608.6
    VEL=     11.4

*SECNO 29.981
    29.98    20.74  1225.74      .00      .00  1227.27     1.53      .86      .14  1226.80
   200000.       0.  200000.       0.       0.   20179.       0.    2890.     343.   1232.75
      .18      .00     9.91      .00     .025     .025     .025     .000  1205.00  9346.72
  .001711     383.     400.     295.        3        0        0      .00  2492.06 11838.78


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1225.74

STA=    9347.   11911.
  PER Q=    100.0
   AREA=  20179.1
    VEL=      9.9
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
   30.19    20.83  1227.83      .00      .00  1228.99     1.16     1.61      .11  1228.00
  200000.      0.  200000.       0.       0.   23153.       0.    3450.     410.   1234.00
     .22      .00     8.54      .00     .025     .025     .025     .000  1207.00  9307.45
 .001215    1125.    1125.    1175.        2        0        0      .00  2717.70 12025.16


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1227.83

STA=    9307.   12089.
  PER Q=    100.0
   AREA=  23152.5
    VEL=      8.6

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

   30.46    20.18  1229.18      .00      .00  1231.92     2.53     2.09      .74  1239.00
  200000.      0.  200000.       0.       0.   15350.       0.    4057.     475.   1232.00
     .24      .00    13.02      .00     .025     .025     .025     .000  1209.00  9362.00
 .001963    1285.    1375.    1035.        2        0        0      .00  1395.76 10757.76


FLOW DISTRIBUTION FOR SECNO=     30.46          CWSEL=   1229.18

STA=    9362.   10800.
  PER Q=    100.0
   AREA=  15359.7
    VEL=     13.0
```


THIS RUN EXECUTED 01/01/80 01:28:14

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01 02 03 04 05 06
```

IBM-PC-XT VERSION
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	12.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    15.97  1214.57      .00  1217.31  1216.81     2.24      .00      .00  1220.00
  225000.       0.  225000.       0.       0.   18745.       0.       0.       0.   1220.00
      .00      .00    12.00      .00     .025     .025     .025     .000  1198.60  8819.05
  .001998       0.       0.       0.        0        0        4      .00  1949.52 10768.57


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1214.57

STA=    8819.   10940.
  PER Q=    100.0
   AREA=  18744.8
    VEL=     12.0

*SECNO 29.017
    29.02    18.13  1216.93      .00      .00  1218.68     1.76     1.73      .14  1226.00
  225000.       0.  225000.       0.       0.   21162.       0.     467.      47.   1220.00
      .03      .00    10.63      .00     .025     .025     .025     .000  1198.80  8893.02
  .001459    1000.    1020.    1020.        2        0        0      .00  2085.53 10979.54


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1216.93

STA=    8893.   11000.
  PER Q=    100.0
   AREA=  21162.3
    VEL=     10.6

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

    29.22    17.45  1218.45      .00      .00  1220.99     2.54     1.91      .39  1224.00
  225000.       0.  225000.       0.       0.   17592.       0.     921.      95.   1224.00
      .05      .00    12.79      .00     .025     .025     .025     .000  1201.00  9212.59
  .002485     950.    1020.     970.        2        0        0      .00  1958.81 11171.40


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1218.45

STA=    9213.   11220.
  PER Q=    100.0
   AREA=  17592.3
    VEL=     12.8
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
```

3301 HV CHANGED MORE THAN HVINS

```
    29.47    19.68  1222.18      .00      .00  1223.40     1.22     2.02      .40  1230.00
   225000.       0.  225000.       0.       0.   25405.       0.    1553.     163.   1224.00
      .09      .00     8.86      .00     .025     .025     .025     .000  1202.50  9117.76
  .001063    1030.    1300.     970.        3        0        0      .00  2596.35 11714.11


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1222.18

STA=    9118.   11730.
  PER Q=    100.0
   AREA=  25405.5
    VEL=      8.9

*SECNO 29.523
    29.52    19.80  1222.52      .00      .00  1223.70     1.08      .25      .04  1227.00
   225000.       0.  225000.       0.       0.   26999.       0.    1722.     178.   1227.02
      .10      .00     8.33      .00     .025     .025     .025     .000  1202.82  8804.62
  .000872     230.     265.     255.        0        0        0      .00  2602.27 11406.96


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1222.52

STA=    9905.   11435.
  PER Q=    100.0
   AREA=  25999.3
    VEL=      8.3

*SECNO 29.573
    29.57    19.84  1222.99      .00      .00  1223.95      .95      .22      .04  1227.30
   225000.       0.  225000.       0.       0.   28633.       0.    1891.     195.   1227.35
      .11      .00     7.86      .00     .025     .025     .025     .000  1203.15  8904.88
  .000771     230.     265.     255.        2        0        0      .00  2749.02 11553.90


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1222.99

STA=    8905.   11583.
  PER Q=    100.0
   AREA=  28633.0
    VEL=      7.9
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
    29.52    19.84  1223.31      .00      .00  1224.17      .37      .19      .03  1227.70
  225000.       0.  225000.       0.       0.   30089.       0.    2070.     212.   1227.67
      .12      .00     7.48      .00     .025     .025     .025     .000  1203.47  8805.22
  .000700     230.     265.     255.        2        0        0      .00  2895.33 11700.55


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1223.31

STA=    8805.   11732.
  PER Q=    100.0
   AREA=  30088.8
    VEL=      7.5

*SECNO 29.676
    29.68    19.78  1223.58      .00      .00  1224.37      .79      .18      .02  1228.00
  225000.       0.  225000.       0.       0.   31459.       0.    2257.     230.   1228.00
      .13      .00     7.15      .00     .025     .025     .025     .000  1203.80  8805.53
  .000544     230.     265.     255.        2        0        0      .00  3041.32 11846.84


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1223.58

STA=    8806.   11880.
  PER Q=    100.0
   AREA=  31458.5
    VEL=      7.2

*SECNO 29.751
    29.75    19.73  1223.83      .00      .00  1224.85     1.03      .37      .12  1225.10
  225000.       0.  225000.       0.       0.   27594.       0.    2528.     262.   1231.10
      .14      .00     8.15      .00     .025     .025     .025     .000  1204.10  9356.66
  .001410     393.     400.     295.        0        0        0      .00  3950.65 13317.31


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1223.83

STA=    9367.   13406.
  PER Q=    100.0
   AREA=  27593.9
    VEL=      8.2
```



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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
   29.83    19.88  1224.28      .00      .00  1225.72     1.45      .38      .01  1225.40
  225000.       0.  225000.       0.       0.   23315.       0.    2762.     295.   1231.40
      .15      .00     9.65      .00     .025     .025     .025     .000  1204.40  9348.43
  .001925     383.     400.     295.        2        0        0      .00  3273.84 12622.27


FLOW DISTRIBUTION FOR SECNO=     29.83          CWSEL=   1224.28

STA=    9348.   12694.
  PER Q=    100.0
   AREA=  23315.3
    VEL=      9.7

*SECNO 29.903

3301 HV CHANGED MORE THAN HVINS

   29.90    20.13  1224.83      .00      .00  1225.99     2.15      .91      .36  1225.70
  225000.       0.  225000.       0.       0.   19094.       0.    2957.     322.   1231.70
      .16      .00    11.78      .00     .025     .025     .025     .000  1204.70  9329.48
  .002753     383.     400.     295.        2        0        0      .00  2597.92 11927.41


FLOW DISTRIBUTION FOR SECNO=     29.90          CWSEL=   1224.83

STA=    9329.   11982.
  PER Q=    100.0
   AREA=  19094.1
    VEL=     11.8

*SECNO 29.981
   29.98    21.32  1225.32      .00      .00  1228.00     1.68      .87      .14  1225.80
  225000.       0.  225000.       0.       0.   21628.       0.    3144.     346.   1232.75
      .17      .00    10.40      .00     .025     .025     .025     .000  1205.00  9321.28
  .001748     383.     400.     295.        3        0        0      .00  2523.49 11844.77


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1225.32

STA=    9321.   11911.
  PER Q=    100.0
   AREA=  21627.7
    VEL=     10.4
```



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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

3220 CROSS SECTION 30.19 EXTENDED .46 FEET

30.19	21.48	1228.48	.00	.00	1229.75	1.27	1.62	.12	1228.00
225000.	0.	225000.	0.	0.	24927.	0.	3745.	414.	1234.00
.21	.00	9.03	.00	.025	.025	.025	.000	1207.00	9300.00
.001211	1125.	1125.	1175.	2	0	0	.00	2731.90	12031.90

FLOW DISTRIBUTION FOR SECNO= 30.19 CWSEL= 1228.48

STA= 9300. 12089.
PER Q= 100.0
AREA= 24926.8
VEL= 9.0

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

30.46	20.77	1229.77	.00	.00	1232.77	3.00	2.16	.87	1239.00
225000.	0.	225000.	0.	0.	16184.	0.	4394.	479.	1232.00
.24	.00	13.90	.00	.025	.025	.025	.000	1209.00	9358.28
.002113	1285.	1375.	1035.	2	0	0	.00	1408.29	10766.57

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1229.77

STA= 9359. 10900.
PER Q= 100.0
AREA= 16183.6
VEL= 13.9

THIS RUN EXECUTED 01/01/90 01:29:46

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1994
ERROR CORR - 01,02,03,04,05,06

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

G DRAINAGE ENGINEERING,J

SUMMARY PRINTOUT

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
28.831	20000.00	4020.00	1206.02	7.42	1198.60	20000.00	4.98	1566.01	8909.23	10475.24
28.831	40000.00	6214.69	1207.39	8.79	1198.60	40000.00	5.44	1637.93	8854.43	10492.36
28.831	60000.00	7981.54	1208.45	9.85	1198.60	60000.00	7.52	1676.41	8829.25	10505.65
28.831	80000.00	9551.76	1209.39	10.79	1198.60	79999.99	8.38	1699.62	8827.69	10517.31
28.831	100000.00	10920.33	1210.19	11.59	1198.60	100000.00	9.16	1701.05	8826.35	10527.40
28.831	120000.00	12200.94	1210.94	12.34	1198.60	120000.00	9.84	1711.69	8825.10	10536.79
28.831	140000.00	13399.15	1211.64	13.04	1198.60	140000.00	10.45	1721.58	8823.93	10545.51
28.831	160000.00	14557.97	1212.37	13.77	1199.60	160000.00	10.92	1759.43	8822.72	10581.20
28.831	180000.00	16033.94	1213.14	14.54	1198.60	180000.00	11.23	1825.03	8821.44	10646.48
28.831	200000.00	17245.69	1213.79	15.19	1198.60	200000.00	11.60	1881.70	8820.35	10702.05
28.831	225000.00	18744.83	1214.57	15.97	1199.60	225000.00	12.00	1949.52	8819.05	10768.57
29.017	20000.00	3950.90	1208.29	9.49	1198.80	20000.00	5.06	1789.71	9133.23	10921.94
29.017	40000.00	5286.22	1209.57	10.77	1198.80	40000.00	6.36	1870.61	9059.84	10930.45
29.017	60000.00	8324.41	1210.64	11.84	1198.80	60000.00	7.21	1939.27	8998.32	10937.59
29.017	80000.00	10180.19	1211.58	12.78	1198.80	80000.00	7.86	1999.73	8944.14	10943.87
29.017	100000.00	11919.56	1212.44	13.64	1198.80	100000.00	8.39	2031.81	8917.80	10949.60
29.017	120000.00	13540.12	1213.23	14.43	1198.80	120000.00	8.86	2041.09	8913.82	10954.91
29.017	140000.00	15084.73	1213.99	15.19	1198.80	140000.00	9.28	2049.90	8910.04	10959.94
29.017	160000.00	16611.62	1214.73	15.93	1198.80	160000.00	9.63	2058.57	8906.33	10964.90
29.017	180000.00	18115.68	1215.46	16.66	1198.80	180000.00	9.94	2067.08	8902.68	10969.76
29.017	200000.00	19511.71	1216.14	17.34	1198.80	200000.00	10.25	2075.29	8898.96	10974.25
29.017	225000.00	21162.32	1216.93	18.13	1198.80	225000.00	10.63	2086.53	8893.02	10979.54

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
29.221	20000.00	3620.85	1210.27	9.27	1201.00	20000.00	5.52	1019.25	9226.21	10245.46
29.221	40000.00	5063.43	1211.67	10.67	1201.00	40000.00	7.90	1049.47	9223.89	10273.35
29.221	60000.00	7311.83	1213.06	12.06	1201.00	60000.00	8.21	1818.04	9221.57	11039.61
29.221	80000.00	8791.30	1213.86	12.86	1201.00	80000.00	9.10	1843.54	9220.23	11063.86

29.221	140000.00	12651.68	1215.91	14.91	1201.00	140000.00	11.06	1929.95	9216.81	11146.67
29.221	160000.00	13857.10	1216.53	15.53	1201.00	160000.00	11.54	1938.90	9215.78	11154.67
29.221	180000.00	15056.95	1217.15	16.15	1201.00	180000.00	11.95	1945.28	9214.76	11160.03
29.221	200000.00	16204.75	1217.74	16.74	1201.00	200000.00	12.34	1951.41	9213.77	11165.19
29.221	225000.00	17592.32	1218.45	17.45	1201.00	225000.00	12.79	1958.81	9212.59	11171.40
29.470	20000.00	5299.85	1211.52	9.02	1202.50	20000.00	3.77	930.84	9142.00	10072.83
29.470	40000.00	7269.58	1213.62	11.12	1202.50	40000.00	5.50	950.92	9137.24	10088.06
29.470	60000.00	8717.50	1215.13	12.63	1202.50	60000.00	6.98	961.83	9133.80	10095.63
29.470	80000.00	12616.44	1217.21	14.71	1202.50	80000.00	6.34	2541.47	9129.08	11670.55
29.470	100000.00	14674.13	1218.01	15.51	1202.50	100000.00	6.81	2550.38	9127.24	11677.62
29.470	120000.00	16599.38	1218.77	16.27	1202.50	120000.00	7.23	2558.69	9125.53	11684.22
29.470	140000.00	18422.17	1219.48	16.98	1202.50	140000.00	7.60	2566.53	9123.91	11690.44
29.470	160000.00	20130.83	1220.15	17.65	1202.50	160000.00	7.95	2573.86	9122.40	11696.26
29.470	180000.00	21806.22	1220.80	18.30	1202.50	180000.00	8.25	2581.02	9120.92	11701.95
29.470	200000.00	23441.10	1221.42	18.92	1202.50	200000.00	8.53	2587.99	9119.49	11707.48
29.470	225000.00	25405.48	1222.18	19.68	1202.50	225000.00	8.86	2595.35	9117.76	11714.11
29.523	20000.00	4039.99	1211.60	8.78	1202.82	20000.00	4.95	959.07	8816.48	9775.55
29.523	40000.00	5108.34	1213.72	10.90	1202.82	40000.00	6.55	993.22	8814.21	9807.44
29.523	60000.00	8510.27	1215.45	12.63	1202.82	60000.00	7.05	2548.52	8812.37	11360.89
29.523	80000.00	14205.16	1217.68	14.86	1202.82	80000.00	5.63	2565.20	8809.99	11375.18
29.523	100000.00	16251.04	1218.47	15.65	1202.82	100000.00	6.15	2571.16	8809.13	11380.29
29.523	120000.00	18180.90	1219.22	16.40	1202.82	120000.00	6.60	2576.78	8808.33	11385.10
29.523	140000.00	20004.95	1219.93	17.11	1202.82	140000.00	7.00	2582.07	8807.57	11389.64
29.523	160000.00	21749.05	1220.60	17.78	1202.82	160000.00	7.36	2587.13	8806.85	11393.97
29.523	180000.00	23403.54	1221.24	18.42	1202.82	180000.00	7.69	2591.91	8806.16	11398.07
29.523	200000.00	25039.52	1221.86	19.04	1202.82	200000.00	7.99	2596.63	8805.49	11402.12
29.523	225000.00	26999.26	1222.62	19.80	1202.82	225000.00	8.33	2602.27	8804.68	11406.96
29.573	20000.00	4247.59	1211.91	8.76	1203.15	20000.00	4.71	1012.71	8817.42	9830.13
29.573	40000.00	6498.67	1214.09	10.94	1203.15	40000.00	6.16	1050.13	8814.95	9865.09
29.573	60000.00	10507.77	1216.33	13.18	1203.15	60000.00	5.71	2696.36	8812.41	11508.77
29.573	80000.00	14893.18	1217.97	14.82	1203.15	80000.00	5.37	2709.20	8810.57	11519.77
29.573	100000.00	17121.22	1218.78	15.63	1203.15	100000.00	5.84	2715.70	8809.54	11525.34
29.573	120000.00	19192.44	1219.54	16.39	1203.15	120000.00	6.25	2721.72	8808.78	11530.50
29.573	140000.00	21150.39	1220.26	17.11	1203.15	140000.00	6.62	2727.41	8807.97	11535.38
29.573	160000.00	23022.02	1220.95	17.80	1203.15	160000.00	6.95	2732.83	8807.19	11540.02
29.573	180000.00	24802.10	1221.60	18.45	1203.15	180000.00	7.26	2737.98	8806.46	11544.43
29.573	200000.00	26525.26	1222.23	19.08	1203.15	200000.00	7.54	2742.95	8805.74	11548.70
29.573	225000.00	28633.02	1222.99	19.84	1203.15	225000.00	7.86	2749.02	8804.88	11553.90

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
29.623	20000.00	4410.01	1212.18	8.71	1203.47	20000.00	4.54	1065.59	8818.45	9884.04
29.623	40000.00	6819.00	1214.40	10.93	1203.47	40000.00	5.87	1104.93	8815.81	9920.74
29.623	60000.00	11392.32	1216.79	13.32	1203.47	60000.00	5.27	2841.05	8812.97	11654.02
29.623	80000.00	15496.08	1218.23	14.76	1203.47	80000.00	5.16	2853.05	8811.25	11654.31
29.623	100000.00	17834.04	1219.05	15.58	1203.47	99999.99	5.61	2859.87	8810.28	11670.15

29.623	140000.00	22123.04	1220.54	17.07	1203.47	140000.00	6.33	2872.33	9309.51	11690.83
29.623	160000.00	24114.49	1221.24	17.77	1203.47	160000.00	6.64	2879.10	9307.68	11685.78
29.623	180000.00	26011.72	1221.89	18.42	1203.47	180000.00	6.92	2883.58	9306.90	11690.48
29.623	200000.00	27846.97	1222.53	19.05	1203.47	200000.00	7.18	2888.88	9306.14	11695.02
29.623	225000.00	30088.78	1223.31	19.84	1203.47	225000.00	7.48	2895.33	9305.22	11700.55
29.676	20000.00	4552.59	1212.43	8.63	1203.80	20000.00	4.39	1118.14	8919.46	9937.60
29.676	40000.00	7105.80	1214.69	10.89	1203.80	40000.00	5.63	1160.19	8816.65	9976.83
29.676	60000.00	12102.85	1217.19	13.39	1203.80	60000.00	4.96	2985.11	8813.56	11798.67
29.676	80000.00	16028.36	1218.47	14.67	1203.80	80000.00	4.99	2996.60	8811.92	11808.51
29.676	100000.00	18500.08	1219.29	15.49	1203.80	100000.00	5.41	3003.80	8810.88	11814.69
29.676	120000.00	20826.69	1220.07	16.27	1203.80	120000.00	5.76	3010.57	8809.92	11820.49
29.676	140000.00	23029.25	1220.80	17.00	1203.80	140000.00	6.08	3016.97	8809.00	11825.97
29.676	160000.00	25135.39	1221.49	17.69	1203.80	160000.00	6.37	3023.07	8808.13	11831.20
29.676	180000.00	27144.08	1222.18	18.38	1203.80	180000.00	6.63	3028.88	8807.30	11836.18
29.676	200000.00	29087.36	1222.80	19.00	1203.80	200000.00	6.88	3034.49	8806.50	11840.99
29.676	225000.00	31458.49	1223.58	19.78	1203.80	225000.00	7.15	3041.32	8805.53	11846.84
29.751	20000.00	3815.27	1212.71	8.61	1204.10	20000.00	5.24	713.10	9562.60	10375.70
29.751	40000.00	5513.80	1214.90	10.80	1204.10	40000.00	7.25	933.29	9545.43	10478.71
29.751	60000.00	7741.20	1217.32	13.22	1204.10	60000.00	7.75	1011.94	9526.53	10538.47
29.751	80000.00	9918.48	1218.44	14.34	1204.10	80000.01	9.97	1096.32	9517.80	10714.12
29.751	100000.00	11186.11	1219.52	15.42	1204.10	100000.00	8.94	3674.07	9580.91	13254.98
29.751	120000.00	14092.00	1220.30	16.20	1204.10	120000.00	8.52	3724.55	9549.98	13274.53
29.751	140000.00	16838.10	1221.04	16.94	1204.10	140000.00	8.31	3771.63	9511.80	13283.44
29.751	160000.00	19519.43	1221.73	17.63	1204.10	160000.00	8.20	3817.05	9474.98	13292.03
29.751	180000.00	22077.30	1222.40	18.30	1204.10	180000.00	8.15	3859.87	9440.26	13300.13
29.751	200000.00	24548.93	1223.04	18.94	1204.10	200000.00	8.15	3900.80	9407.07	13307.88
29.751	225000.00	27593.86	1223.83	19.73	1204.10	225000.00	8.15	3950.65	9366.66	13317.31
29.827	20000.00	3154.02	1213.01	8.61	1204.40	20000.00	6.34	589.47	9599.72	10189.20
29.827	40000.00	4521.65	1215.30	10.90	1204.40	40000.00	8.65	592.98	9584.94	10277.92
29.827	60000.00	6421.81	1217.65	13.25	1204.40	60000.00	9.34	838.19	9569.73	10407.91
29.827	80000.00	7449.38	1218.83	14.43	1204.40	80000.00	10.74	911.53	9562.14	10473.67
29.827	100000.00	13804.68	1221.30	16.90	1204.40	99999.99	7.24	3115.71	9476.65	12592.36
29.827	120000.00	14614.69	1221.56	17.16	1204.40	120000.00	8.21	3129.49	9465.48	12594.97
29.827	140000.00	16023.95	1222.01	17.61	1204.40	140000.00	8.74	3153.32	9446.16	12599.47
29.827	160000.00	17659.65	1222.52	18.12	1204.40	160000.00	9.06	3180.75	9423.91	12604.66
29.827	180000.00	19355.36	1223.05	18.65	1204.40	180000.00	9.30	3208.95	9401.05	12610.00
29.827	200000.00	21094.88	1223.59	19.19	1204.40	200000.00	9.49	3237.61	9377.81	12615.42
29.827	225000.00	23315.31	1224.28	19.88	1204.40	225000.00	9.65	3273.84	9348.43	12622.27

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
29.903	20000.00	2551.22	1213.43	8.73	1204.70	20000.00	7.84	470.31	9536.21	10006.52
29.903	40000.00	3773.23	1215.82	11.12	1204.70	40000.00	10.60	557.01	9524.04	10081.06
29.903	60000.00	5162.35	1218.08	13.38	1204.70	60000.00	11.62	668.86	9512.48	10181.33
29.903	80000.00	6030.20	1219.32	14.62	1204.70	80000.00	13.27	730.09	9506.14	10236.23
29.903	100000.00	12030.32	1222.05	17.35	1204.70	100000.00	8.31	2481.17	9424.15	11905.32

29.903	140000.00	14112.95	1222.89	18.19	1204.70	140000.00	9.92	2515.15	9395.78	11911.94
29.903	160000.00	15245.94	1223.34	18.64	1204.70	160000.00	10.49	2534.99	9380.51	11915.50
29.903	180000.00	16405.15	1223.80	19.10	1204.70	180000.00	10.97	2554.11	9365.01	11919.12
29.903	200000.00	17588.57	1224.25	19.55	1204.70	200000.00	11.35	2573.81	9349.03	11922.84
29.903	225000.00	19094.06	1224.83	20.13	1204.70	225000.00	11.78	2597.92	9329.48	11927.41
29.981	20000.00	3562.93	1214.52	9.52	1205.00	20000.00	5.61	615.79	9607.93	10223.72
29.981	40000.00	5753.66	1217.69	12.69	1205.00	40000.00	6.95	780.14	9586.84	10366.98
29.981	60000.00	7946.32	1220.24	15.24	1205.00	60000.00	7.55	943.94	9569.90	10513.83
29.981	80000.00	13056.98	1222.79	17.79	1205.00	80000.00	6.13	2331.39	9476.79	11808.18
29.981	100000.00	13810.27	1223.11	18.11	1205.00	100000.00	7.24	2348.90	9462.61	11811.51
29.981	120000.00	15182.84	1223.68	18.68	1205.00	120000.00	7.90	2380.48	9437.05	11817.53
29.981	140000.00	16525.47	1224.24	19.24	1205.00	140000.00	8.47	2410.97	9412.36	11823.34
29.981	160000.00	17801.76	1224.78	19.78	1205.00	160000.00	8.99	2439.60	9389.19	11828.79
29.981	180000.00	19028.67	1225.28	20.28	1205.00	180000.00	9.46	2466.81	9367.16	11833.97
29.981	200000.00	20179.10	1225.74	20.74	1205.00	200000.00	9.91	2492.06	9346.72	11838.78
29.981	225000.00	21627.68	1226.32	21.32	1205.00	225000.00	10.40	2523.49	9321.28	11844.77
30.194	20000.00	3239.70	1215.59	8.59	1207.00	20000.00	6.17	606.98	9609.21	10216.09
30.194	40000.00	5449.19	1218.82	11.82	1207.00	40000.00	7.34	772.01	9587.69	10359.69
30.194	60000.00	8335.64	1222.04	15.04	1207.00	60000.00	7.20	2400.57	9564.59	11965.16
30.194	80000.00	13248.17	1224.04	17.04	1207.00	80000.00	6.04	2510.15	9475.73	11985.89
30.194	100000.00	14948.29	1224.71	17.71	1207.00	100000.00	6.69	2546.99	9445.87	11992.86
30.194	120000.00	16747.31	1225.41	18.41	1207.00	120000.00	7.17	2585.39	9414.74	12000.12
30.194	140000.00	18449.73	1226.07	19.07	1207.00	140000.00	7.59	2621.19	9385.71	12006.90
30.194	160000.00	20093.77	1226.69	19.69	1207.00	160000.00	7.96	2655.34	9358.02	12013.36
30.194	180000.00	21652.48	1227.27	20.27	1207.00	180000.00	8.31	2687.30	9332.11	12019.40
30.194	200000.00	23152.51	1227.83	20.83	1207.00	200000.00	8.64	2717.70	9307.45	12025.16
30.194	225000.00	24926.83	1228.48	21.48	1207.00	225000.00	9.03	2751.90	9300.00	12031.90
30.458	20000.00	2378.29	1217.67	8.67	1209.00	20000.00	8.41	535.77	9489.49	10025.26
30.458	40000.00	4914.41	1221.02	12.02	1209.00	40000.00	8.14	1159.56	9413.52	10573.08
30.458	60000.00	8823.17	1224.27	15.27	1209.00	60000.00	6.80	1253.60	9393.06	10646.66
30.458	80000.00	10240.23	1225.37	16.37	1209.00	80000.00	7.81	1298.51	9386.01	10674.53
30.458	100000.00	11239.29	1226.15	17.15	1209.00	100000.00	8.90	1312.57	9381.16	10693.73
30.458	120000.00	12190.14	1226.87	17.87	1209.00	120000.00	9.84	1335.06	9376.63	10711.69
30.458	140000.00	13066.23	1227.52	18.52	1209.00	140000.00	10.71	1355.46	9372.51	10727.97
30.458	160000.00	13886.05	1228.12	19.12	1209.00	160000.00	11.52	1373.07	9368.72	10741.79
30.458	180000.00	14547.06	1228.67	19.67	1209.00	180000.00	12.29	1384.84	9365.23	10750.07
30.458	200000.00	15359.70	1229.18	20.18	1209.00	200000.00	13.02	1395.76	9362.00	10757.76
30.458	225000.00	16183.59	1229.77	20.77	1209.00	225000.00	13.90	1408.29	9358.28	10765.57

SUMMARY OF ERRORS AND SPECIAL NOTES

THIS RUN EXECUTED 01/01/80 00:14:12

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**************************************************
  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
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T1 SALT RIVER FLOOD INSURANCE STUDY, COUNTRY CLUB TO GRANITE REEF
T2 INPUT FILE:88052PQ.H2I (INCLUDING THE PIT)
T3 BY CMG DRAINAGE ENGINEERING,JOB# 88052

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38.000	43.000	25.000	1.000	8.000	42.000	14.000	26.000	4.000	53.000
54.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

NC	.025	.025	.025	.300	.500	.000	.000	.000	.000	.000
QT	11.000	20000.000	40000.000	60000.000	80000.000	100000.000	120000.000	140000.000	160000.000	180000.000
QT	200000.000	225000.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	28.831	24.000	8810.000	10940.000	.000	.000	.000	.000	.000	.000
GR	1220.000	8810.000	1208.000	8830.000	1204.000	8990.000	1204.000	9010.000	1204.000	9100.000
GR	1204.000	9200.000	1204.000	9300.000	1204.000	9400.000	1204.000	9500.000	1204.000	9600.000
GR	1204.000	9700.000	1204.000	9800.000	1204.000	9900.000	1204.000	10000.000	1204.000	10100.000
GR	1204.000	10170.000	1200.000	10250.000	1198.600	10320.000	1200.000	10400.000	1204.000	10450.000
GR	1208.000	10500.000	1212.000	10550.000	1216.000	10890.000	1220.000	10940.000	.000	.000
X1	29.017	24.000	8740.000	11000.000	1000.000	1020.000	1020.000	.000	.000	.000
GR	1226.000	8740.000	1220.000	8870.000	1216.000	8900.000	1212.000	8920.000	1208.000	9150.000
GR	1208.000	9250.000	1208.000	9400.000	1208.000	9500.000	1208.000	9600.000	1208.000	9700.000
GR	1208.000	9800.000	1208.000	9900.000	1204.000	9970.000	1200.000	10010.000	1198.800	10080.000
GR	1200.000	10130.000	1204.000	10190.000	1204.000	10300.000	1204.000	10400.000	1204.000	10500.000
GR	1204.000	10600.000	1208.000	10610.000	1208.000	10920.000	1220.000	11000.000	.000	.000
X1	29.221	21.000	9150.000	11220.000	950.000	970.000	1020.000	.000	.000	.000
GR	1224.000	9150.000	1220.000	9210.000	1208.000	9230.000	1208.000	9400.000	1208.000	9500.000
GR	1208.000	9600.000	1208.000	9700.000	1208.000	9800.000	1204.000	9920.000	1201.000	10000.000
GR	1204.000	10080.000	1208.000	10200.000	1212.000	10280.000	1212.000	10400.000	1212.000	10570.000
GR	1212.000	10700.000	1212.000	10800.000	1212.000	10900.000	1212.000	11000.000	1216.000	11150.000
GR	1224.000	11220.000	.000	.000	.000	.000	.000	.000	.000	.000

X1	29.473	19.000	9100.000	11730.000	1030.000	970.000	1300.000	.000	.000	.000
GR	1230.000	9100.000	1208.000	9150.000	1204.000	9190.000	1203.000	9230.000	1164.000	9243.000
GR	1164.000	9300.000	1164.000	9400.000	1164.000	9500.000	1164.000	9556.700	1204.000	9570.000
GR	1208.000	9800.000	1208.000	9900.000	1208.000	10020.000	1212.000	10080.000	1216.000	10100.000
GR	1216.000	10600.000	1216.000	11000.000	1216.000	11660.000	1224.000	11730.000	.000	.000
X1	29.523	30.000	8800.000	11084.290	230.000	255.000	265.000	.000	.000	.000
GR	1228.000	8800.000	1204.000	8822.250	1203.800	8874.170	1203.000	8889.000	1164.000	8898.420
GR	1164.000	8948.330	1164.000	9022.500	1164.000	9096.660	1164.000	9170.830	1164.000	9244.990
GR	1164.000	9319.160	1164.000	9354.980	1212.000	9363.660	1212.000	9430.400	1212.000	9541.650
GR	1212.000	9638.070	1216.000	9689.980	1216.000	9764.150	1216.000	9838.310	1216.000	9912.480
GR	1216.000	9986.640	1216.000	10060.810	1216.000	10134.970	1216.000	10209.140	1216.000	10283.300
GR	1216.000	10357.470	1216.000	10431.630	1216.000	10728.290	1216.000	11017.540	1228.000	11084.290
X1	29.573	30.000	8800.000	11349.520	230.000	255.000	265.000	.000	.000	.000
GR	1228.000	8800.000	1204.000	8824.830	1203.800	8882.780	1203.000	8899.330	1164.000	8909.840
GR	1164.000	8965.550	1164.000	9048.330	1164.000	9131.110	1164.000	9213.880	1164.000	9296.660
GR	1164.000	9379.440	1164.000	9419.420	1212.000	9429.100	1212.000	9503.600	1212.000	9627.770
GR	1212.000	9735.380	1216.000	9793.320	1216.000	9876.100	1216.000	9958.870	1216.000	10041.650
GR	1216.000	10124.430	1216.000	10207.210	1216.000	10289.980	1216.000	10372.760	1216.000	10455.540
GR	1216.000	10538.310	1216.000	10621.090	1216.000	10952.200	1216.000	11275.020	1228.000	11349.520
X1	29.623	30.000	8800.000	11614.760	230.000	255.000	265.000	.000	.000	.000
GR	1228.000	8800.000	1204.000	8827.420	1203.800	8891.390	1203.000	8909.670	1164.000	8921.270
GR	1164.000	8982.780	1164.000	9074.170	1164.000	9165.550	1164.000	9256.940	1164.000	9348.330
GR	1164.000	9439.720	1164.000	9483.860	1212.000	9494.550	1212.000	9576.800	1212.000	9713.880
GR	1212.000	9832.690	1216.000	9896.660	1216.000	9988.050	1216.000	10079.440	1216.000	10170.830
GR	1216.000	10262.210	1216.000	10353.600	1216.000	10444.990	1216.000	10536.380	1216.000	10627.770
GR	1216.000	10719.160	1216.000	10810.540	1216.000	11176.100	1216.000	11532.510	1228.000	11614.760
X1	29.676	30.000	8800.000	11880.000	230.000	255.000	265.000	.000	.000	.000
GR	1228.000	8800.000	1204.000	8830.000	1203.800	8900.000	1203.000	8920.000	1164.000	8932.700
GR	1164.000	9000.000	1164.000	9100.000	1164.000	9200.000	1164.000	9300.000	1164.000	9400.000
GR	1164.000	9500.000	1164.000	9548.300	1212.000	9560.000	1212.000	9650.000	1212.000	9800.000
GR	1212.000	9930.000	1216.000	10000.000	1216.000	10100.000	1216.000	10200.000	1216.000	10300.000
GR	1216.000	10400.000	1216.000	10500.000	1216.000	10600.000	1216.000	10700.000	1216.000	10800.000
GR	1216.000	10900.000	1216.000	11000.000	1216.000	11400.000	1216.000	11790.000	1228.000	11880.000
X1	29.696	28.000	8940.000	10346.650	102.500	79.000	107.000	.000	.000	.000
GR	1195.000	8940.000	1187.000	8964.760	1187.000	9100.000	1187.000	9202.510	1164.000	9249.560
GR	1164.000	9316.430	1164.000	9368.430	1178.900	9415.490	1183.000	9465.020	1187.000	9489.780
GR	1187.000	9524.450	1186.600	9564.080	1186.000	9613.610	1185.500	9663.140	1184.900	9712.670
GR	1184.400	9762.200	1183.900	9811.730	1183.300	9861.260	1183.000	9890.980	1183.000	9910.790
GR	1183.000	9992.510	1183.900	10059.380	1184.500	10108.910	1185.200	10158.440	1185.900	10207.970
GR	1186.500	10257.500	1187.000	10292.170	1211.000	10346.650	.000	.000	.000	.000
X1	29.716	29.000	8940.000	10824.430	102.500	79.000	107.000	.000	.000	.000
GR	1206.000	8940.000	1198.000	8973.180	1198.000	9100.000	1198.000	9200.000	1198.000	9291.670
GR	1164.000	9354.710	1164.000	9444.290	1164.000	9513.960	1189.900	9576.990	1194.000	9643.340
GR	1198.000	9676.520	1198.000	9722.970	1197.600	9776.050	1197.000	9842.400	1196.500	9908.760
GR	1195.900	9975.110	1195.400	10041.470	1194.900	10107.820	1194.300	10174.170	1194.000	10213.980
GR	1194.000	10240.530	1194.000	10350.010	1194.900	10439.590	1195.500	10505.940	1196.200	10572.290
GR	1196.900	10638.650	1197.500	10705.000	1198.000	10751.450	1222.000	10824.430	.000	.000

X1	29.736	30.000	8940.000	11302.220	102.500	79.000	107.000	.000	.000	.000
GR	1217.000	8940.000	1209.000	8981.590	1209.000	9100.000	1209.000	9200.000	1209.000	9300.000
GR	1209.000	9380.840	1164.000	9459.850	1164.000	9572.140	1164.000	9659.480	1200.900	9738.500
GR	1205.000	9821.670	1209.000	9863.260	1209.000	9921.490	1208.600	9988.030	1208.000	10071.200
GR	1207.500	10154.380	1206.900	10237.560	1206.400	10320.730	1205.900	10403.910	1205.300	10487.090
GR	1205.000	10536.990	1205.000	10570.260	1205.000	10707.500	1205.900	10819.790	1206.500	10902.970
GR	1207.200	10986.150	1207.900	11069.320	1208.500	11152.500	1209.000	11210.720	1233.000	11302.220
X1	29.753	31.000	8940.000	11780.000	102.500	79.000	107.000	.000	.000	.000
GR	1228.000	8940.000	1220.000	8990.000	1220.000	9100.000	1220.000	9200.000	1220.000	9300.000
GR	1220.000	9400.000	1220.000	9470.000	1204.200	9565.000	1204.200	9700.000	1204.200	9805.000
GR	1211.900	9900.000	1216.000	10000.000	1220.000	10050.000	1220.000	10120.000	1219.600	10200.000
GR	1219.000	10300.000	1218.500	10400.000	1217.900	10500.000	1217.400	10600.000	1216.900	10700.000
GR	1216.300	10800.000	1216.000	10860.000	1216.000	10900.000	1216.000	11065.000	1216.900	11200.000
GR	1217.500	11300.000	1218.200	11400.000	1218.900	11500.000	1219.500	11600.000	1220.000	11670.000
GR	1244.000	11780.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	29.812	22.000	9300.000	15859.010	280.000	216.000	293.000	.000	.000	.000
X5	11.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
X5	.000	1224.200	.000	.000	.000	.000	.000	.000	.000	.000
GR	1228.300	9300.000	1222.250	9799.420	1214.250	9899.300	1212.250	10132.360	1204.340	10465.310
GR	1204.300	10798.250	1210.250	10831.550	1214.250	10898.130	1218.250	11197.790	1222.250	11630.610
GR	1222.300	11963.560	1222.250	12296.500	1222.250	12629.450	1222.250	12962.390	1222.250	13295.340
GR	1222.300	13628.280	1222.250	13961.230	1222.250	14294.170	1222.250	14627.120	1222.250	14960.060
GR	1222.300	15625.950	1234.250	15859.010	.000	.000	.000	.000	.000	.000
X1	29.867	22.000	9300.000	14329.340	280.000	216.000	293.000	.000	.000	.000
GR	1227.500	9300.000	1221.500	9682.940	1213.500	9759.530	1211.500	9938.240	1204.560	10193.540
GR	1204.500	10448.830	1209.500	10474.360	1213.500	10525.420	1217.500	10755.190	1221.500	11087.080
GR	1221.500	11342.370	1221.500	11597.670	1221.500	11852.960	1221.500	12108.260	1221.500	12363.560
GR	1221.500	12618.850	1221.500	12874.150	1221.500	13129.450	1221.500	13384.740	1221.500	13640.040
GR	1221.500	14150.630	1233.500	14329.340	.000	.000	.000	.000	.000	.000
X1	29.923	22.000	9300.000	12799.670	280.000	216.000	293.000	.000	.000	.000
GR	1226.800	9300.000	1220.750	9566.470	1212.750	9619.770	1210.750	9744.120	1204.780	9921.770
GR	1204.800	10099.420	1208.750	10117.180	1212.750	10152.710	1216.750	10312.600	1220.750	10543.540
GR	1220.800	10721.190	1220.750	10898.830	1220.750	11076.480	1220.750	11254.130	1220.750	11431.780
GR	1220.800	11609.430	1220.750	11787.080	1220.750	11964.720	1220.750	12142.370	1220.750	12320.020
GR	1220.800	12675.320	1232.750	12799.670	.000	.000	.000	.000	.000	.000
X1	29.981	18.000	9300.000	11911.430	280.000	216.000	293.000	.000	.000	.000
GR	1226.800	9300.000	1220.750	9566.470	1212.750	9619.770	1210.750	9744.120	1205.000	9921.770
GR	1205.000	10099.420	1208.750	10117.180	1212.750	10152.710	1216.750	10312.600	1220.750	10543.540
GR	1220.800	10721.190	1220.750	10898.830	1220.750	11076.480	1220.750	11254.130	1220.750	11431.780
GR	1220.800	11609.430	1220.750	11787.080	1232.750	11911.430	.000	.000	.000	.000
X1	30.194	19.000	9300.000	12089.070	1125.000	1175.000	1125.000	.000	.000	.000
GR	1228.000	9300.000	1222.000	9566.470	1214.000	9619.770	1212.000	9744.120	1207.000	9921.770
GR	1207.000	10099.420	1210.000	10117.180	1214.000	10152.710	1218.000	10312.600	1222.000	10543.540
GR	1222.000	10721.190	1222.000	10898.830	1222.000	11076.480	1222.000	11254.130	1222.000	11431.780
GR	1222.000	11609.430	1222.000	11787.080	1222.000	11964.720	1234.000	12089.070	.000	.000

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X1     30.458     15.000   9300.000  10800.000   1285.000   1035.000   1375.000       .000       .000       .000
GR   1239.000   9300.000   1220.000   9420.000   1216.000   9540.000   1216.000   9660.000   1209.000   9750.000
GR   1209.000   9850.000   1216.000  10000.000   1220.000  10060.000   1220.000  10200.000   1220.000  10300.000
GR   1220.000  10400.000   1220.000  10550.000   1224.000  10640.000   1228.000  10740.000   1232.000  10800.000
EJ       .000       .000       .000       .000       .000       .000       .000       .000       .000       .000
*PROF 1
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01/01/80 03:34:18

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83     7.42  1206.02      .00  1217.31  1206.40      .38      .00      .00  1220.00
   20000.       0.   20000.       0.       0.    4020.       0.       0.       0.  1220.00
      .00      .00     4.98      .00     .025     .025     .025     .000  1198.60  8909.23
  .001994       0.       0.       0.        0        0        7      .00  1566.01 10475.24


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1206.02

STA=    8909.   10940.
  PER Q=    100.0
   AREA=   4020.0
    VEL=      5.0

*SECNO 29.017
    29.02     9.49  1208.29      .00      .00  1208.69      .40     2.28      .01  1226.00
   20000.       0.   20000.       0.       0.    3951.       0.      93.      39.  1220.00
      .06      .00     5.06      .00     .025     .025     .025     .000  1198.80  9133.23
  .002524    1000.    1020.    1020.        3        0        0      .00  1788.71 10921.94


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1208.29

STA=    9133.   11000.
  PER Q=    100.0
   AREA=   3950.9
    VEL=      5.1

*SECNO 29.221
    29.22     9.27  1210.27      .00      .00  1210.75      .47     2.02      .04  1224.00
   20000.       0.   20000.       0.       0.    3621.       0.     182.      72.  1224.00
      .11      .00     5.52      .00     .025     .025     .025     .000  1201.00  9226.21
  .001595     950.    1020.     970.        2        0        0      .00  1019.25 10245.46


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1210.27

STA=    9226.   11220.
  PER Q=    100.0
   AREA=   3620.9
    VEL=      5.5
```

```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.473
   29.47    46.90  1210.90      .00      .00  1210.92      .02      .03      .14  1230.00
  20000.       0.   20000.       0.       0.   17755.       0.     501.     101.   1224.00
     .43      .00     1.13      .00     .025     .025     .025     .000  1164.00  9143.41
 .000008    1030.    1300.     970.        2        0        0      .00   920.07 10063.48


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1210.90

STA=    9143.   11730.
  PER Q=    100.0
   AREA=  17755.1
    VEL=      1.1

*SECNO 29.523
   29.52    46.91  1210.91      .00      .00  1210.92      .01      .00      .00  1228.00
  20000.       0.   20000.       0.       0.   22371.       0.     623.     106.   1228.00
     .51      .00      .89      .00     .025     .025     .025     .000  1164.00  8815.84
 .000002     230.     265.     255.        2        0        0      .00   547.62  9363.46


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1210.91

STA=    8816.   11084.
  PER Q=    100.0
   AREA=  22371.4
    VEL=       .9

*SECNO 29.573
   29.57    46.91  1210.91      .00      .00  1210.92      .01      .00      .00  1228.00
  20000.       0.   20000.       0.       0.   24970.       0.     767.     109.   1228.00
     .60      .00      .80      .00     .025     .025     .025     .000  1164.00  8817.68
 .000001     230.     265.     255.        0        0        0      .00   611.20  9428.88


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1210.91

STA=    8818.   11350.
  PER Q=    100.0
   AREA=  24969.7
    VEL=       .8
```

```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.623
    29.62    46.92  1210.92      .00      .00  1210.92      .01      .00      .00  1228.00
   20000.       0.   20000.       0.       0.   27569.       0.     927.     113.   1228.00
      .70      .00      .73      .00     .025     .025     .025     .000  1164.00  8819.52
  .000001     230.     265.     255.        0        0        0      .00   674.79  9494.31


FLOW DISTRIBUTION FOR SECNO=     29.62         CWSEL=   1210.92

STA=    8820.   11615.
  PER Q=    100.0
   AREA=  27569.2
    VEL=       .7

*SECNO 29.676
    29.68    46.92  1210.92      .00      .00  1210.92      .01      .00      .00  1228.00
   20000.       0.   20000.       0.       0.   30169.       0.    1102.     117.   1228.00
      .81      .00      .66      .00     .025     .025     .025     .000  1164.00  8821.36
  .000001     230.     265.     255.        0        0        0      .00   738.38  9559.74


FLOW DISTRIBUTION FOR SECNO=     29.68         CWSEL=   1210.92

STA=    8821.   11880.
  PER Q=    100.0
   AREA=  30169.1
    VEL=       .7

*SECNO 29.696
3280 CROSS SECTION     29.70 EXTENDED     15.92 FEET

    29.70    46.92  1210.92      .00      .00  1210.93      .00      .00      .00  1195.00
   20000.       0.   20000.       0.       0.   38990.       0.    1187.     120.   1211.00
      .87      .00      .51      .00     .025     .025     .025     .000  1164.00  8940.00
  .000001     103.     107.      79.        0        0        0      .00  1406.46 10346.46


FLOW DISTRIBUTION FOR SECNO=     29.70         CWSEL=   1210.92

STA=    8940.   10347.
  PER Q=    100.0
   AREA=  38989.8
    VEL=       .5
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED      4.92 FEET

    29.72    46.92  1210.92      .00      .00  1210.93      .01      .00      .00  1206.00
   20000.       0.   20000.       0.       0.   34143.       0.    1277.     124.   1222.00
      .92      .00      .59      .00     .025     .025     .025     .000  1164.00  8940.00
  .000002     103.     107.      79.        0        0        0      .00  1850.74 10790.74


FLOW DISTRIBUTION FOR SECNO=     29.72          CWSEL=   1210.92

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  34143.1
    VEL=       .6

*SECNO 29.736
    29.74    46.92  1210.92      .00      .00  1210.93      .01      .00      .00  1217.00
   20000.       0.   20000.       0.       0.   20670.       0.    1345.     129.   1233.00
      .95      .00      .97      .00     .025     .025     .025     .000  1164.00  8971.60
  .000014     103.     107.      79.        0        0        0      .00  2246.44 11218.04


FLOW DISTRIBUTION FOR SECNO=     29.74          CWSEL=   1210.92

STA=    8972.   11302.
  PER Q=    100.0
   AREA=  20670.5
    VEL=      1.0

*SECNO 29.753

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    29.75     5.57  1209.77  1209.77      .00  1212.13     2.37      .01     1.18  1228.00
   20000.       0.   20000.       0.       0.    1620.       0.    1372.     132.   1244.00
      .96      .00    12.34      .00     .025     .025     .025     .000  1204.20  9531.53
  .005436     103.     107.      79.        4       17        0      .00   342.15  9873.68
```

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 29.75 CWSEL= 1209.77

STA= 9532. 11780.
PER Q= 100.0
AREA= 1620.4
VEL= 12.3

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

29.81	8.52	1212.82	.00	.00	1213.11	.29	.36	.62	1228.30
20000.	0.	20000.	0.	0.	4591.	0.	1393.	136.	1234.25
.98	.00	4.36	.00	.025	.025	.025	.000	1204.30	10066.54
.000530	280.	293.	216.	2	0	0	.00	807.70	10874.24

FLOW DISTRIBUTION FOR SECNO= 29.81 CWSEL= 1212.82

STA= 10067. 15859.
PER Q= 100.0
AREA= 4591.0
VEL= 4.4

*SECNO 29.867

29.87	8.44	1212.94	.00	.00	1213.39	.45	.20	.08	1227.50
20000.	0.	20000.	0.	0.	3724.	0.	1421.	141.	1233.50
.99	.00	5.37	.00	.025	.025	.025	.000	1204.50	9809.09
.000896	280.	293.	216.	2	0	0	.00	709.25	10518.34

FLOW DISTRIBUTION FOR SECNO= 29.87 CWSEL= 1212.94

STA= 9809. 14329.
PER Q= 100.0
AREA= 3724.1
VEL= 5.4

*SECNO 29.923

29.92	8.34	1213.12	.00	.00	1213.91	.79	.35	.17	1226.80
20000.	0.	20000.	0.	0.	2804.	0.	1443.	145.	1232.75
1.00	.00	7.13	.00	.025	.025	.025	.000	1204.78	9617.28
.001646	280.	293.	216.	1	0	0	.00	550.37	10167.65

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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     29.92          CWSEL=   1213.12

STA=    9617.   12800.
  PER Q=    100.0
   AREA=   2803.7
    VEL=      7.1

*SECNO 29.981
    29.98     8.72  1213.72      .00      .00  1214.37      .65      .42      .04  1226.80
   20000.       0.   20000.       0.       0.    3083.       0.    1463.     149.   1232.75
     1.01      .00     6.49      .00     .025     .025     .025     .000  1205.00  9613.29
  .001281     280.     293.     216.        2        0        0      .00   578.29 10191.58


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1213.72

STA=    9613.   11911.
  PER Q=    100.0
   AREA=   3082.9
    VEL=      6.5

*SECNO 30.194
    30.19     8.22  1215.22      .00      .00  1215.90      .68     1.51      .01  1228.00
   20000.       0.   20000.       0.       0.    3019.       0.    1541.     164.   1234.00
     1.06      .00     6.62      .00     .025     .025     .025     .000  1207.00  9611.66
  .001410    1125.    1125.    1175.        3        0        0      .00   589.68 10201.34


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1215.22

STA=    9612.   12089.
  PER Q=    100.0
   AREA=   3019.0
    VEL=      6.6

*SECNO 30.458
    30.46     8.65  1217.65      .00      .00  1218.77     1.11     2.65      .22  1239.00
   20000.       0.   20000.       0.       0.    2363.       0.    1626.     182.   1232.00
     1.11      .00     8.46      .00     .025     .025     .025     .000  1209.00  9490.34
  .002797    1285.    1375.    1035.        2        0        0      .00   534.49 10024.83
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1217.65

STA= 9490. 10800.
PER Q= 100.0
AREA= 2363.1
VEL= 8.5

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THIS RUN EXECUTED 01/01/80 03:38:10

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**************************************************
  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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 2

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83     8.79  1207.39      .00  1217.31  1208.03      .64      .00      .00  1220.00
   40000.       0.   40000.       0.       0.    6215.       0.       0.       0.   1220.00
      .00      .00     6.44      .00     .025     .025     .025     .000  1198.60  8854.43
  .001982       0.       0.       0.        0        0        6      .00  1637.93 10492.36


FLOW DISTRIBUTION FOR SECNO=     28.83         CWSEL=   1207.39

STA=    8854.   10940.
  PER Q=    100.0
   AREA=   6214.7
    VEL=      6.4

*SECNO 29.017
    29.02    10.77  1209.57      .00      .00  1210.20      .63     2.17      .00  1226.00
   40000.       0.   40000.       0.       0.    6286.       0.     146.      41.   1220.00
      .04      .00     6.36      .00     .025     .025     .025     .000  1198.80  9059.84
  .002279    1000.    1020.    1020.        2        0        0      .00  1870.61 10930.45


FLOW DISTRIBUTION FOR SECNO=     29.02         CWSEL=   1209.57

STA=    9060.   11000.
  PER Q=    100.0
   AREA=   6286.2
    VEL=      6.4

*SECNO 29.221
    29.22    10.67  1211.67      .00      .00  1212.64      .97     2.27      .17  1224.00
   40000.       0.   40000.       0.       0.    5063.       0.     279.      75.   1224.00
      .08      .00     7.90      .00     .025     .025     .025     .000  1201.00  9223.89
  .002170     950.    1020.     970.        1        0        0      .00  1049.47 10273.35


FLOW DISTRIBUTION FOR SECNO=     29.22         CWSEL=   1211.67

STA=    9224.   11220.
  PER Q=    100.0
   AREA=   5063.4
    VEL=      7.9
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

    29.47    48.94  1212.94      .00      .00  1213.01      .06      .10      .27  1230.00
   40000.       0.   40000.       0.       0.   19666.       0.     648.     105.   1224.00
      .26      .00     2.03      .00     .025     .025     .025     .000  1164.00  9138.77
  .000022    1030.    1300.     970.        2        0        0      .00   945.94 10084.71


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1212.94

STA=    9139.   11730.
  PER Q=    100.0
   AREA=  19666.4
    VEL=      2.0

*SECNO 29.523
    29.52    48.97  1212.97      .00      .00  1213.02      .04      .00      .01  1228.00
   40000.       0.   40000.       0.       0.   23777.       0.     780.     110.   1228.00
      .30      .00     1.68      .00     .025     .025     .025     .000  1164.00  8813.93
  .000010     230.     265.     255.        2        0        0      .00   836.76  9650.69


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1212.97

STA=    8814.   11084.
  PER Q=    100.0
   AREA=  23776.6
    VEL=      1.7

*SECNO 29.573
    29.57    48.99  1212.99      .00      .00  1213.02      .04      .00      .00  1228.00
   40000.       0.   40000.       0.       0.   26541.       0.     933.     116.   1228.00
      .35      .00     1.51      .00     .025     .025     .025     .000  1164.00  8815.54
  .000008     230.     265.     255.        0        0        0      .00   933.98  9749.53


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1212.99

STA=    8816.   11350.
  PER Q=    100.0
   AREA=  26541.3
    VEL=      1.5
```

```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


*SECNO 29.623
   29.62    49.00  1213.00      .00      .00  1213.03      .03      .00      .00  1228.00
  40000.       0.   40000.       0.       0.   29315.       0.    1103.     122.   1228.00
     .40      .00     1.36      .00     .025     .025     .025     .000  1164.00  8817.15
 .000007     230.     265.     255.        0        0        0      .00  1031.35  9848.50


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1213.00

STA=    8817.   11615.
  PER Q=    100.0
   AREA=  29314.7
    VEL=      1.4

*SECNO 29.676
   29.68    49.00  1213.00      .00      .00  1213.03      .02      .00      .00  1228.00
  40000.       0.   40000.       0.       0.   32088.       0.    1290.     128.   1228.00
     .46      .00     1.25      .00     .025     .025     .025     .000  1164.00  8818.75
 .000005     230.     265.     255.        0        0        0      .00  1128.72  9947.47


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1213.00

STA=    8819.   11880.
  PER Q=    100.0
   AREA=  32088.1
    VEL=      1.2

*SECNO 29.696
3280 CROSS SECTION     29.70 EXTENDED     18.01 FEET

   29.70    49.02  1213.02      .00      .00  1213.03      .01      .00      .00  1195.00
  40000.       0.   40000.       0.       0.   41935.       0.    1381.     132.   1211.00
     .49      .00      .95      .00     .025     .025     .025     .000  1164.00  8940.00
 .000003     103.     107.      79.        1        0        0      .00  1406.65 10346.65


FLOW DISTRIBUTION FOR SECNO=     29.70          CWSEL=   1213.02

STA=    8940.   10347.
  PER Q=    100.0
   AREA=  41935.1
    VEL=      1.0
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED      7.02 FEET

   29.72    49.02  1213.02      .00      .00  1213.03      .02      .00      .00  1206.00
  40000.       0.   40000.       0.       0.   38030.       0.    1479.     136.   1222.00
     .52      .00     1.05      .00     .025     .025     .025     .000  1164.00  8940.00
 .000006     103.     107.      79.        0        0        0      .00  1857.12 10797.12


FLOW DISTRIBUTION FOR SECNO=     29.72          CWSEL=   1213.02

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  38030.5
    VEL=      1.1

*SECNO 29.736
   29.74    49.01  1213.01      .00      .00  1213.05      .04      .00      .01  1217.00
  40000.       0.   40000.       0.       0.   25400.       0.    1557.     141.   1233.00
     .54      .00     1.57      .00     .025     .025     .025     .000  1164.00  8960.71
 .000028     103.     107.      79.        0        0        0      .00  2265.33 11226.04


FLOW DISTRIBUTION FOR SECNO=     29.74          CWSEL=   1213.01

STA=    8961.   11302.
  PER Q=    100.0
   AREA=  25399.5
    VEL=      1.6

*SECNO 29.753

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   29.75     8.54  1212.74  1212.74      .00  1216.09     3.35      .01     1.66  1228.00
  40000.       0.   40000.       0.       0.    2723.       0.    1592.     144.   1244.00
     .54      .00    14.69      .00     .025     .025     .025     .000  1204.20  9513.65
 .004856     103.     107.      79.       20       17        0      .00   406.87  9920.51
```

```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1212.74

STA=    9514.   11780.
  PER Q=    100.0
   AREA=   2723.4
    VEL=     14.7

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

    29.81    12.68  1216.98      .00      .00  1217.29      .31      .29      .91  1228.30
   40000.       0.   40000.       0.       0.    8935.       0.    1631.     149.   1234.25
      .56      .00     4.48      .00     .025     .025     .025     .000  1204.30  9865.26
  .000407     280.     293.     216.        3        0        0      .00  1237.10 11102.36


FLOW DISTRIBUTION FOR SECNO=     29.81          CWSEL=   1216.98

STA=    9865.   15859.
  PER Q=    100.0
   AREA=   8935.1
    VEL=      4.5

*SECNO 29.867
    29.87    12.54  1217.04      .00      .00  1217.51      .47      .14      .08  1227.50
   40000.       0.   40000.       0.       0.    7269.       0.    1685.     157.   1233.50
      .58      .00     5.50      .00     .025     .025     .025     .000  1204.50  9725.60
  .000612     280.     293.     216.        2        0        0      .00  1003.41 10729.01


FLOW DISTRIBUTION FOR SECNO=     29.87          CWSEL=   1217.04

STA=    9726.   14329.
  PER Q=    100.0
   AREA=   7268.6
    VEL=      5.5

*SECNO 29.923
    29.92    12.30  1217.08      .00      .00  1217.95      .87      .24      .20  1226.80
   40000.       0.   40000.       0.       0.    5349.       0.    1728.     163.   1232.75
      .59      .00     7.48      .00     .025     .025     .025     .000  1204.78  9590.90
  .001137     280.     293.     216.        2        0        0      .00   740.90 10331.80
```

```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     29.92         CWSEL=   1217.08

STA=    9591.   12800.
  PER Q=    100.0
   AREA=   5348.9
    VEL=      7.5

*SECNO 29.981
    29.98    12.50  1217.50      .00      .00  1218.29      .79      .32      .02  1226.80
   40000.       0.   40000.       0.       0.    5604.       0.    1765.     168.   1232.75
      .60      .00     7.14      .00     .025     .025     .025     .000  1205.00  9588.13
  .001020     280.     293.     216.        2        0        0      .00   767.72 10355.84


FLOW DISTRIBUTION FOR SECNO=     29.98         CWSEL=   1217.50

STA=    9588.   11911.
  PER Q=    100.0
   AREA=   5604.4
    VEL=      7.1

*SECNO 30.194
    30.19    11.69  1218.69      .00      .00  1219.56      .87     1.23      .04  1228.00
   40000.       0.   40000.       0.       0.    5355.       0.    1906.     188.   1234.00
      .64      .00     7.47      .00     .025     .025     .025     .000  1207.00  9588.50
  .001179    1125.    1125.    1175.        2        0        0      .00   764.11 10352.61


FLOW DISTRIBUTION FOR SECNO=     30.19         CWSEL=   1218.69

STA=    9589.   12089.
  PER Q=    100.0
   AREA=   5355.0
    VEL=      7.5

*SECNO 30.458
    30.46    11.99  1220.99      .00      .00  1222.03     1.04     2.39      .09  1239.00
   40000.       0.   40000.       0.       0.    4879.       0.    2068.     218.   1232.00
      .69      .00     8.20      .00     .025     .025     .025     .000  1209.00  9413.72
  .002801    1285.    1375.    1035.        2        0        0      .00  1158.67 10572.39
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1220.99

STA= 9414. 10800.
PER Q= 100.0
AREA= 4878.6
VEL= 8.2

THIS RUN EXECUTED 01/01/80 03:40:12

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**************************************************
  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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 3

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83     9.85  1208.45      .00  1217.31  1209.33      .88      .00      .00  1220.00
   60000.       0.   60000.       0.       0.    7982.       0.       0.       0.   1220.00
      .00      .00     7.52      .00     .025     .025     .025     .000  1198.60  8829.25
  .001998       0.       0.       0.        0        0        6      .00  1676.41 10505.65


FLOW DISTRIBUTION FOR SECNO=     28.83         CWSEL=   1208.45

STA=    8829.   10940.
  PER Q=    100.0
   AREA=   7981.5
    VEL=      7.5

*SECNO 29.017
    29.02    11.84  1210.64      .00      .00  1211.44      .81     2.09      .02  1226.00
   60000.       0.   60000.       0.       0.    8324.       0.     191.      42.   1220.00
      .04      .00     7.21      .00     .025     .025     .025     .000  1198.80  8998.32
  .002110    1000.    1020.    1020.        2        0        0      .00  1939.27 10937.59


FLOW DISTRIBUTION FOR SECNO=     29.02         CWSEL=   1210.64

STA=    8998.   11000.
  PER Q=    100.0
   AREA=   8324.4
    VEL=      7.2

*SECNO 29.221
    29.22    12.06  1213.06      .00      .00  1214.10     1.05     2.54      .12  1224.00
   60000.       0.   60000.       0.       0.    7312.       0.     374.      86.   1224.00
      .07      .00     8.21      .00     .025     .025     .025     .000  1201.00  9221.57
  .002983     950.    1020.     970.        2        0        0      .00  1818.04 11039.61


FLOW DISTRIBUTION FOR SECNO=     29.22         CWSEL=   1213.06

STA=    9222.   11220.
  PER Q=    100.0
   AREA=   7311.8
    VEL=      8.2
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

   29.47    50.42  1214.42      .00      .00  1214.55      .13      .17      .28  1230.00
  60000.       0.   60000.       0.       0.   21074.       0.     798.     128.   1224.00
     .20      .00     2.85      .00     .025     .025     .025     .000  1164.00  9135.41
 .000040    1030.    1300.     970.        2        0        0      .00   956.70 10092.11


FLOW DISTRIBUTION FOR SECNO=     29.47         CWSEL=   1214.42

STA=    9135.   11730.
  PER Q=    100.0
   AREA=  21073.6
    VEL=      2.8

*SECNO 29.523
   29.52    50.48  1214.48      .00      .00  1214.57      .09      .01      .01  1228.00
  60000.       0.   60000.       0.       0.   25051.       0.     938.     133.   1228.00
     .23      .00     2.40      .00     .025     .025     .025     .000  1164.00  8812.54
 .000020     230.     265.     255.        2        0        0      .00   857.68  9670.21


FLOW DISTRIBUTION FOR SECNO=     29.52         CWSEL=   1214.48

STA=    8813.   11084.
  PER Q=    100.0
   AREA=  25051.1
    VEL=      2.4

*SECNO 29.573
   29.57    50.50  1214.50      .00      .00  1214.58      .07      .00      .01  1228.00
  60000.       0.   60000.       0.       0.   27987.       0.    1099.     139.   1228.00
     .27      .00     2.14      .00     .025     .025     .025     .000  1164.00  8813.96
 .000016     230.     265.     255.        2        0        0      .00   957.70  9771.66


FLOW DISTRIBUTION FOR SECNO=     29.57         CWSEL=   1214.50

STA=    8814.   11350.
  PER Q=    100.0
   AREA=  27986.5
    VEL=      2.1
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.623
   29.62    50.53  1214.53      .00      .00  1214.58      .06      .00      .00  1228.00
  60000.       0.   60000.       0.       0.   30911.       0.    1278.     145.   1228.00
     .30      .00     1.94      .00     .025     .025     .025     .000  1164.00  8815.40
 .000013     230.     265.     255.        1        0        0      .00  1057.54  9872.94


FLOW DISTRIBUTION FOR SECNO=     29.62         CWSEL=   1214.53

STA=    8815.   11615.
  PER Q=    100.0
   AREA=  30911.1
    VEL=      1.9

*SECNO 29.676
   29.68    50.54  1214.54      .00      .00  1214.59      .05      .00      .00  1228.00
  60000.       0.   60000.       0.       0.   33845.       0.    1475.     152.   1228.00
     .35      .00     1.77      .00     .025     .025     .025     .000  1164.00  8816.83
 .000011     230.     265.     255.        1        0        0      .00  1157.53  9974.36


FLOW DISTRIBUTION FOR SECNO=     29.68         CWSEL=   1214.54

STA=    8817.   11880.
  PER Q=    100.0
   AREA=  33844.5
    VEL=      1.8

*SECNO 29.696
3280 CROSS SECTION     29.70 EXTENDED     19.57 FEET

   29.70    50.57  1214.57      .00      .00  1214.60      .03      .00      .01  1195.00
  60000.       0.   60000.       0.       0.   44125.       0.    1571.     155.   1211.00
     .37      .00     1.36      .00     .025     .025     .025     .000  1164.00  8940.00
 .000005     103.     107.      79.        2        0        0      .00  1406.65 10346.65


FLOW DISTRIBUTION FOR SECNO=     29.70         CWSEL=   1214.57

STA=    8940.   10347.
  PER Q=    100.0
   AREA=  44124.6
    VEL=      1.4
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED      8.57 FEET

   29.72    50.57  1214.57      .00      .00  1214.60      .03      .00      .00  1206.00
  60000.       0.   60000.       0.       0.   40913.       0.    1676.     159.   1222.00
     .39      .00     1.47      .00     .025     .025     .025     .000  1164.00  8940.00
 .000010     103.     107.      79.        0        0        0      .00  1861.83 10801.83


FLOW DISTRIBUTION FOR SECNO=     29.72         CWSEL=   1214.57

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  40913.4
    VEL=      1.5

*SECNO 29.736
   29.74    50.55  1214.55      .00      .00  1214.62      .07      .00      .02  1217.00
  60000.       0.   60000.       0.       0.   28904.       0.    1761.     164.   1233.00
     .40      .00     2.08      .00     .025     .025     .025     .000  1164.00  8952.69
 .000042     103.     107.      79.        1        0        0      .00  2279.23 11231.92


FLOW DISTRIBUTION FOR SECNO=     29.74         CWSEL=   1214.55

STA=    8953.   11302.
  PER Q=    100.0
   AREA=  28903.9
    VEL=      2.1

*SECNO 29.753

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   29.75    12.42  1216.62  1216.62      .00  1219.13     2.51      .02     1.22  1228.00
  60000.       0.   60000.       0.       0.    4723.       0.    1803.     168.   1244.00
     .40      .00    12.70      .00     .025     .025     .025     .000  1204.20  9490.31
 .005240     103.     107.      79.       20       11        0      .00   929.45 11158.31
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01/01/80 03:34:18

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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1216.62

STA=    9490.   11780.
  PER Q=    100.0
   AREA=   4722.7
    VEL=     12.7

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

    29.81    15.40  1219.70      .00      .00  1220.05      .35      .27      .65  1228.30
   60000.       0.   60000.       0.       0.   12667.       0.    1861.     176.   1234.25
      .42      .00     4.74      .00     .025     .025     .025     .000  1204.30  9831.23
  .000377     280.     293.     216.        3        0        0      .00  1523.69 11354.92


FLOW DISTRIBUTION FOR SECNO=     29.81          CWSEL=   1219.70

STA=    9831.   15859.
  PER Q=    100.0
   AREA=  12667.2
    VEL=      4.7

*SECNO 29.867
    29.87    15.25  1219.75      .00      .00  1220.28      .53      .13      .09  1227.50
   60000.       0.   60000.       0.       0.   10293.       0.    1938.     185.   1233.50
      .44      .00     5.83      .00     .025     .025     .025     .000  1204.50  9699.70
  .000574     280.     293.     216.        2        0        0      .00  1242.13 10941.83


FLOW DISTRIBUTION FOR SECNO=     29.87          CWSEL=   1219.75

STA=    9700.   14329.
  PER Q=    100.0
   AREA=  10292.8
    VEL=      5.8

*SECNO 29.923
    29.92    14.97  1219.75      .00      .00  1220.73      .98      .22      .23  1226.80
   60000.       0.   60000.       0.       0.    7550.       0.    1998.     193.   1232.75
      .45      .00     7.95      .00     .025     .025     .025     .000  1204.78  9573.16
  .001070     280.     293.     216.        2        0        0      .00   912.37 10485.53
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


FLOW DISTRIBUTION FOR SECNO=     29.92          CWSEL=   1219.75

STA=    9573.   12800.
  PER Q=    100.0
   AREA=   7549.9
    VEL=      7.9

*SECNO 29.981
    29.98    15.14  1220.14      .00      .00  1221.05      .91      .30      .02  1226.80
   60000.       0.   60000.       0.       0.    7859.       0.    2050.     199.   1232.75
      .46      .00     7.63      .00     .025     .025     .025     .000  1205.00  9570.51
  .000971     280.     293.     216.        2        0        0      .00   937.98 10508.49


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1220.14

STA=    9571.   11911.
  PER Q=    100.0
   AREA=   7859.3
    VEL=      7.6

*SECNO 30.194
    30.19    14.27  1221.27      .00      .00  1222.25      .98     1.16      .04  1228.00
   60000.       0.   60000.       0.       0.    7534.       0.    2249.     223.   1234.00
      .50      .00     7.96      .00     .025     .025     .025     .000  1207.00  9571.36
  .001105    1125.    1125.    1175.        2        0        0      .00   929.80 10501.16


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1221.27

STA=    9571.   12089.
  PER Q=    100.0
   AREA=   7534.2
    VEL=      8.0

*SECNO 30.458
    30.46    14.11  1223.11      .00      .00  1224.13     1.02     1.86      .02  1239.00
   60000.       0.   60000.       0.       0.    7387.       0.    2484.     257.   1232.00
      .54      .00     8.12      .00     .025     .025     .025     .000  1209.00  9400.39
  .001693    1285.    1375.    1035.        2        0        0      .00  1219.46 10619.85
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1223.11

STA= 9400. 10800.
PER Q= 100.0
AREA= 7386.9
VEL= 8.1

01/01/80 03:34:18

THIS RUN EXECUTED 01/01/80 03:42:15

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**************************************************
 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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	4.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*PROF 4

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    10.79  1209.39      .00  1217.31  1210.47     1.09      .00      .00  1220.00
   80000.       0.   80000.       0.       0.    9552.       0.       0.       0.   1220.00
      .00      .00     8.38      .00     .025     .025     .025     .000  1198.60  8827.69
  .001973       0.       0.       0.        0        0        5      .00  1689.62 10517.31


FLOW DISTRIBUTION FOR SECNO=     28.83         CWSEL=   1209.39

STA=    8828.   10940.
  PER Q=    100.0
   AREA=   9551.8
    VEL=      8.4

*SECNO 29.017
    29.02    12.78  1211.58      .00      .00  1212.54      .96     2.02      .04  1226.00
   80000.       0.   80000.       0.       0.   10180.       0.     231.      43.   1220.00
      .04      .00     7.86      .00     .025     .025     .025     .000  1198.80  8944.14
  .001998    1000.    1020.    1020.        2        0        0      .00  1999.73 10943.87


FLOW DISTRIBUTION FOR SECNO=     29.02         CWSEL=   1211.58

STA=    8944.   11000.
  PER Q=    100.0
   AREA=  10180.2
    VEL=      7.9

*SECNO 29.221
    29.22    12.86  1213.86      .00      .00  1215.15     1.29     2.45      .16  1224.00
   80000.       0.   80000.       0.       0.    8791.       0.     453.      88.   1224.00
      .07      .00     9.10      .00     .025     .025     .025     .000  1201.00  9220.23
  .002937     950.    1020.     970.        2        0        0      .00  1849.64 11069.86


FLOW DISTRIBUTION FOR SECNO=     29.22         CWSEL=   1213.86

STA=    9220.   11220.
  PER Q=    100.0
   AREA=   8791.3
    VEL=      9.1
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

    29.47     51.52   1215.52       .00       .00   1215.72       .20       .24       .32   1230.00
   80000.        0.    80000.        0.        0.   22125.        0.      914.      130.   1224.00
      .17       .00      3.62       .00      .025      .025      .025      .000   1164.00   9132.92
  .000061     1030.     1300.      970.         6         0         0       .00    964.66  10097.58


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1215.52

STA=    9133.   11730.
  PER Q=    100.0
   AREA=  22125.0
    VEL=      3.6

*SECNO 29.523
    29.52     51.60   1215.60       .00       .00   1215.75       .15       .01       .02   1228.00
   80000.        0.    80000.        0.        0.   26023.        0.     1061.      136.   1228.00
      .19       .00      3.07       .00      .025      .025      .025      .000   1164.00   8811.50
  .000032      230.      265.      255.         2         0         0       .00    873.30   9684.79


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1215.60

STA=    8811.   11084.
  PER Q=    100.0
   AREA=  26023.4
    VEL=      3.1

*SECNO 29.573
    29.57     51.65   1215.65       .00       .00   1215.76       .12       .01       .01   1228.00
   80000.        0.    80000.        0.        0.   29090.        0.     1229.      141.   1228.00
      .22       .00      2.75       .00      .025      .025      .025      .000   1164.00   8812.78
  .000026      230.      265.      255.         2         0         0       .00    975.41   9788.19


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1215.65

STA=    8813.   11350.
  PER Q=    100.0
   AREA=  29089.6
    VEL=      2.8
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 29.623
    29.62     51.68   1215.68       .00       .00   1215.78       .10       .01       .01   1228.00
   80000.        0.   80000.        0.        0.   32152.        0.     1415.      148.   1228.00
      .25       .00      2.49       .00      .025      .025      .025      .000   1164.00   8814.08
  .000021      230.      265.      255.         2         0         0       .00   1077.46   9891.54


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1215.68

STA=    8814.   11615.
  PER Q=    100.0
   AREA=  32152.1
    VEL=      2.5

*SECNO 29.676
    29.68     51.71   1215.71       .00       .00   1215.79       .08       .00       .00   1228.00
   80000.        0.   80000.        0.        0.   35212.        0.     1620.      155.   1228.00
      .28       .00      2.27       .00      .025      .025      .025      .000   1164.00   8815.37
  .000017      230.      265.      255.         2         0         0       .00   1179.47   9994.84


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1215.71

STA=    8815.   11880.
  PER Q=    100.0
   AREA=  35212.2
    VEL=      2.3

*SECNO 29.696
3280 CROSS SECTION     29.70 EXTENDED     20.75 FEET

    29.70     51.75   1215.75       .00       .00   1215.80       .05       .00       .01   1195.00
   80000.        0.   80000.        0.        0.   45786.        0.     1719.      158.   1211.00
      .30       .00      1.75       .00      .025      .025      .025      .000   1164.00   8940.00
  .000009      103.      107.       79.         2         0         0       .00   1406.65  10346.65


FLOW DISTRIBUTION FOR SECNO=     29.70          CWSEL=   1215.75

STA=    8940.   10347.
  PER Q=    100.0
   AREA=  45786.1
    VEL=      1.7
```

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED      9.75 FEET

    29.72    51.75  1215.75      .00      .00  1215.80      .05      .00      .00  1206.00
   80000.       0.   80000.       0.       0.   43116.       0.    1828.     162.   1222.00
      .31      .00     1.86      .00     .025     .025     .025     .000  1164.00  8940.00
  .000015     103.     107.      79.        0        0        0      .00  1865.43 10805.43


FLOW DISTRIBUTION FOR SECNO=     29.72          CWSEL=   1215.75

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  43116.0
    VEL=      1.9

*SECNO 29.736
    29.74    51.73  1215.73      .00      .00  1215.83      .10      .00      .02  1217.00
   80000.       0.   80000.       0.       0.   31572.       0.    1920.     167.   1233.00
      .32      .00     2.53      .00     .025     .025     .025     .000  1164.00  8946.62
  .000056     103.     107.      79.        2        0        0      .00  2289.75 11236.37


FLOW DISTRIBUTION FOR SECNO=     29.74          CWSEL=   1215.73

STA=    8947.   11302.
  PER Q=    100.0
   AREA=  31572.1
    VEL=      2.5

*SECNO 29.753

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    29.75    13.96  1218.16  1218.16      .00  1220.45     2.30      .02     1.10  1228.00
   80000.       0.   80000.       0.       0.    6577.       0.    1967.     172.   1244.00
      .33      .00    12.16      .00     .025     .025     .025     .000  1204.20  9481.08
  .005753     103.     107.      79.       20       14        0      .00  1482.37 11393.77
```

```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1218.16

STA=    9481.   11780.
  PER Q=    100.0
   AREA=   6576.5
    VEL=     12.2

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

    29.81    16.57  1220.87      .00      .00  1221.34      .47      .34      .55  1228.30
   80000.       0.   80000.       0.       0.   14527.       0.    2038.     182.   1234.25
      .34      .00     5.51      .00     .025     .025     .025     .000  1204.30  9816.66
  .000478     280.     293.     216.        3        0        0      .00  1664.49 11481.15

FLOW DISTRIBUTION FOR SECNO=     29.81          CWSEL=   1220.87

STA=    9817.   15859.
  PER Q=    100.0
   AREA=  14526.9
    VEL=      5.5

*SECNO 29.867
    29.87    16.42  1220.92      .00      .00  1221.63      .71      .17      .12  1227.50
   80000.       0.   80000.       0.       0.   11805.       0.    2127.     192.   1233.50
      .35      .00     6.78      .00     .025     .025     .025     .000  1204.50  9688.53
  .000722     280.     293.     216.        3        0        0      .00  1350.09 11038.63

FLOW DISTRIBUTION FOR SECNO=     29.87          CWSEL=   1220.92

STA=    9689.   14329.
  PER Q=    100.0
   AREA=  11804.9
    VEL=      6.8

*SECNO 29.923
    29.92    16.40  1221.18      .00      .00  1222.21     1.03      .42      .16  1226.80
   80000.       0.   80000.       0.       0.    9814.       0.    2199.     207.   1232.75
      .36      .00     8.15      .00     .025     .025     .025     .000  1204.78  9547.53
  .004103     280.     293.     216.        2        0        0      .00  3131.75 12679.27
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     29.92         CWSEL=   1221.18

STA=    9548.   12800.
  PER Q=    100.0
   AREA=   9814.3
    VEL=      8.2

*SECNO 29.981
    29.98    17.27  1222.27      .00      .00  1222.98      .70      .67      .10  1226.80
   80000.       0.   80000.       0.       0.   11878.       0.    2272.     226.   1232.75
      .38      .00     6.74      .00     .025     .025     .025     .000  1205.00  9499.20
  .001443     280.     293.     216.        2        0        0      .00  2303.71 11802.91


FLOW DISTRIBUTION FOR SECNO=     29.98         CWSEL=   1222.27

STA=    9499.   11911.
  PER Q=    100.0
   AREA=  11877.8
    VEL=      6.7

*SECNO 30.194
    30.19    16.90  1223.90      .00      .00  1224.50      .60     1.49      .03  1228.00
   80000.       0.   80000.       0.       0.   12895.       0.    2592.     288.   1234.00
      .43      .00     6.20      .00     .025     .025     .025     .000  1207.00  9481.98
  .001225    1125.    1125.    1175.        3        0        0      .00  2502.45 11984.43


FLOW DISTRIBUTION FOR SECNO=     30.19         CWSEL=   1223.90

STA=    9482.   12089.
  PER Q=    100.0
   AREA=  12895.4
    VEL=      6.2

*SECNO 30.458
    30.46    16.33  1225.33      .00      .00  1226.29      .96     1.61      .18  1239.00
   80000.       0.   80000.       0.       0.   10169.       0.    2956.     347.   1232.00
      .47      .00     7.87      .00     .025     .025     .025     .000  1209.00  9386.36
  .001114    1285.    1375.    1035.        2        0        0      .00  1286.78 10673.14
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1225.33

STA= 9386. 10800.
PER Q= 100.0
AREA= 10168.9
VEL= 7.9

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**************************************************
  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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	6.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	5.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


*PROF 5

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    11.59  1210.19      .00  1217.31  1211.49     1.30      .00      .00  1220.00
  100000.       0.  100000.       0.       0.  10920.       0.       0.       0.   1220.00
      .00      .00     9.16      .00     .025     .025     .025     .000  1198.60  8826.35
  .001991       0.       0.       0.        0        0        5      .00  1701.06 10527.40


FLOW DISTRIBUTION FOR SECNO=     28.83         CWSEL=   1210.19

STA=    8826.   10940.
  PER Q=    100.0
   AREA=  10920.3
    VEL=      9.2

*SECNO 29.017
    29.02    13.64  1212.44      .00      .00  1213.53     1.09     1.98      .06  1226.00
  100000.       0.  100000.       0.       0.  11920.       0.     267.      44.   1220.00
      .03      .00     8.39      .00     .025     .025     .025     .000  1198.80  8917.80
  .001885    1000.    1020.    1020.        2        0        0      .00  2031.81 10949.60


FLOW DISTRIBUTION FOR SECNO=     29.02         CWSEL=   1212.44

STA=    8918.   11000.
  PER Q=    100.0
   AREA=  11919.6
    VEL=      8.4

*SECNO 29.221
    29.22    13.59  1214.59      .00      .00  1216.10     1.51     2.36      .21  1224.00
  100000.       0.  100000.       0.       0.  10147.       0.     526.      89.   1224.00
      .06      .00     9.86      .00     .025     .025     .025     .000  1201.00  9219.02
  .002904     950.    1020.     970.        2        0        0      .00  1878.13 11097.14


FLOW DISTRIBUTION FOR SECNO=     29.22         CWSEL=   1214.59

STA=    9219.   11220.
  PER Q=    100.0
   AREA=  10147.1
    VEL=      9.9
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

   29.47    52.94  1216.94      .00      .00  1217.19      .25      .71      .38  1230.00
  100000.       0.  100000.       0.       0.   24964.       0.    1050.     155.   1224.00
     .15      .00     4.01      .00     .025     .025     .025     .000  1164.00  9129.69
 .000222    1030.    1300.     970.        2        0        0      .00  2538.50 11668.19


FLOW DISTRIBUTION FOR SECNO=     29.47         CWSEL=   1216.94

STA=    9130.   11730.
  PER Q=    100.0
   AREA=  24963.9
    VEL=      4.0

*SECNO 29.523
   29.52    53.06  1217.06      .00      .00  1217.25      .19      .04      .02  1228.00
  100000.       0.  100000.       0.       0.   28710.       0.    1213.     170.   1228.00
     .17      .00     3.48      .00     .025     .025     .025     .000  1164.00  8810.14
 .000118     230.     265.     255.        2        0        0      .00  2213.28 11023.42


FLOW DISTRIBUTION FOR SECNO=     29.52         CWSEL=   1217.06

STA=    8810.   11084.
  PER Q=    100.0
   AREA=  28710.0
    VEL=      3.5

*SECNO 29.573
   29.57    53.14  1217.14      .00      .00  1217.28      .15      .03      .01  1228.00
  100000.       0.  100000.       0.       0.   32237.       0.    1398.     184.   1228.00
     .20      .00     3.10      .00     .025     .025     .025     .000  1164.00  8811.24
 .000092     230.     265.     255.        2        0        0      .00  2470.83 11282.07


FLOW DISTRIBUTION FOR SECNO=     29.57         CWSEL=   1217.14

STA=    8811.   11350.
  PER Q=    100.0
   AREA=  32236.6
    VEL=      3.1
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 29.623
    29.62    53.19  1217.19      .00       .00  1217.32       .12       .02       .01   1228.00
  100000.       0.  100000.       0.        0.   35748.        0.     1605.      200.    1228.00
      .22      .00     2.80      .00      .025     .025      .025      .000   1164.00   8812.35
  .000074     230.     265.     255.         2        0         0       .00   2728.34  11540.69


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1217.19

STA=    8812.   11615.
  PER Q=    100.0
   AREA=  35748.3
    VEL=      2.8

*SECNO 29.676
    29.68    53.24  1217.24      .00       .00  1217.34       .10       .02       .01   1228.00
  100000.       0.  100000.       0.        0.   39252.        0.     1833.      217.    1228.00
      .25      .00     2.55      .00      .025     .025      .025      .000   1164.00   8813.45
  .000061     230.     265.     255.         2        0         0       .00   2985.84  11799.29


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1217.24

STA=    8813.   11880.
  PER Q=    100.0
   AREA=  39251.8
    VEL=      2.5

*SECNO 29.696
3280 CROSS SECTION     29.70 EXTENDED     22.28 FEET

    29.70    53.28  1217.28      .00       .00  1217.35       .07       .00       .01   1195.00
  100000.       0.  100000.       0.        0.   47945.        0.     1940.      223.    1211.00
      .27      .00     2.09      .00      .025     .025      .025      .000   1164.00   8940.00
  .000012     103.     107.      79.         2        0         0       .00   1406.65  10346.65


FLOW DISTRIBUTION FOR SECNO=     29.70          CWSEL=   1217.28

STA=    8940.   10347.
  PER Q=    100.0
   AREA=  47945.0
    VEL=      2.1
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED     11.29 FEET

    29.72    53.28  1217.28      .00      .00  1217.36      .07      .00      .00  1206.00
  100000.       0.  100000.       0.       0.   45987.       0.    2056.     227.   1222.00
      .28      .00     2.17      .00     .025     .025     .025     .000  1164.00  8940.00
  .000019     103.     107.      79.        0        0        0      .00  1870.10 10810.10


FLOW DISTRIBUTION FOR SECNO=     29.72          CWSEL=   1217.28

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  45986.7
    VEL=      2.2

*SECNO 29.736
3280 CROSS SECTION     29.74 EXTENDED       .26 FEET

    29.74    53.26  1217.26      .00      .00  1217.39      .13      .00      .03  1217.00
  100000.       0.  100000.       0.       0.   35092.       0.    2155.     232.   1233.00
      .29      .00     2.85      .00     .025     .025     .025     .000  1164.00  8940.00
  .000062     103.     107.      79.        2        0        0      .00  2302.21 11242.21


FLOW DISTRIBUTION FOR SECNO=     29.74          CWSEL=   1217.26

STA=    8940.   11302.
  PER Q=    100.0
   AREA=  35091.5
    VEL=      2.8

*SECNO 29.753

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    29.75    14.87  1219.07  1219.07      .00  1221.45     2.38      .02     1.13  1228.00
  100000.       0.  100000.       0.       0.    8070.       0.    2208.     237.   1244.00
      .29      .00    12.39      .00     .025     .025     .025     .000  1204.20  9475.60
  .005896     103.     107.      79.       20       14        0      .00  1802.03 11527.98
```

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1219.07

STA=    9476.   11780.
  PER Q=    100.0
   AREA=   8069.6
    VEL=     12.4

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

    29.81    17.48  1221.78      .00      .00  1222.38      .60      .39      .54  1228.30
   100000.       0.  100000.       0.       0.   16096.       0.    2290.     249.   1234.25
      .31      .00     6.21      .00     .025     .025     .025     .000  1204.30  9805.27
  .000578     280.     293.     216.        3        0        0      .00  1774.62 11579.89


FLOW DISTRIBUTION FOR SECNO=     29.81          CWSEL=   1221.78

STA=    9805.   15859.
  PER Q=    100.0
   AREA=  16096.0
    VEL=      6.2

*SECNO 29.867
    29.87    17.55  1222.05      .00      .00  1222.73      .68      .31      .04  1227.50
   100000.       0.  100000.       0.       0.   15084.       0.    2394.     270.   1233.50
      .32      .00     6.63      .00     .025     .025     .025     .000  1204.50  9647.75
  .002488     280.     293.     216.        3        0        0      .00  4511.09 14158.84


FLOW DISTRIBUTION FOR SECNO=     29.87          CWSEL=   1222.05

STA=    9648.   14329.
  PER Q=    100.0
   AREA=  15084.5
    VEL=      6.6

*SECNO 29.923
    29.92    17.86  1222.64      .00      .00  1223.38      .74      .62      .03  1226.80
   100000.       0.  100000.       0.       0.   14441.       0.    2494.     296.   1232.75
      .33      .00     6.92      .00     .025     .025     .025     .000  1204.78  9483.28
  .001830     280.     293.     216.        2        0        0      .00  3211.17 12694.45
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


FLOW DISTRIBUTION FOR SECNO=     29.92          CWSEL=   1222.64

STA=    9483.   12800.
  PER Q=    100.0
   AREA=  14440.6
    VEL=      6.9

*SECNO 29.981
    29.98    18.07  1223.07      .00      .00  1223.90      .82      .47      .04  1226.80
   100000.      0.  100000.      0.       0.   13723.      0.     2588.     315.   1232.75
      .34      .00     7.29      .00     .025     .025     .025     .000  1205.00  9464.26
  .001428     280.     293.     216.       2        0        0      .00  2346.87 11811.13


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1223.07

STA=    9464.   11911.
  PER Q=    100.0
   AREA=  13722.6
    VEL=      7.3

*SECNO 30.194
    30.19    17.71  1224.71      .00      .00  1225.40      .70     1.47      .04  1228.00
   100000.      0.  100000.      0.       0.   14930.      0.     2958.     378.   1234.00
      .39      .00     6.70      .00     .025     .025     .025     .000  1207.00  9446.19
  .001202    1125.    1125.    1175.       2        0        0      .00  2546.59 11992.78


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1224.71

STA=    9446.   12089.
  PER Q=    100.0
   AREA=  14929.9
    VEL=      6.7

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    17.15  1226.15      .00      .00  1227.38     1.23     1.71      .27  1239.00
   100000.      0.  100000.      0.       0.   11237.      0.     3371.     439.   1232.00
      .43      .00     8.90      .00     .025     .025     .025     .000  1209.00  9381.18
  .001281    1285.    1375.    1035.       2        0        0      .00  1312.50 10693.68
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1226.15

STA= 9381. 10800.
PER Q= 100.0
AREA= 11236.6
VEL= 8.9

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  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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	7.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	6.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 6

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    12.34  1210.94      .00  1217.31  1212.44     1.50      .00      .00  1220.00
  120000.       0.  120000.       0.       0.   12201.       0.       0.       0.   1220.00
      .00      .00     9.84      .00     .025     .025     .025     .000  1198.60  8825.10
  .001998       0.       0.       0.        0        0        5      .00  1711.69 10536.79


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1210.94

STA=    8825.   10940.
  PER Q=    100.0
   AREA=  12200.9
    VEL=      9.8

*SECNO 29.017
    29.02    14.43  1213.23      .00      .00  1214.45     1.22     1.92      .08  1226.00
  120000.       0.  120000.       0.       0.   13540.       0.     301.      44.   1220.00
      .03      .00     8.86      .00     .025     .025     .025     .000  1198.80  8913.82
  .001785    1000.    1020.    1020.        2        0        0      .00  2041.09 10954.91


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1213.23

STA=    8914.   11000.
  PER Q=    100.0
   AREA=  13540.1
    VEL=      8.9

*SECNO 29.221
    29.22    14.27  1215.27      .00      .00  1216.98     1.71     2.28      .25  1224.00
  120000.       0.  120000.       0.       0.   11423.       0.     594.      90.   1224.00
      .06      .00    10.51      .00     .025     .025     .025     .000  1201.00  9217.89
  .002871     950.    1020.     970.        2        0        0      .00  1904.55 11122.44


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1215.27

STA=    9218.   11220.
  PER Q=    100.0
   AREA=  11422.9
    VEL=     10.5
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

29.47	53.85	1217.85	.00	.00	1218.15	.30	.75	.42	1230.00
120000.	0.	120000.	0.	0.	27292.	0.	1171.	157.	1224.00
.14	.00	4.40	.00	.025	.025	.025	.000	1164.00	9127.61
.000239	1030.	1300.	970.	2	0	0	.00	2548.59	11676.20

FLOW DISTRIBUTION FOR SECNO= 29.47 CWSEL= 1217.85

STA= 9128. 11730.
PER Q= 100.0
AREA= 27292.3
VEL= 4.4

*SECNO 29.523

29.52	53.98	1217.98	.00	.00	1218.22	.24	.05	.02	1228.00
120000.	0.	120000.	0.	0.	30757.	0.	1348.	171.	1228.00
.16	.00	3.90	.00	.025	.025	.025	.000	1164.00	8809.29
.000135	230.	265.	255.	2	0	0	.00	2219.27	11028.56

FLOW DISTRIBUTION FOR SECNO= 29.52 CWSEL= 1217.98

STA= 8809. 11084.
PER Q= 100.0
AREA= 30757.4
VEL= 3.9

*SECNO 29.573

29.57	54.08	1218.08	.00	.00	1218.26	.19	.03	.01	1228.00
120000.	0.	120000.	0.	0.	34565.	0.	1547.	185.	1228.00
.18	.00	3.47	.00	.025	.025	.025	.000	1164.00	8810.27
.000106	230.	265.	255.	2	0	0	.00	2477.64	11287.91

FLOW DISTRIBUTION FOR SECNO= 29.57 CWSEL= 1218.08

STA= 8810. 11350.
PER Q= 100.0
AREA= 34565.0
VEL= 3.5

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.623
    29.62    54.15  1218.15      .00      .00  1218.30      .15      .03      .01  1228.00
  120000.       0.  120000.       0.       0.   38354.       0.    1768.     201.   1228.00
      .20      .00     3.13      .00     .025     .025     .025     .000  1164.00  8811.26
  .000085     230.     265.     255.        2        0        0      .00  2735.97 11547.23


FLOW DISTRIBUTION FOR SECNO=     29.62         CWSEL=   1218.15

STA=    8811.   11615.
  PER Q=    100.0
   AREA=  38354.4
    VEL=      3.1

*SECNO 29.676
    29.68    54.20  1218.20      .00      .00  1218.33      .13      .02      .01  1228.00
  120000.       0.  120000.       0.       0.   42131.       0.    2013.     219.   1228.00
      .23      .00     2.85      .00     .025     .025     .025     .000  1164.00  8812.25
  .000070     230.     265.     255.        2        0        0      .00  2994.26 11806.51


FLOW DISTRIBUTION FOR SECNO=     29.68         CWSEL=   1218.20

STA=    8812.   11880.
  PER Q=    100.0
   AREA=  42130.6
    VEL=      2.8

*SECNO 29.696
3280 CROSS SECTION     29.70 EXTENDED     23.25 FEET

    29.70    54.25  1218.25      .00      .00  1218.34      .09      .00      .01  1195.00
  120000.       0.  120000.       0.       0.   49302.       0.    2126.     224.   1211.00
      .24      .00     2.43      .00     .025     .025     .025     .000  1164.00  8940.00
  .000015     103.     107.      79.        2        0        0      .00  1406.65 10346.65


FLOW DISTRIBUTION FOR SECNO=     29.70         CWSEL=   1218.25

STA=    8940.   10347.
  PER Q=    100.0
   AREA=  49302.0
    VEL=      2.4
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 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED     12.25 FEET

   29.72    54.25  1218.25      .00      .00  1218.35      .10      .00      .00  1206.00
  120000.       0.  120000.       0.       0.   47793.       0.    2245.     228.   1222.00
     .25      .00     2.51      .00     .025     .025     .025     .000  1164.00  8940.00
 .000024     103.     107.      79.        0        0        0      .00  1873.03 10813.03


FLOW DISTRIBUTION FOR SECNO=     29.72          CWSEL=   1218.25

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  47793.0
    VEL=      2.5

*SECNO 29.736
3280 CROSS SECTION     29.74 EXTENDED      1.22 FEET

   29.74    54.22  1218.22      .00      .00  1218.38      .16      .00      .03  1217.00
  120000.       0.  120000.       0.       0.   37305.       0.    2349.     233.   1233.00
     .26      .00     3.22      .00     .025     .025     .025     .000  1164.00  8940.00
 .000073     103.     107.      79.        2        0        0      .00  2305.87 11245.87


FLOW DISTRIBUTION FOR SECNO=     29.74          CWSEL=   1218.22

STA=    8940.   11302.
  PER Q=    100.0
   AREA=  37304.7
    VEL=      3.2

*SECNO 29.753

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   29.75    15.95  1220.15  1220.15      .00  1222.26     2.11      .03      .97  1228.00
  120000.       0.  120000.       0.       0.   10306.       0.    2408.     239.   1244.00
     .27      .00    11.64      .00     .025     .025     .025     .000  1204.20  8989.06
 .006381     103.     107.      79.       20       17        0      .00  2681.63 11670.69
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1220.15

STA=    8989.   11780.
  PER Q=    100.0
   AREA=  10305.7
    VEL=     11.6

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

    29.81    18.78  1223.08      .00      .00  1223.55      .47      .80      .49  1228.30
  120000.       0.  120000.       0.       0.   21746.       0.    2516.     268.   1234.25
      .28      .00     5.52      .00     .025     .025     .025     .000  1204.30  9731.12
  .001517     280.     293.     216.       10        0        0      .00  5909.99 15641.11


FLOW DISTRIBUTION FOR SECNO=     29.81          CWSEL=   1223.08

STA=    9731.   15859.
  PER Q=    100.0
   AREA=  21746.0
    VEL=      5.5

*SECNO 29.867
    29.87    18.95  1223.45      .00      .00  1223.94      .48      .38      .01  1227.50
  120000.       0.  120000.       0.       0.   21489.       0.    2661.     304.   1233.50
      .30      .00     5.58      .00     .025     .025     .025     .000  1204.50  9558.24
  .001138     280.     293.     216.        2        0        0      .00  4621.49 14179.73


FLOW DISTRIBUTION FOR SECNO=     29.87          CWSEL=   1223.45

STA=    9558.   14329.
  PER Q=    100.0
   AREA=  21488.6
    VEL=      5.6

*SECNO 29.923
    29.92    18.93  1223.71      .00      .00  1224.40      .70      .36      .11  1226.80
  120000.       0.  120000.       0.       0.   17896.       0.    2793.     330.   1232.75
      .31      .00     6.71      .00     .025     .025     .025     .000  1204.78  9436.30
  .001320     280.     293.     216.        2        0        0      .00  3269.25 12705.55
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 29.92 CWSEL= 1223.71

STA= 9436. 12800.
PER Q= 100.0
AREA= 17896.4
VEL= 6.7

*SECNO 29.981

29.98	19.00	1224.00	.00	.00	1224.88	.88	.38	.09	1226.80
120000.	0.	120000.	0.	0.	15916.	0.	2907.	349.	1232.75
.32	.00	7.54	.00	.025	.025	.025	.000	1205.00	9423.53
.001290	280.	293.	216.	2	0	0	.00	2397.18	11820.71

FLOW DISTRIBUTION FOR SECNO= 29.98 CWSEL= 1224.00

STA= 9424. 11911.
PER Q= 100.0
AREA= 15915.9
VEL= 7.5

*SECNO 30.194

30.19	18.51	1225.51	.00	.00	1226.28	.78	1.37	.03	1228.00
120000.	0.	120000.	0.	0.	16979.	0.	3332.	414.	1234.00
.36	.00	7.07	.00	.025	.025	.025	.000	1207.00	9410.77
.001153	1125.	1125.	1175.	2	0	0	.00	2590.28	12001.05

FLOW DISTRIBUTION FOR SECNO= 30.19 CWSEL= 1225.51

STA= 9411. 12089.
PER Q= 100.0
AREA= 16978.6
VEL= 7.1

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

30.46	17.90	1226.90	.00	.00	1228.40	1.49	1.76	.36	1239.00
120000.	0.	120000.	0.	0.	12238.	0.	3793.	476.	1232.00
.40	.00	9.81	.00	.025	.025	.025	.000	1209.00	9376.40
.001422	1285.	1375.	1035.	2	0	0	.00	1336.18	10712.58

									LEFT/RIGHT
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1226.90

STA= 9376. 10800.
PER Q= 100.0
AREA= 12237.9
VEL= 9.8

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**************************************************
  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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	8.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	7.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

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   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TAU      LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*PROF 7

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    13.04  1211.64      .00  1217.31  1213.34     1.70      .00      .00  1220.00
  140000.       0.  140000.       0.       0.   13399.       0.       0.       0.   1220.00
      .00      .00    10.45      .00     .025     .025     .025     .000  1198.60  8823.93
  .002006       0.       0.       0.        0        0        5      .00  1721.58 10545.51


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1211.64

STA=    8824.   10940.
  PER Q=    100.0
   AREA=  13399.2
    VEL=     10.4

*SECNO 29.017
    29.02    15.19  1213.99      .00      .00  1215.33     1.34     1.88      .11  1226.00
  140000.       0.  140000.       0.       0.   15085.       0.     333.      44.   1220.00
      .03      .00     9.28      .00     .025     .025     .025     .000  1198.80  8910.04
  .001705    1000.    1020.    1020.        2        0        0      .00  2049.90 10959.94


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1213.99

STA=    8910.   11000.
  PER Q=    100.0
   AREA=  15084.7
    VEL=      9.3

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

    29.22    14.91  1215.91      .00      .00  1217.81     1.90     2.20      .28  1224.00
  140000.       0.  140000.       0.       0.   12662.       0.     658.      91.   1224.00
      .06      .00    11.06      .00     .025     .025     .025     .000  1201.00  9216.81
  .002822     950.    1020.     970.        2        0        0      .00  1929.85 11146.67


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1215.91

STA=    9217.   11220.
  PER Q=    100.0
   AREA=  12661.7
    VEL=     11.1
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    FC       UV       HI       QLOSS    BANK ELEV
```

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	THA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

29.47	54.70	1218.70	.00	.00	1219.05	.35	.78	.46	1230.00
140000.	0.	140000.	0.	0.	29465.	0.	1287.	158.	1224.00
.13	.00	4.75	.00	.025	.025	.025	.000	1164.00	9125.68
.000253	1030.	1300.	970.	2	0	0	.00	2557.97	11683.64

FLOW DISTRIBUTION FOR SECNO= 29.47 CWSEL= 1218.70

STA= 9126. 11730.
PER Q= 100.0
AREA= 29465.3
VEL= 4.8

*SECNO 29.523

29.52	54.84	1218.84	.00	.00	1219.12	.29	.05	.02	1228.00
140000.	0.	140000.	0.	0.	32664.	0.	1476.	172.	1228.00
.15	.00	4.29	.00	.025	.025	.025	.000	1164.00	8808.49
.000151	230.	265.	255.	2	0	0	.00	2224.84	11033.33

FLOW DISTRIBUTION FOR SECNO= 29.52 CWSEL= 1218.84

STA= 8808. 11084.
PER Q= 100.0
AREA= 32664.0
VEL= 4.3

*SECNO 29.573

29.57	54.95	1218.95	.00	.00	1219.18	.23	.04	.02	1228.00
140000.	0.	140000.	0.	0.	36737.	0.	1687.	187.	1228.00
.17	.00	3.81	.00	.025	.025	.025	.000	1164.00	8809.36
.000118	230.	265.	255.	2	0	0	.00	2483.99	11293.35

FLOW DISTRIBUTION FOR SECNO= 29.57 CWSEL= 1218.95

STA= 8809. 11350.
PER Q= 100.0
AREA= 36737.2
VEL= 3.8

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 29.623

29.62	55.04	1219.04	.00	.00	1219.22	.18	.03	.01	1228.00
140000.	0.	140000.	0.	0.	40787.	0.	1923.	202.	1228.00
.19	.00	3.43	.00	.025	.025	.025	.000	1164.00	8810.24
.000094	230.	265.	255.	2	0	0	.00	2743.07	11553.31

FLOW DISTRIBUTION FOR SECNO= 29.62 CWSEL= 1219.04

STA= 8810. 11615.
PER Q= 100.0
AREA= 40787.0
VEL= 3.4

*SECNO 29.676

29.68	55.10	1219.10	.00	.00	1219.25	.15	.02	.01	1228.00
140000.	0.	140000.	0.	0.	44821.	0.	2183.	220.	1228.00
.21	.00	3.12	.00	.025	.025	.025	.000	1164.00	8811.13
.000078	230.	265.	255.	2	0	0	.00	3002.11	11813.24

FLOW DISTRIBUTION FOR SECNO= 29.68 CWSEL= 1219.10

STA= 8811. 11880.
PER Q= 100.0
AREA= 44821.0
VEL= 3.1

*SECNO 29.696
3280 CROSS SECTION 29.70 EXTENDED 24.14 FEET

29.70	55.14	1219.14	.00	.00	1219.26	.12	.00	.01	1195.00
140000.	0.	140000.	0.	0.	50562.	0.	2300.	225.	1211.00
.22	.00	2.77	.00	.025	.025	.025	.000	1164.00	8940.00
.000019	103.	107.	79.	2	0	0	.00	1406.65	10346.65

FLOW DISTRIBUTION FOR SECNO= 29.70 CWSEL= 1219.14

STA= 8940. 10347.
PER Q= 100.0
AREA= 50562.2
VEL= 2.8

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HI	OLOSS	BANK ELEV

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WIN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED     13.15 FEET

   29.72    55.14  1219.14      .00      .00  1219.27      .12      .00      .00  1206.00
  140000.      0.  140000.       0.       0.   49474.       0.    2423.     229.   1222.00
     .23      .00     2.83      .00     .025     .025     .025     .000  1164.00  8940.00
 .000030     103.     107.      79.        0        0        0      .00  1875.76 10815.76


FLOW DISTRIBUTION FOR SECNO=     29.72          CWSEL=   1219.14

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  49473.8
    VEL=      2.8

*SECNO 29.736
3280 CROSS SECTION     29.74 EXTENDED      2.11 FEET

   29.74    55.11  1219.11      .00      .00  1219.31      .20      .00      .04  1217.00
  140000.      0.  140000.       0.       0.   39366.       0.    2532.     235.   1233.00
     .24      .00     3.56      .00     .025     .025     .025     .000  1164.00  8940.00
 .000083     103.     107.      79.        2        0        0      .00  2309.28 11249.28


FLOW DISTRIBUTION FOR SECNO=     29.74          CWSEL=   1219.11

STA=    8940.   11302.
  PER Q=    100.0
   AREA=  39365.5
    VEL=      3.6

*SECNO 29.753

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   29.75    16.48  1220.68  1220.68      .00  1222.89     2.22      .03     1.01  1228.00
  140000.      0.  140000.       0.       0.   11714.       0.    2595.     241.   1244.00
     .25      .00    11.95      .00     .025     .025     .025     .000  1204.20  8985.78
 .005682     103.     107.      79.       20       18        0      .00  2687.32 11673.10
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 29.75 CWSEL= 1220.68

STA= 8986. 11780.
PER Q= 100.0
AREA= 11714.4
VEL= 12.0

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

29.81	19.33	1223.63	.00	.00	1224.11	.48	.70	.52	1228.30
140000.	0.	140000.	0.	0.	25052.	0.	2719.	270.	1234.25
.26	.00	5.59	.00	.025	.025	.025	.000	1204.30	9685.16
.001305	280.	293.	216.	6	0	0	.00	5966.81	15651.97

FLOW DISTRIBUTION FOR SECNO= 29.81 CWSEL= 1223.63

STA= 9685. 15859.
PER Q= 100.0
AREA= 25052.3
VEL= 5.6

*SECNO 29.867

29.87	19.45	1223.95	.00	.00	1224.49	.54	.35	.03	1227.50
140000.	0.	140000.	0.	0.	23812.	0.	2883.	306.	1233.50
.27	.00	5.88	.00	.025	.025	.025	.000	1204.50	9526.29
.001112	280.	293.	216.	3	0	0	.00	4660.89	14187.18

FLOW DISTRIBUTION FOR SECNO= 29.87 CWSEL= 1223.95

STA= 9526. 14329.
PER Q= 100.0
AREA= 23812.0
VEL= 5.9

*SECNO 29.923

29.92	19.40	1224.18	.00	.00	1224.99	.80	.36	.13	1226.80
140000.	0.	140000.	0.	0.	19458.	0.	3029.	332.	1232.75
.29	.00	7.19	.00	.025	.025	.025	.000	1204.78	9415.35
.001374	280.	293.	216.	2	0	0	.00	3295.16	12710.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

```
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WIN      ELMIN    SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


FLOW DISTRIBUTION FOR SECNO=     29.92          CWSEL=   1224.18

STA=    9415.   12800.
  PER Q=    100.0
   AREA=  19458.1
    VEL=      7.2

*SECNO 29.981
    29.98    19.47  1224.47      .00      .00  1225.51     1.05      .41      .12  1226.80
  140000.       0.  140000.       0.       0.   17057.       0.    3151.     352.   1232.75
      .30      .00     8.21      .00     .025     .025     .025     .000  1205.00  9402.69
  .001414     280.     293.     216.        2        0        0      .00  2422.93 11825.61


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1224.47

STA=    9403.   11911.
  PER Q=    100.0
   AREA=  17056.5
    VEL=      8.2

*SECNO 30.194
    30.19    19.13  1226.13      .00      .00  1227.01      .88     1.45      .05  1228.00
  140000.       0.  140000.       0.       0.   18618.       0.    3612.     417.   1234.00
      .34      .00     7.52      .00     .025     .025     .025     .000  1207.00  9382.85
  .001175    1125.    1125.    1175.        2        0        0      .00  2624.71 12007.56


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1226.13

STA=    9383.   12089.
  PER Q=    100.0
   AREA=  18617.8
    VEL=      7.5

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    18.55  1227.55      .00      .00  1229.32     1.77     1.86      .45  1239.00
  140000.       0.  140000.       0.       0.   13103.       0.    4113.     480.   1232.00
      .37      .00    10.68      .00     .025     .025     .025     .000  1209.00  9372.34
  .001572    1285.    1375.    1035.        2        0        0      .00  1356.32 10728.66
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        OLOB     OCH      OROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
```

TIME	VLOB	VCH	VROB	XLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1227.55

STA= 9372. 10800.
PER Q= 100.0
AREA= 13103.5
VEL= 10.7

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**************************************************
  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
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	9.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	8.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

TITLE	VLOB	VCH	VROB	ARL	ARCH	ARR	WTR	SETTR	SETTL
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 8

CCHV= .300 CEHV= .500

*SECNO 28.831

28.83	13.77	1212.37	.00	1217.31	1214.22	1.85	.00	.00	1220.00
160000.	0.	160000.	0.	0.	14658.	0.	0.	0.	1220.00
.00	.00	10.92	.00	.025	.025	.025	.000	1198.60	8822.72
.001998	0.	0.	0.	0	0	5	.00	1758.48	10581.20

FLOW DISTRIBUTION FOR SECNO= 28.83 CWSEL= 1212.37

STA= 8823. 10940.
PER Q= 100.0
AREA= 14658.0
VEL= 10.9

*SECNO 29.017

29.02	15.93	1214.73	.00	.00	1216.17	1.44	1.83	.12	1226.00
160000.	0.	160000.	0.	0.	16612.	0.	366.	45.	1220.00
.03	.00	9.63	.00	.025	.025	.025	.000	1198.80	8906.33
.001624	1000.	1020.	1020.	2	0	0	.00	2058.57	10964.90

FLOW DISTRIBUTION FOR SECNO= 29.02 CWSEL= 1214.73

STA= 8906. 11000.
PER Q= 100.0
AREA= 16611.6
VEL= 9.6

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

29.22	15.53	1216.53	.00	.00	1218.60	2.07	2.12	.31	1224.00
160000.	0.	160000.	0.	0.	13867.	0.	723.	91.	1224.00
.05	.00	11.54	.00	.025	.025	.025	.000	1201.00	9215.78
.002739	950.	1020.	970.	2	0	0	.00	1938.90	11154.67

FLOW DISTRIBUTION FOR SECNO= 29.22 CWSEL= 1216.53

STA= 9216. 11220.
PER Q= 100.0
AREA= 13867.1
VEL= 11.5

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

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 TITLE    VLOB     VCH      TRSE      ...      ...      ...      ...      ...      ...
 SLOPE    XLOBL    XLCH     XLOBR     ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

   29.47    55.50  1219.50      .00      .00  1219.90      .40      .80      .50  1230.00
  160000.       0.  160000.       0.       0.   31515.       0.    1400.     159.   1224.00
     .13      .00     5.08      .00     .025     .025     .025     .000  1164.00  9123.86
 .000266    1030.    1300.     970.        2        0        0      .00  2566.79 11690.65


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1219.50

STA=    9124.   11730.
  PER Q=    100.0
   AREA=  31515.3
    VEL=      5.1

*SECNO 29.523
   29.52    55.64  1219.64      .00      .00  1219.98      .33      .05      .02  1228.00
  160000.       0.  160000.       0.       0.   34458.       0.    1601.     173.   1228.00
     .14      .00     4.64      .00     .025     .025     .025     .000  1164.00  8807.75
 .000166     230.     265.     255.        2        0        0      .00  2230.07 11037.81


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1219.64

STA=    8808.   11084.
  PER Q=    100.0
   AREA=  34457.5
    VEL=      4.6

*SECNO 29.573
   29.57    55.77  1219.77      .00      .00  1220.04      .26      .04      .02  1228.00
  160000.       0.  160000.       0.       0.   38782.       0.    1824.     188.   1228.00
     .16      .00     4.13      .00     .025     .025     .025     .000  1164.00  8808.51
 .000129     230.     265.     255.        2        0        0      .00  2489.94 11298.45


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1219.77

STA=    8809.   11350.
  PER Q=    100.0
   AREA=  38782.4
    VEL=      4.1
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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
```

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 29.623

29.62	55.87	1219.87	.00	.00	1220.08	.21	.03	.02	1228.00
160000.	0.	160000.	0.	0.	43079.	0.	2073.	204.	1228.00
.18	.00	3.71	.00	.025	.025	.025	.000	1164.00	8809.29
.000103	230.	265.	255.	2	0	0	.00	2749.74	11559.03

FLOW DISTRIBUTION FOR SECNO= 29.62 CWSEL= 1219.87

STA= 8809. 11615.
PER Q= 100.0
AREA= 43078.8
VEL= 3.7

*SECNO 29.676

29.68	55.94	1219.94	.00	.00	1220.12	.18	.02	.01	1228.00
160000.	0.	160000.	0.	0.	47357.	0.	2348.	221.	1228.00
.20	.00	3.38	.00	.025	.025	.025	.000	1164.00	8810.07
.000085	230.	265.	255.	2	0	0	.00	3009.50	11819.57

FLOW DISTRIBUTION FOR SECNO= 29.68 CWSEL= 1219.94

STA= 8810. 11880.
PER Q= 100.0
AREA= 47357.5
VEL= 3.4

*SECNO 29.696
3280 CROSS SECTION 29.70 EXTENDED 24.98 FEET

29.70	55.98	1219.98	.00	.00	1220.13	.15	.00	.01	1195.00
160000.	0.	160000.	0.	0.	51743.	0.	2469.	227.	1211.00
.21	.00	3.09	.00	.025	.025	.025	.000	1164.00	8940.00
.000023	103.	107.	79.	2	0	0	.00	1406.65	10346.65

FLOW DISTRIBUTION FOR SECNO= 29.70 CWSEL= 1219.98

STA= 8940. 10347.
PER Q= 100.0
AREA= 51743.4
VEL= 3.1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 29.716
3280 CROSS SECTION 29.72 EXTENDED 13.99 FEET

29.72	55.99	1219.99	.00	.00	1220.14	.15	.00	.00	1206.00
160000.	0.	160000.	0.	0.	51051.	0.	2596.	231.	1222.00
.22	.00	3.13	.00	.025	.025	.025	.000	1164.00	8940.00
.000035	103.	107.	79.	0	0	0	.00	1878.32	10818.32

FLOW DISTRIBUTION FOR SECNO= 29.72 CWSEL= 1219.99

STA= 8940. 10824.
PER Q= 100.0
AREA= 51050.9
VEL= 3.1

*SECNO 29.736
3280 CROSS SECTION 29.74 EXTENDED 2.95 FEET

29.74	55.95	1219.95	.00	.00	1220.18	.23	.01	.04	1217.00
160000.	0.	160000.	0.	0.	41301.	0.	2709.	236.	1233.00
.23	.00	3.87	.00	.025	.025	.025	.000	1164.00	8940.00
.000092	103.	107.	79.	2	0	0	.00	2312.47	11252.47

FLOW DISTRIBUTION FOR SECNO= 29.74 CWSEL= 1219.95

STA= 8940. 11302.
PER Q= 100.0
AREA= 41300.6
VEL= 3.9

*SECNO 29.753

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

29.75	16.89	1221.09	1221.09	.00	1223.51	2.42	.03	1.09	1228.00
160000.	0.	160000.	0.	0.	12827.	0.	2776.	242.	1244.00
.23	.00	12.47	.00	.025	.025	.025	.000	1204.20	8983.19
.005497	103.	107.	79.	20	18	0	.00	2691.80	11674.99

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
0	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID ENDST

FLOW DISTRIBUTION FOR SECNO= 29.75 CWSEL= 1221.09

STA= 8983. 11780.
PER Q= 100.0
AREA= 12827.1
VEL= 12.5

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

29.81	19.92	1224.22	.00	.00	1224.71	.49	.62	.58	1228.30
160000.	0.	160000.	0.	0.	28552.	0.	2915.	271.	1234.25
.24	.00	5.60	.00	.025	.025	.025	.000	1204.30	9636.98
.001117	280.	293.	216.	3	0	0	.00	6026.37	15663.35

FLOW DISTRIBUTION FOR SECNO= 29.81 CWSEL= 1224.22

STA= 9637. 15859.
PER Q= 100.0
AREA= 28552.0
VEL= 5.6

*SECNO 29.867

29.87	19.99	1224.49	.00	.00	1225.07	.57	.32	.04	1227.50
160000.	0.	160000.	0.	0.	26332.	0.	3099.	307.	1233.50
.26	.00	6.08	.00	.025	.025	.025	.000	1204.50	9491.93
.001051	280.	293.	216.	3	0	0	.00	4703.27	14195.20

FLOW DISTRIBUTION FOR SECNO= 29.87 CWSEL= 1224.49

STA= 9492. 14329.
PER Q= 100.0
AREA= 26332.5
VEL= 6.1

*SECNO 29.923

29.92	19.91	1224.69	.00	.00	1225.58	.89	.35	.16	1226.80
160000.	0.	160000.	0.	0.	21127.	0.	3259.	334.	1232.75
.27	.00	7.57	.00	.025	.025	.025	.000	1204.78	9393.14
.001379	280.	293.	216.	2	0	0	.00	3322.61	12715.75

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

```
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


FLOW DISTRIBUTION FOR SECNO=     29.92          CWSEL=   1224.69

STA=    9393.   12800.
  PER Q=    100.0
   AREA=  21126.7
    VEL=      7.6

*SECNO 29.981
    29.98    19.95  1224.95      .00      .00  1226.15     1.19      .42      .15  1226.80
  160000.       0.  160000.       0.       0.   18239.       0.    3391.     354.   1232.75
      .28      .00     8.77      .00     .025     .025     .025     .000  1205.00  9381.30
  .001499     280.     293.     216.        2        0        0      .00  2449.34 11830.64


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1224.95

STA=    9381.   11911.
  PER Q=    100.0
   AREA=  18239.2
    VEL=      8.8

*SECNO 30.194
    30.19    19.74  1226.74      .00      .00  1227.71      .97     1.50      .07  1228.00
  160000.       0.  160000.       0.       0.   20212.       0.    3888.     420.   1234.00
      .32      .00     7.92      .00     .025     .025     .025     .000  1207.00  9356.04
  .001187    1125.    1125.    1175.        2        0        0      .00  2657.79 12013.82


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1226.74

STA=    9356.   12089.
  PER Q=    100.0
   AREA=  20212.5
    VEL=      7.9

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    19.14  1228.14      .00      .00  1230.19     2.05     1.94      .54  1239.00
  160000.       0.  160000.       0.       0.   13915.       0.    4426.     483.   1232.00
      .35      .00    11.50      .00     .025     .025     .025     .000  1209.00  9368.59
  .001709    1285.    1375.    1035.        2        0        0      .00  1373.52 10742.10
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
```

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1228.14

STA= 9369. 10800.
PER Q= 100.0
AREA= 13914.5
VEL= 11.5

```
*************************************************
  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
*************************************************
```

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	10.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	9.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

```
*PROF 9

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    14.54  1213.14      .00  1217.31  1215.09     1.96      .00      .00  1220.00
  180000.       0.  180000.       0.       0.   16034.       0.       0.       0.   1220.00
      .00      .00    11.23      .00     .025     .025     .025     .000  1198.60  8821.44
  .001970       0.       0.       0.        0        0        4      .00  1825.03 10646.48


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1213.14

STA=    8821.   10940.
  PER Q=    100.0
   AREA=  16033.9
    VEL=     11.2

*SECNO 29.017
    29.02    16.66  1215.46      .00      .00  1216.99     1.53     1.78      .13  1226.00
  180000.       0.  180000.       0.       0.   18116.       0.     400.      46.   1220.00
      .03      .00     9.94      .00     .025     .025     .025     .000  1198.80  8902.68
  .001548    1000.    1020.    1020.        2        0        0      .00  2067.08 10969.76


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1215.46

STA=    8903.   11000.
  PER Q=    100.0
   AREA=  18115.7
    VEL=      9.9

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

    29.22    16.15  1217.15      .00      .00  1219.37     2.22     2.03      .34  1224.00
  180000.       0.  180000.       0.       0.   15057.       0.     788.      93.   1224.00
      .05      .00    11.95      .00     .025     .025     .025     .000  1201.00  9214.76
  .002647     950.    1020.     970.        2        0        0      .00  1945.28 11160.03


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1217.15

STA=    9215.   11220.
  PER Q=    100.0
   AREA=  15057.0
    VEL=     12.0
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
```

```
*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

   29.47    56.27  1220.27      .00      .00  1220.72      .45      .82      .53  1230.00
 180000.       0.  180000.       0.       0.   33477.       0.    1512.     160.   1224.00
     .12      .00     5.38      .00     .025     .025     .025     .000  1164.00  9122.12
 .000276    1030.    1300.     970.        2        0        0      .00  2575.20 11697.32


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1220.27

STA=    9122.   11730.
  PER Q=    100.0
   AREA=  33477.5
    VEL=      5.4

*SECNO 29.523
   29.52    56.41  1220.41      .00      .00  1220.79      .38      .06      .02  1228.00
 180000.       0.  180000.       0.       0.   36167.       0.    1724.     175.   1228.00
     .13      .00     4.98      .00     .025     .025     .025     .000  1164.00  8807.04
 .000179     230.     265.     255.        2        0        0      .00  2235.04 11042.07


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1220.41

STA=    8807.   11084.
  PER Q=    100.0
   AREA=  36167.1
    VEL=      5.0

*SECNO 29.573
   29.57    56.56  1220.56      .00      .00  1220.86      .30      .04      .02  1228.00
 180000.       0.  180000.       0.       0.   40735.       0.    1958.     189.   1228.00
     .15      .00     4.42      .00     .025     .025     .025     .000  1164.00  8807.70
 .000139     230.     265.     255.        2        0        0      .00  2495.61 11303.31


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1220.56

STA=    8808.   11350.
  PER Q=    100.0
   AREA=  40734.8
    VEL=      4.4
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  O        OLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
```

```
   SLOPE    XLOBL    XLCH     XLOBR    TRIAL    TBC      TCOHT    CORAR    TOPWID   ERROT


*SECNO 29.623
    29.62    56.67  1220.67      .00      .00  1220.91      .25      .03      .02  1228.00
  180000.       0.  180000.       0.       0.   45269.       0.    2220.     205.   1228.00
      .17      .00     3.98      .00     .025     .025     .025     .000  1164.00  8808.38
  .000111     230.     265.     255.        2        0        0      .00  2756.11 11564.49


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1220.67

STA=    8808.   11615.
  PER Q=    100.0
   AREA=  45268.8
    VEL=      4.0

*SECNO 29.676
    29.68    56.75  1220.75      .00      .00  1220.95      .20      .03      .01  1228.00
  180000.       0.  180000.       0.       0.   49781.       0.    2509.     223.   1228.00
      .19      .00     3.62      .00     .025     .025     .025     .000  1164.00  8809.07
  .000091     230.     265.     255.        2        0        0      .00  3016.54 11825.60


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1220.75

STA=    8809.   11880.
  PER Q=    100.0
   AREA=  49781.3
    VEL=      3.6

*SECNO 29.696
3280 CROSS SECTION     29.70 EXTENDED     25.78 FEET

    29.70    56.78  1220.78      .00      .00  1220.96      .18      .00      .01  1195.00
  180000.       0.  180000.       0.       0.   52865.       0.    2635.     228.   1211.00
      .20      .00     3.40      .00     .025     .025     .025     .000  1164.00  8940.00
  .000027     103.     107.      79.        2        0        0      .00  1406.65 10346.65


FLOW DISTRIBUTION FOR SECNO=     29.70          CWSEL=   1220.78

STA=    8940.   10347.
  PER Q=    100.0
   AREA=  52865.0
    VEL=      3.4
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED     14.79 FEET

   29.72    56.78  1220.78      .00      .00  1220.97      .18      .00      .00  1206.00
  180000.      0.  180000.       0.       0.   52550.       0.    2764.     232.   1222.00
     .21      .00     3.43      .00     .025     .025     .025     .000  1164.00  8940.00
 .000040     103.     107.      79.        0        0        0      .00  1880.74 10820.74


FLOW DISTRIBUTION FOR SECNO=     29.72          CWSEL=   1220.78

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  52550.5
    VEL=      3.4

*SECNO 29.736
3280 CROSS SECTION     29.74 EXTENDED      3.75 FEET

   29.74    56.75  1220.75      .00      .00  1221.02      .27      .01      .04  1217.00
  180000.      0.  180000.       0.       0.   43142.       0.    2882.     237.   1233.00
     .21      .00     4.17      .00     .025     .025     .025     .000  1164.00  8940.00
 .000101     103.     107.      79.        2        0        0      .00  2315.50 11255.50


FLOW DISTRIBUTION FOR SECNO=     29.74          CWSEL=   1220.75

STA=    8940.   11302.
  PER Q=    100.0
   AREA=  43142.1
    VEL=      4.2

*SECNO 29.753

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   29.75    17.28  1221.48  1221.48      .00  1224.09     2.61      .03     1.17  1228.00
  180000.      0.  180000.       0.       0.   13888.       0.    2952.     243.   1244.00
     .22      .00    12.96      .00     .025     .025     .025     .000  1204.20  8980.73
 .005349     103.     107.      79.       20       18        0      .00  2696.07 11676.80
```


SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

```
FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1221.48

STA=    8981.   11780.
  PER Q=    100.0
   AREA=  13888.3
    VEL=     13.0

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

    29.81    20.50  1224.80      .00      .00  1225.29      .49      .56      .64  1228.30
  180000.       0.  180000.       0.       0.   32061.       0.    3107.     273.   1234.25
      .23      .00     5.61      .00     .025     .025     .025     .000  1204.30  9589.16
  .000973     280.     293.     216.        3        0        0      .00  6085.49 15674.65


FLOW DISTRIBUTION FOR SECNO=     29.81          CWSEL=   1224.80

STA=    9589.   15859.
  PER Q=    100.0
   AREA=  32060.5
    VEL=      5.6

*SECNO 29.867
    29.87    20.53  1225.03      .00      .00  1225.63      .60      .29      .06  1227.50
  180000.       0.  180000.       0.       0.   28874.       0.    3312.     309.   1233.50
      .24      .00     6.23      .00     .025     .025     .025     .000  1204.50  9457.59
  .000991     280.     293.     216.        2        0        0      .00  4745.62 14203.21


FLOW DISTRIBUTION FOR SECNO=     29.87          CWSEL=   1225.03

STA=    9458.   14329.
  PER Q=    100.0
   AREA=  28874.1
    VEL=      6.2

*SECNO 29.923
    29.92    20.41  1225.19      .00      .00  1226.15      .97      .34      .18  1226.80
  180000.       0.  180000.       0.       0.   22796.       0.    3485.     337.   1232.75
      .25      .00     7.90      .00     .025     .025     .025     .000  1204.78  9371.10
  .001369     280.     293.     216.        2        0        0      .00  3349.85 12720.96
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     VHL      VHCH     VHR      HTN      ELMIN      SSTA
```

```
SLOPE    XLOBL    XLCH    XLOBR    XTRAVL
```

FLOW DISTRIBUTION FOR SECNO= 29.92 CWSEL= 1225.19

STA= 9371. 12800.
PER Q= 100.0
AREA= 22795.7
VEL= 7.9

```
*SECNO 29.981
    29.98    20.43  1225.43      .00      .00  1226.77     1.34      .43      .18  1226.80
  180000.       0.  180000.       0.       0.   19412.       0.    3627.     356.   1232.75
      .26      .00     9.27      .00     .025     .025     .025     .000  1205.00  9360.33
  .001563     280.     293.     216.        2        0        0      .00  2475.25 11835.58
```

FLOW DISTRIBUTION FOR SECNO= 29.98 CWSEL= 1225.43

STA= 9360. 11911.
PER Q= 100.0
AREA= 19411.8
VEL= 9.3

```
*SECNO 30.194
    30.19    20.31  1227.31      .00      .00  1228.38     1.06     1.53      .08  1228.00
  180000.       0.  180000.       0.       0.   21753.       0.    4159.     423.   1234.00
      .30      .00     8.27      .00     .025     .025     .025     .000  1207.00  9330.44
  .001194    1125.    1125.    1175.        2        0        0      .00  2689.35 12019.79
```

FLOW DISTRIBUTION FOR SECNO= 30.19 CWSEL= 1227.31

STA= 9330. 12089.
PER Q= 100.0
AREA= 21753.2
VEL= 8.3

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

```
    30.46    19.69  1228.69      .00      .00  1231.03     2.34     2.01      .64  1239.00
  180000.       0.  180000.       0.       0.   14672.       0.    4734.     487.   1232.00
      .33      .00    12.27      .00     .025     .025     .025     .000  1209.00  9365.12
  .001834    1285.    1375.    1035.        2        0        0      .00  1385.22 10750.34
```



```
SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
TIME     VLOB     VCH      VROB     VNL      VNCH     VNR      WTH      ELMTH    SSTA
```

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1228.69

STA= 9365. 10800.
PER Q= 100.0
AREA= 14671.9
VEL= 12.3

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
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	11.	0.	0.	.002000	.00	.0	0.	1217.310	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	10.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNR	WTN	ELMIN	SSTA

```
*PROF 10

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    15.19  1213.79      .00  1217.31  1215.88     2.09      .00      .00  1220.00
  200000.       0.  200000.       0.       0.   17246.       0.       0.       0.   1220.00
      .00      .00    11.60      .00     .025     .025     .025     .000  1198.60  8820.35
  .001988       0.       0.       0.        0        0        4      .00  1881.70 10702.05


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1213.79

STA=    8820.   10940.
  PER Q=    100.0
   AREA=  17245.7
    VEL=     11.6

*SECNO 29.017
    29.02    17.34  1216.14      .00      .00  1217.77     1.63     1.75      .14  1226.00
  200000.       0.  200000.       0.       0.   19512.       0.     430.      46.   1220.00
      .03      .00    10.25      .00     .025     .025     .025     .000  1198.80  8898.96
  .001501    1000.    1020.    1020.        2        0        0      .00  2075.29 10974.25


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1216.14

STA=    8899.   11000.
  PER Q=    100.0
   AREA=  19511.7
    VEL=     10.3

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

    29.22    16.74  1217.74      .00      .00  1220.10     2.37     1.97      .37  1224.00
  200000.       0.  200000.       0.       0.   16205.       0.     849.      93.   1224.00
      .05      .00    12.34      .00     .025     .025     .025     .000  1201.00  9213.77
  .002569     950.    1020.     970.        2        0        0      .00  1951.41 11165.19


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1217.74

STA=    9214.   11220.
  PER Q=    100.0
   AREA=  16204.7
    VEL=     12.3
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
   TIME     VLOB     VCH      VROB     VNL      VNCH     VND      WTN      ELMIN    SSTA
```

```
*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

   29.47    57.00  1221.00      .00      .00  1221.50      .50      .83      .56  1230.00
 200000.       0.  200000.       0.       0.   35362.       0.    1618.     161.   1224.00
     .11      .00     5.66      .00     .025     .025     .025     .000  1164.00  9120.46
 .000285    1030.    1300.     970.        2        0        0      .00  2583.25 11703.71


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1221.00

STA=    9120.   11730.
  PER Q=    100.0
   AREA=  35361.5
    VEL=      5.7

*SECNO 29.523
   29.52    57.14  1221.14      .00      .00  1221.58      .43      .06      .02  1228.00
 200000.       0.  200000.       0.       0.   37804.       0.    1841.     176.   1228.00
     .13      .00     5.29      .00     .025     .025     .025     .000  1164.00  8806.36
 .000192     230.     265.     255.        2        0        0      .00  2239.78 11046.14


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1221.14

STA=    8806.   11084.
  PER Q=    100.0
   AREA=  37803.6
    VEL=      5.3

*SECNO 29.573
   29.57    57.31  1221.31      .00      .00  1221.65      .34      .04      .03  1228.00
 200000.       0.  200000.       0.       0.   42605.       0.    2085.     190.   1228.00
     .14      .00     4.69      .00     .025     .025     .025     .000  1164.00  8806.93
 .000148     230.     265.     255.        2        0        0      .00  2501.04 11307.96


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1221.31

STA=    8807.   11350.
  PER Q=    100.0
   AREA=  42604.6
    VEL=      4.7
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      FLMIN      SSTA
```

```
*SECNO 29.623
   29.62    57.43  1221.43      .00      .00  1221.70      .28      .03      .02  1228.00
 200000.       0.  200000.       0.       0.   47368.       0.    2359.     206.   1228.00
     .16      .00     4.22      .00     .025     .025     .025     .000  1164.00  8807.51
 .000118     230.     265.     255.        2        0        0      .00  2762.19 11569.70


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1221.43

STA=    8808.   11615.
  PER Q=    100.0
   AREA=  47367.8
    VEL=      4.2

*SECNO 29.676
   29.68    57.52  1221.52      .00      .00  1221.75      .23      .03      .01  1228.00
 200000.       0.  200000.       0.       0.   52105.       0.    2661.     224.   1228.00
     .18      .00     3.84      .00     .025     .025     .025     .000  1164.00  8808.10
 .000097     230.     265.     255.        2        0        0      .00  3023.27 11831.37


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1221.52

STA=    8808.   11880.
  PER Q=    100.0
   AREA=  52104.8
    VEL=      3.8

*SECNO 29.696
3280 CROSS SECTION     29.70 EXTENDED     26.53 FEET

   29.70    57.54  1221.54      .00      .00  1221.76      .21      .01      .00  1195.00
 200000.       0.  200000.       0.       0.   53924.       0.    2792.     229.   1211.00
     .19      .00     3.71      .00     .025     .025     .025     .000  1164.00  8940.00
 .000032     103.     107.      79.        1        0        0      .00  1406.65 10346.65


FLOW DISTRIBUTION FOR SECNO=     29.70          CWSEL=   1221.54

STA=    8940.   10347.
  PER Q=    100.0
   AREA=  53923.8
    VEL=      3.7
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
```

```
*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED     15.55 FEET

   29.72    57.55  1221.55      .00      .00  1221.76      .21      .00      .00  1206.00
  200000.      0.  200000.       0.       0.   53982.       0.    2924.     233.   1222.00
     .20      .00     3.70      .00     .025     .025     .025     .000  1164.00  8940.00
  .000045    103.     107.      79.        0        0        0      .00  1883.05 10823.05


FLOW DISTRIBUTION FOR SECNO=     29.72          CWSEL=   1221.55

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  53981.9
    VEL=      3.7

*SECNO 29.736
3280 CROSS SECTION     29.74 EXTENDED      4.51 FEET

   29.74    57.51  1221.51      .00      .00  1221.81      .31      .01      .05  1217.00
  200000.      0.  200000.       0.       0.   44902.       0.    3046.     238.   1233.00
     .20      .00     4.45      .00     .025     .025     .025     .000  1164.00  8940.00
  .000110    103.     107.      79.        2        0        0      .00  2318.40 11258.40


FLOW DISTRIBUTION FOR SECNO=     29.74          CWSEL=   1221.51

STA=    8940.   11302.
  PER Q=    100.0
   AREA=  44901.8
    VEL=      4.5

*SECNO 29.753

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   29.75    17.66  1221.86  1221.86      .00  1224.66     2.80      .04     1.24  1228.00
  200000.      0.  200000.       0.       0.   14904.       0.    3119.     245.   1244.00
     .21      .00    13.42      .00     .025     .025     .025     .000  1204.20  8978.38
  .005230    103.     107.      79.       20       18        0      .00  2700.14 11678.52
```



```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    COPAR    TOPWID      ENDST
```

```
FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1221.86

STA=    8978.   11780.
  PER Q=    100.0
   AREA=  14903.7
    VEL=     13.4

*SECNO 29.812

3301 HV CHANGED MORE THAN HVINS

    29.81    21.07  1225.37      .00      .00  1225.86      .49      .51      .69  1228.30
   200000.       0.  200000.       0.       0.   35533.       0.    3289.     274.   1234.25
      .22      .00     5.63      .00     .025     .025     .025     .000  1204.30  9542.28
  .000864     280.     293.     216.        3        0        0      .00  6143.44 15685.73


FLOW DISTRIBUTION FOR SECNO=     29.81          CWSEL=   1225.37

STA=    9542.   15859.
  PER Q=    100.0
   AREA=  35532.8
    VEL=      5.6

*SECNO 29.867
    29.87    21.06  1225.56      .00      .00  1226.19      .63      .26      .07  1227.50
   200000.       0.  200000.       0.       0.   31412.       0.    3514.     311.   1233.50
      .23      .00     6.37      .00     .025     .025     .025     .000  1204.50  9423.61
  .000934     280.     293.     216.        2        0        0      .00  4787.53 14211.14


FLOW DISTRIBUTION FOR SECNO=     29.87          CWSEL=   1225.56

STA=    9424.   14329.
  PER Q=    100.0
   AREA=  31412.1
    VEL=      6.4

*SECNO 29.923
    29.92    20.90  1225.68      .00      .00  1226.72     1.04      .33      .20  1226.80
   200000.       0.  200000.       0.       0.   24471.       0.    3702.     339.   1232.75
      .24      .00     8.17      .00     .025     .025     .025     .000  1204.78  9349.16
  .001349     280.     293.     216.        2        0        0      .00  3376.98 12726.14
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```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
FLOW DISTRIBUTION FOR SECNO=     29.92          CWSEL=   1225.68

STA=    9349.   12800.
  PER Q=    100.0
   AREA=  24471.2
    VEL=      8.2

*SECNO 29.981
    29.98    20.90  1225.90      .00      .00  1227.37     1.47      .43      .21  1226.80
  200000.       0.  200000.       0.       0.   20580.       0.    3853.     358.   1232.75
      .25      .00     9.72      .00     .025     .025     .025     .000  1205.00  9339.64
  .001610     280.     293.     216.        2        0        0      .00  2500.81 11840.45


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1225.90

STA=    9340.   11911.
  PER Q=    100.0
   AREA=  20580.4
    VEL=      9.7

*SECNO 30.194
    30.19    20.87  1227.87      .00      .00  1229.02     1.15     1.55      .10  1228.00
  200000.       0.  200000.       0.       0.   23251.       0.    4419.     426.   1234.00
      .29      .00     8.60      .00     .025     .025     .025     .000  1207.00  9305.84
  .001199    1125.    1125.    1175.        2        0        0      .00  2719.69 12025.53


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1227.87

STA=    9306.   12089.
  PER Q=    100.0
   AREA=  23251.1
    VEL=      8.6

*SECNO 30.458

3301 HV CHANGED MORE THAN HVINS

    30.46    20.20  1229.20      .00      .00  1231.83     2.62     2.07      .74  1239.00
  200000.       0.  200000.       0.       0.   15387.       0.    5029.     491.   1232.00
      .32      .00    13.00      .00     .025     .025     .025     .000  1209.00  9361.87
  .001952    1285.    1375.    1035.        2        0        0      .00  1396.18 10758.05
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1229.20

STA= 9362. 10800.
PER Q= 100.0
AREA= 15386.8
VEL= 13.0

MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	12.	0.	0.	.002000	.00	.0	0.	1217.310	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	.000	-1.000	.000	.000	.000	.000	.000	.000	15.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*PROF 11

CCHV=    .300 CEHV=    .500
*SECNO 28.831
    28.83    15.97  1214.57      .00  1217.31  1216.81     2.24      .00      .00  1220.00
  225000.       0.  225000.       0.       0.   18745.       0.       0.       0.   1220.00
      .00      .00    12.00      .00     .025     .025     .025     .000  1198.60  8819.05
  .001998       0.       0.       0.        0        0        4      .00  1949.52 10768.57


FLOW DISTRIBUTION FOR SECNO=     28.83          CWSEL=   1214.57

STA=    8819.   10940.
  PER Q=    100.0
   AREA=  18744.8
    VEL=     12.0

*SECNO 29.017
    29.02    18.13  1216.93      .00      .00  1218.68     1.76     1.73      .14  1226.00
  225000.       0.  225000.       0.       0.   21162.       0.     467.      47.   1220.00
      .03      .00    10.63      .00     .025     .025     .025     .000  1198.80  8893.02
  .001459    1000.    1020.    1020.        2        0        0      .00  2086.53 10979.54


FLOW DISTRIBUTION FOR SECNO=     29.02          CWSEL=   1216.93

STA=    8893.   11000.
  PER Q=    100.0
   AREA=  21162.3
    VEL=     10.6

*SECNO 29.221

3301 HV CHANGED MORE THAN HVINS

    29.22    17.45  1218.45      .00      .00  1220.99     2.54     1.91      .39  1224.00
  225000.       0.  225000.       0.       0.   17592.       0.     921.      95.   1224.00
      .05      .00    12.79      .00     .025     .025     .025     .000  1201.00  9212.59
  .002485     950.    1020.     970.        2        0        0      .00  1958.81 11171.40


FLOW DISTRIBUTION FOR SECNO=     29.22          CWSEL=   1218.45

STA=    9213.   11220.
  PER Q=    100.0
   AREA=  17592.3
    VEL=     12.8
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
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```
*SECNO 29.473

3301 HV CHANGED MORE THAN HVINS

   29.47    57.87  1221.87      .00      .00  1222.43      .56      .85      .60  1230.00
  225000.       0.  225000.       0.       0.   37624.       0.    1745.     163.   1224.00
     .11      .00     5.98      .00     .025     .025     .025     .000  1164.00  9118.48
  .000295    1030.    1300.     970.        2        0        0      .00  2592.89 11711.36


FLOW DISTRIBUTION FOR SECNO=     29.47          CWSEL=   1221.87

STA=    9118.   11730.
  PER Q=    100.0
   AREA=  37623.9
    VEL=      6.0

*SECNO 29.523
   29.52    58.01  1222.01      .00      .00  1222.51      .50      .06      .02  1228.00
  225000.       0.  225000.       0.       0.   39760.       0.    1980.     177.   1228.00
     .12      .00     5.66      .00     .025     .025     .025     .000  1164.00  8805.55
  .000206     230.     265.     255.        2        0        0      .00  2245.44 11050.99


FLOW DISTRIBUTION FOR SECNO=     29.52          CWSEL=   1222.01

STA=    8806.   11084.
  PER Q=    100.0
   AREA=  39760.5
    VEL=      5.7

*SECNO 29.573
   29.57    58.20  1222.20      .00      .00  1222.59      .39      .05      .03  1228.00
  225000.       0.  225000.       0.       0.   44843.       0.    2238.     192.   1228.00
     .14      .00     5.02      .00     .025     .025     .025     .000  1164.00  8806.00
  .000159     230.     265.     255.        2        0        0      .00  2507.51 11313.51


FLOW DISTRIBUTION FOR SECNO=     29.57          CWSEL=   1222.20

STA=    8806.   11350.
  PER Q=    100.0
   AREA=  44842.6
    VEL=      5.0
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```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
*SECNO 29.623
    29.62    58.33  1222.33      .00      .00  1222.65      .32      .04      .02  1228.00
  225000.       0.  225000.       0.       0.   49881.       0.    2526.     208.   1228.00
      .15      .00     4.51      .00     .025     .025     .025     .000  1164.00  8806.47
  .000126     230.     265.     255.        2        0        0      .00  2769.46 11575.93


FLOW DISTRIBUTION FOR SECNO=     29.62          CWSEL=   1222.33

STA=    8806.   11615.
  PER Q=    100.0
   AREA=  49880.7
    VEL=      4.5

*SECNO 29.676
    29.68    58.44  1222.44      .00      .00  1222.70      .26      .03      .02  1228.00
  225000.       0.  225000.       0.       0.   54891.       0.    2844.     225.   1228.00
      .17      .00     4.10      .00     .025     .025     .025     .000  1164.00  8806.95
  .000103     230.     265.     255.        2        0        0      .00  3031.32 11838.27


FLOW DISTRIBUTION FOR SECNO=     29.68          CWSEL=   1222.44

STA=    8807.   11880.
  PER Q=    100.0
   AREA=  54890.8
    VEL=      4.1

*SECNO 29.696
3280 CROSS SECTION     29.70 EXTENDED     27.45 FEET

    29.70    58.45  1222.45      .00      .00  1222.70      .26      .01      .00  1195.00
  225000.       0.  225000.       0.       0.   55208.       0.    2980.     231.   1211.00
      .18      .00     4.08      .00     .025     .025     .025     .000  1164.00  8940.00
  .000037     103.     107.      79.        0        0        0      .00  1406.65 10346.65


FLOW DISTRIBUTION FOR SECNO=     29.70          CWSEL=   1222.45

STA=    8940.   10347.
  PER Q=    100.0
   AREA=  55208.3
    VEL=      4.1
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
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```
*SECNO 29.716
3280 CROSS SECTION     29.72 EXTENDED     16.45 FEET

    29.72    58.46  1222.46      .00      .00  1222.71      .25      .00      .00  1206.00
   225000.       0.  225000.       0.       0.   55688.       0.    3116.     235.   1222.00
      .19      .00     4.04      .00     .025     .025     .025     .000  1164.00  8940.00
  .000052     103.     107.      79.        0        0        0      .00  1884.43 10824.43


FLOW DISTRIBUTION FOR SECNO=     29.72          CWSEL=   1222.46

STA=    8940.   10824.
  PER Q=    100.0
   AREA=  55687.5
    VEL=      4.0

*SECNO 29.736
3280 CROSS SECTION     29.74 EXTENDED      5.41 FEET

    29.74    58.41  1222.41      .00      .00  1222.77      .36      .01      .05  1217.00
   225000.       0.  225000.       0.       0.   47008.       0.    3242.     240.   1233.00
      .19      .00     4.79      .00     .025     .025     .025     .000  1164.00  8940.00
  .000119     103.     107.      79.        2        0        0      .00  2321.86 11261.86


FLOW DISTRIBUTION FOR SECNO=     29.74          CWSEL=   1222.41

STA=    8940.   11302.
  PER Q=    100.0
   AREA=  47008.1
    VEL=      4.8

*SECNO 29.753

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    29.75    18.12  1222.32  1222.32      .00  1225.33     3.01      .04     1.33  1228.00
   225000.       0.  225000.       0.       0.   16158.       0.    3320.     246.   1244.00
      .19      .00    13.93      .00     .025     .025     .025     .000  1204.20  8975.48
  .005070     103.     107.      79.       20       18        0      .00  2705.17 11680.65
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
```

```
FLOW DISTRIBUTION FOR SECNO=     29.75          CWSEL=   1222.32

STA=    8975.   11780.
  PER Q=    100.0
   AREA=  16157.7
    VEL=     13.9

*SECNO 29.812
 WATER EL=X5 CARD=  1224.200
    29.81    19.90  1224.20      .00      .00  1225.17      .97      .95      .61  1228.30
  225000.       0.  225000.       0.       0.   28445.       0.    3470.     276.   1234.25
      .20      .00     7.91      .00     .025     .025     .025     .000  1204.30  9638.46
  .002236     280.     293.     216.        0        0        0      .00  6024.55 15663.00


FLOW DISTRIBUTION FOR SECNO=     29.81          CWSEL=   1224.20

STA=    9638.   15859.
  PER Q=    100.0
   AREA=  28444.7
    VEL=      7.9

*SECNO 29.867
    29.87    20.25  1224.75      .00      .00  1225.79     1.03      .59      .03  1227.50
  225000.       0.  225000.       0.       0.   27573.       0.    3658.     312.   1233.50
      .21      .00     8.16      .00     .025     .025     .025     .000  1204.50  9475.13
  .001794     280.     293.     216.        3        0        0      .00  4723.99 14199.12


FLOW DISTRIBUTION FOR SECNO=     29.87          CWSEL=   1224.75

STA=    9475.   14329.
  PER Q=    100.0
   AREA=  27573.0
    VEL=      8.2

*SECNO 29.923

3301 HV CHANGED MORE THAN HVINS

    29.92    20.30  1225.08      .00      .00  1226.64     1.56      .59      .26  1226.80
  225000.       0.  225000.       0.       0.   22433.       0.    3826.     339.   1232.75
      .22      .00    10.03      .00     .025     .025     .025     .000  1204.78  9375.87
  .002252     280.     293.     216.        2        0        0      .00  3343.96 12719.83
```



```
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

```
FLOW DISTRIBUTION FOR SECNO=     29.92          CWSEL=   1225.08

STA=    9376.   12800.
  PER Q=    100.0
   AREA=  22433.3
    VEL=     10.0

*SECNO 29.981
    29.98    20.51  1225.51      .00      .00  1227.56     2.04      .68      .24  1226.80
  225000.       0.  225000.       0.       0.   19615.       0.    3968.     358.   1232.75
      .23      .00    11.47      .00     .025     .025     .025     .000  1205.00  9356.72
  .002365     280.     293.     216.        2        0        0      .00  2479.71 11836.43


FLOW DISTRIBUTION FOR SECNO=     29.98          CWSEL=   1225.51

STA=    9357.   11911.
  PER Q=    100.0
   AREA=  19615.0
    VEL=     11.5

*SECNO 30.194
3280 CROSS SECTION     30.19 EXTENDED       .38 FEET


3301 HV CHANGED MORE THAN HVINS

    30.19    21.38  1228.38      .00      .00  1229.67     1.29     1.89      .22  1228.00
  225000.       0.  225000.       0.       0.   24640.       0.    4539.     426.   1234.00
      .26      .00     9.13      .00     .025     .025     .025     .000  1207.00  9300.00
  .001257    1125.    1125.    1175.        2        0        0      .00  2730.81 12030.81


FLOW DISTRIBUTION FOR SECNO=     30.19          CWSEL=   1228.38

STA=    9300.   12089.
  PER Q=    100.0
   AREA=  24639.8
    VEL=      9.1

*SECNO 30.458
```



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  SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST
```

3301 HV CHANGED MORE THAN HVINS

30.46	20.73	1229.73	.00	.00	1232.75	3.02	2.21	.86	1239.00
225000.	0.	225000.	0.	0.	16129.	0.	5183.	491.	1232.00
.29	.00	13.95	.00	.025	.025	.025	.000	1209.00	9358.53
.002135	1285.	1375.	1035.	2	0	0	.00	1407.46	10765.99

FLOW DISTRIBUTION FOR SECNO= 30.46 CWSEL= 1229.73

STA= 9359. 10800.
PER Q= 100.0
AREA= 16129.1
VEL= 13.9

ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION
****

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

G DRAINAGE ENGINEERING,J

SUMMARY PRINTOUT

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
28.831	20000.00	4020.00	1206.02	7.42	1198.60	20000.00	4.98	1566.01	8909.23	10475.24
28.831	40000.00	6214.69	1207.39	8.79	1198.60	40000.00	6.44	1637.93	8854.43	10492.36
28.831	60000.00	7981.54	1208.45	9.85	1198.60	60000.00	7.52	1676.41	8829.25	10505.65
28.831	80000.00	9551.76	1209.39	10.79	1198.60	79999.99	8.38	1689.62	8827.69	10517.31
28.831	100000.00	10920.33	1210.19	11.59	1198.60	100000.00	9.16	1701.06	8826.35	10527.40
28.831	120000.00	12200.94	1210.94	12.34	1198.60	120000.00	9.84	1711.69	8825.10	10536.79
28.831	140000.00	13399.15	1211.64	13.04	1198.60	140000.00	10.45	1721.58	8823.93	10545.51
28.831	160000.00	14657.97	1212.37	13.77	1198.60	160000.00	10.92	1758.48	8822.72	10581.20
28.831	180000.00	16033.94	1213.14	14.54	1198.60	180000.00	11.23	1825.03	8821.44	10646.48
28.831	200000.00	17245.69	1213.79	15.19	1198.60	200000.00	11.60	1881.70	8820.35	10702.05
28.831	225000.00	18744.83	1214.57	15.97	1198.60	225000.00	12.00	1949.52	8819.05	10768.57
29.017	20000.00	3950.90	1208.29	9.49	1198.80	20000.00	5.06	1788.71	9133.23	10921.94
29.017	40000.00	6286.22	1209.57	10.77	1198.80	40000.00	6.36	1870.61	9059.84	10930.45
29.017	60000.00	8324.41	1210.64	11.84	1198.80	60000.00	7.21	1939.27	8998.32	10937.59
29.017	80000.00	10180.19	1211.58	12.78	1198.80	80000.00	7.86	1999.73	8944.14	10943.87
29.017	100000.00	11919.56	1212.44	13.64	1198.80	100000.00	8.39	2031.81	8917.80	10949.60
29.017	120000.00	13540.12	1213.23	14.43	1198.80	120000.00	8.86	2041.09	8913.82	10954.91
29.017	140000.00	15084.73	1213.99	15.19	1198.80	140000.00	9.28	2049.90	8910.04	10959.94
29.017	160000.00	16611.62	1214.73	15.93	1198.80	160000.00	9.63	2058.57	8906.33	10964.90
29.017	180000.00	18115.68	1215.46	16.66	1198.80	180000.00	9.94	2067.08	8902.68	10969.76
29.017	200000.00	19511.71	1216.14	17.34	1198.80	200000.00	10.25	2075.29	8898.96	10974.25
29.017	225000.00	21162.32	1216.93	18.13	1198.80	225000.00	10.63	2086.53	8893.02	10979.54

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
29.221	20000.00	3620.85	1210.27	9.27	1201.00	20000.00	5.52	1019.25	9226.21	10245.46
29.221	40000.00	5063.43	1211.67	10.67	1201.00	40000.00	7.90	1049.47	9223.89	10273.35
29.221	60000.00	7211.92	1213.96	12.96	1201.00	60000.00	8.31	1919.04	9221.57	11039.61

29.221	80000.00	8791.30	1213.86	12.86	1201.00	80000.00	9.10	1849.64	9220.23	11069.86
29.221	100000.00	10147.12	1214.59	13.59	1201.00	100000.00	9.86	1878.13	9219.02	11097.14
29.221	120000.00	11422.94	1215.27	14.27	1201.00	120000.00	10.51	1904.55	9217.89	11122.44
29.221	140000.00	12661.68	1215.91	14.91	1201.00	140000.00	11.06	1929.85	9216.81	11146.67
29.221	160000.00	13867.10	1216.53	15.53	1201.00	160000.00	11.54	1938.90	9215.78	11154.67
29.221	180000.00	15056.95	1217.15	16.15	1201.00	180000.00	11.95	1945.28	9214.76	11160.03
29.221	200000.00	16204.75	1217.74	16.74	1201.00	200000.00	12.34	1951.41	9213.77	11165.19
29.221	225000.00	17592.32	1218.45	17.45	1201.00	225000.00	12.79	1958.81	9212.59	11171.40
29.473	20000.00	17755.15	1210.90	46.90	1164.00	20000.00	1.13	920.07	9143.41	10063.48
29.473	40000.00	19666.44	1212.94	48.94	1164.00	40000.00	2.03	945.94	9138.77	10084.71
29.473	60000.00	21073.56	1214.42	50.42	1164.00	60000.00	2.85	956.70	9135.41	10092.11
29.473	80000.00	22125.01	1215.52	51.52	1164.00	80000.00	3.62	964.66	9132.92	10097.58
29.473	100000.00	24963.91	1216.94	52.94	1164.00	99999.99	4.01	2538.50	9129.69	11668.19
29.473	120000.00	27292.27	1217.85	53.85	1164.00	120000.00	4.40	2548.59	9127.61	11676.20
29.473	140000.00	29465.30	1218.70	54.70	1164.00	140000.00	4.75	2557.97	9125.68	11683.64
29.473	160000.00	31515.34	1219.50	55.50	1164.00	160000.00	5.08	2566.79	9123.86	11690.65
29.473	180000.00	33477.48	1220.27	56.27	1164.00	180000.00	5.38	2575.20	9122.12	11697.32
29.473	200000.00	35361.52	1221.00	57.00	1164.00	200000.00	5.66	2583.25	9120.46	11703.71
29.473	225000.00	37623.87	1221.87	57.87	1164.00	225000.00	5.98	2592.89	9118.48	11711.36
29.523	20000.00	22371.43	1210.91	46.91	1164.00	20000.00	.89	547.62	8815.84	9363.46
29.523	40000.00	23776.64	1212.97	48.97	1164.00	40000.00	1.68	836.76	8813.93	9650.69
29.523	60000.00	25051.09	1214.48	50.48	1164.00	60000.00	2.40	857.68	8812.54	9670.21
29.523	80000.00	26023.38	1215.60	51.60	1164.00	80000.00	3.07	873.30	8811.50	9684.79
29.523	100000.00	28709.99	1217.06	53.06	1164.00	100000.00	3.48	2213.28	8810.14	11023.42
29.523	120000.00	30757.45	1217.98	53.98	1164.00	120000.00	3.90	2219.27	8809.29	11028.56
29.523	140000.00	32664.04	1218.84	54.84	1164.00	140000.00	4.29	2224.84	8808.49	11033.33
29.523	160000.00	34457.54	1219.64	55.64	1164.00	160000.00	4.64	2230.07	8807.75	11037.81
29.523	180000.00	36167.10	1220.41	56.41	1164.00	180000.00	4.98	2235.04	8807.04	11042.07
29.523	200000.00	37803.64	1221.14	57.14	1164.00	200000.00	5.29	2239.78	8806.36	11046.14
29.523	225000.00	39760.46	1222.01	58.01	1164.00	225000.00	5.66	2245.44	8805.55	11050.99
29.573	20000.00	24969.75	1210.91	46.91	1164.00	20000.00	.80	611.20	8817.68	9428.88
29.573	40000.00	26541.32	1212.99	48.99	1164.00	40000.00	1.51	933.98	8815.54	9749.53
29.573	60000.00	27986.52	1214.50	50.50	1164.00	60000.00	2.14	957.70	8813.96	9771.66
29.573	80000.00	29089.59	1215.65	51.65	1164.00	80000.00	2.75	975.41	8812.78	9788.19
29.573	100000.00	32236.63	1217.14	53.14	1164.00	100000.00	3.10	2470.83	8811.24	11282.07
29.573	120000.00	34564.98	1218.08	54.08	1164.00	120000.00	3.47	2477.64	8810.27	11287.91
29.573	140000.00	36737.21	1218.95	54.95	1164.00	140000.00	3.81	2483.99	8809.36	11293.35
29.573	160000.00	38782.44	1219.77	55.77	1164.00	160000.00	4.13	2489.94	8808.51	11298.45
29.573	180000.00	40734.81	1220.56	56.56	1164.00	180000.00	4.42	2495.61	8807.70	11303.31
29.573	200000.00	42604.59	1221.31	57.31	1164.00	200000.00	4.69	2501.04	8806.93	11307.96
29.573	225000.00	44842.61	1222.20	58.20	1164.00	225000.00	5.02	2507.51	8806.00	11313.51

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
29.623	20000.00	27569.18	1210.92	46.92	1164.00	20000.00	.73	674.79	8819.52	9494.31
29.623	40000.00	29314.68	1213.00	49.00	1164.00	40000.00	1.36	1031.35	8817.15	9848.50
29.623	60000.00	30911.06	1214.53	50.53	1164.00	60000.00	1.94	1057.54	8815.40	9872.94

29.623	80000.00	32152.13	1215.68	51.68	1164.00	80000.00	2.49	1077.46	8814.08	9891.54
29.623	100000.00	35748.35	1217.19	53.19	1164.00	100000.00	2.80	2728.34	8812.35	11540.69
29.623	120000.00	38354.43	1218.15	54.15	1164.00	120000.00	3.13	2735.97	8811.26	11547.23
29.623	140000.00	40786.96	1219.04	55.04	1164.00	140000.00	3.43	2743.07	8810.24	11553.31
29.623	160000.00	43078.76	1219.87	55.87	1164.00	160000.00	3.71	2749.74	8809.29	11559.03
29.623	180000.00	45268.79	1220.67	56.67	1164.00	180000.00	3.98	2756.11	8808.38	11564.49
29.623	200000.00	47367.80	1221.43	57.43	1164.00	200000.00	4.22	2762.19	8807.51	11569.70
29.623	225000.00	49880.75	1222.33	58.33	1164.00	225000.00	4.51	2769.46	8806.47	11575.93
29.676	20000.00	30169.08	1210.92	46.92	1164.00	20000.00	.66	738.38	8821.36	9559.74
29.676	40000.00	32088.13	1213.00	49.00	1164.00	40000.00	1.25	1128.72	8818.75	9947.47
29.676	60000.00	33844.54	1214.54	50.54	1164.00	60000.00	1.77	1157.53	8816.83	9974.36
29.676	80000.00	35212.16	1215.71	51.71	1164.00	80000.00	2.27	1179.47	8815.37	9994.84
29.676	100000.00	39251.85	1217.24	53.24	1164.00	100000.00	2.55	2985.84	8813.45	11799.29
29.676	120000.00	42130.58	1218.20	54.20	1164.00	120000.00	2.85	2994.26	8812.25	11806.51
29.676	140000.00	44820.98	1219.10	55.10	1164.00	140000.00	3.12	3002.11	8811.13	11813.24
29.676	160000.00	47357.49	1219.94	55.94	1164.00	160000.00	3.38	3009.50	8810.07	11819.57
29.676	180000.00	49781.29	1220.75	56.75	1164.00	180000.00	3.62	3016.54	8809.07	11825.60
29.676	200000.00	52104.84	1221.52	57.52	1164.00	200000.00	3.84	3023.27	8808.10	11831.37
29.676	225000.00	54890.81	1222.44	58.44	1164.00	225000.00	4.10	3031.32	8806.95	11838.27
29.696	20000.00	38989.78	1210.92	46.92	1164.00	20000.00	.51	1406.46	8940.00	10346.46
29.696	40000.00	41935.13	1213.02	49.02	1164.00	40000.00	.95	1406.65	8940.00	10346.65
29.696	60000.00	44124.60	1214.57	50.57	1164.00	60000.00	1.36	1406.65	8940.00	10346.65
29.696	80000.00	45786.08	1215.75	51.75	1164.00	80000.00	1.75	1406.65	8940.00	10346.65
29.696	100000.00	47944.99	1217.28	53.28	1164.00	100000.00	2.09	1406.65	8940.00	10346.65
29.696	120000.00	49302.02	1218.25	54.25	1164.00	120000.00	2.43	1406.65	8940.00	10346.65
29.696	140000.00	50562.21	1219.14	55.14	1164.00	140000.00	2.77	1406.65	8940.00	10346.65
29.696	160000.00	51743.40	1219.98	55.98	1164.00	160000.00	3.09	1406.65	8940.00	10346.65
29.696	180000.00	52865.02	1220.78	56.78	1164.00	180000.00	3.40	1406.65	8940.00	10346.65
29.696	200000.00	53923.78	1221.54	57.54	1164.00	200000.00	3.71	1406.65	8940.00	10346.65
29.696	225000.00	55208.35	1222.45	58.45	1164.00	225000.00	4.08	1406.65	8940.00	10346.65
29.716	20000.00	34143.14	1210.92	46.92	1164.00	20000.00	.59	1850.74	8940.00	10790.74
29.716	40000.00	38030.46	1213.02	49.02	1164.00	40000.00	1.05	1857.12	8940.00	10797.12
29.716	60000.00	40913.41	1214.57	50.57	1164.00	60000.00	1.47	1861.83	8940.00	10801.83
29.716	80000.00	43116.01	1215.75	51.75	1164.00	80000.01	1.86	1865.43	8940.00	10805.43
29.716	100000.00	45986.73	1217.28	53.28	1164.00	100000.00	2.17	1870.10	8940.00	10810.10
29.716	120000.00	47792.96	1218.25	54.25	1164.00	120000.00	2.51	1873.03	8940.00	10813.03
29.716	140000.00	49473.78	1219.14	55.14	1164.00	140000.00	2.83	1875.76	8940.00	10815.76
29.716	160000.00	51050.89	1219.99	55.99	1164.00	160000.00	3.13	1878.32	8940.00	10818.32
29.716	180000.00	52550.48	1220.78	56.78	1164.00	180000.00	3.43	1880.74	8940.00	10820.74
29.716	200000.00	53981.88	1221.55	57.55	1164.00	200000.00	3.70	1883.05	8940.00	10823.05
29.716	225000.00	55687.51	1222.46	58.46	1164.00	225000.00	4.04	1884.43	8940.00	10824.43

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
29.736	20000.00	20670.48	1210.92	46.92	1164.00	20000.00	.97	2246.44	8971.60	11218.04
29.736	40000.00	25399.52	1213.01	49.01	1164.00	40000.00	1.57	2265.33	8960.71	11226.04
29.736	60000.00	28903.90	1214.55	50.55	1164.00	60000.00	2.08	2279.22	8952.69	11231.92

	29.736	100000.00	35091.50	1217.26	53.26	1164.00	100000.00	2.85	2302.21	8940.00	11242.21
	29.736	120000.00	37304.69	1218.22	54.22	1164.00	120000.00	3.22	2305.87	8940.00	11245.87
	29.736	140000.00	39365.52	1219.11	55.11	1164.00	140000.00	3.56	2309.28	8940.00	11249.28
	29.736	160000.00	41300.64	1219.95	55.95	1164.00	160000.00	3.87	2312.47	8940.00	11252.47
	29.736	180000.00	43142.07	1220.75	56.75	1164.00	180000.00	4.17	2315.50	8940.00	11255.50
	29.736	200000.00	44901.84	1221.51	57.51	1164.00	200000.00	4.45	2318.40	8940.00	11258.40
	29.736	225000.00	47008.13	1222.41	58.41	1164.00	225000.00	4.79	2321.86	8940.00	11261.86
*	29.753	20000.00	1620.35	1209.77	5.57	1204.20	20000.00	12.34	342.15	9531.53	9873.68
*	29.753	40000.00	2723.42	1212.74	8.54	1204.20	40000.00	14.69	406.87	9513.65	9920.51
*	29.753	60000.00	4722.69	1216.62	12.42	1204.20	60000.00	12.70	929.45	9490.31	11158.31
*	29.753	80000.00	6576.51	1218.16	13.96	1204.20	80000.01	12.16	1482.37	9481.08	11393.77
*	29.753	100000.00	8069.59	1219.07	14.87	1204.20	100000.00	12.39	1802.03	9475.60	11527.98
*	29.753	120000.00	10305.66	1220.15	15.95	1204.20	120000.00	11.64	2681.63	8989.06	11670.69
*	29.753	140000.00	11714.42	1220.68	16.48	1204.20	140000.00	11.95	2687.32	8985.78	11673.10
*	29.753	160000.00	12827.08	1221.09	16.89	1204.20	160000.00	12.47	2691.80	8983.19	11674.99
*	29.753	180000.00	13888.27	1221.48	17.28	1204.20	180000.00	12.96	2696.07	8980.73	11676.80
*	29.753	200000.00	14903.69	1221.86	17.66	1204.20	200000.00	13.42	2700.14	8978.38	11678.52
*	29.753	225000.00	16157.69	1222.32	18.12	1204.20	225000.00	13.93	2705.17	8975.48	11680.65
	29.812	20000.00	4590.95	1212.82	8.52	1204.30	20000.00	4.36	807.70	10066.54	10874.24
	29.812	40000.00	8935.09	1216.98	12.68	1204.30	40000.00	4.48	1237.10	9865.26	11102.36
	29.812	60000.00	12667.20	1219.70	15.40	1204.30	60000.00	4.74	1523.69	9831.23	11354.92
	29.812	80000.00	14526.90	1220.87	16.57	1204.30	80000.00	5.51	1664.49	9816.66	11481.15
	29.812	100000.00	16095.95	1221.78	17.48	1204.30	100000.00	6.21	1774.62	9805.27	11579.89
	29.812	120000.00	21746.04	1223.08	18.78	1204.30	120000.00	5.52	5909.99	9731.12	15641.11
	29.812	140000.00	25052.33	1223.63	19.33	1204.30	140000.00	5.59	5966.81	9685.16	15651.97
	29.812	160000.00	28552.04	1224.22	19.92	1204.30	160000.00	5.60	6026.37	9636.98	15663.35
	29.812	180000.00	32060.53	1224.80	20.50	1204.30	180000.00	5.61	6085.49	9589.16	15674.65
	29.812	200000.00	35532.75	1225.37	21.07	1204.30	200000.00	5.63	6143.44	9542.28	15685.73
*	29.812	225000.00	28444.65	1224.20	19.90	1204.30	225000.00	7.91	6024.55	9638.46	15663.00
	29.867	20000.00	3724.08	1212.94	8.44	1204.50	20000.00	5.37	709.25	9809.09	10518.34
	29.867	40000.00	7268.57	1217.04	12.54	1204.50	40000.00	5.50	1003.41	9725.60	10729.01
	29.867	60000.00	10292.79	1219.75	15.25	1204.50	60000.00	5.83	1242.13	9699.70	10941.83
	29.867	80000.00	11804.87	1220.92	16.42	1204.50	80000.00	6.78	1350.09	9688.53	11038.63
	29.867	100000.00	15084.50	1222.05	17.55	1204.50	100000.00	6.63	4511.09	9647.75	14158.84
	29.867	120000.00	21488.56	1223.45	18.95	1204.50	120000.00	5.58	4621.49	9558.24	14179.73
	29.867	140000.00	23811.99	1223.95	19.45	1204.50	140000.00	5.88	4660.89	9526.29	14187.18
	29.867	160000.00	26332.49	1224.49	19.99	1204.50	160000.00	6.08	4703.27	9491.93	14195.20
	29.867	180000.00	28874.08	1225.03	20.53	1204.50	180000.00	6.23	4745.62	9457.59	14203.21
	29.867	200000.00	31412.13	1225.56	21.06	1204.50	200000.00	6.37	4787.53	9423.61	14211.14
	29.867	225000.00	27573.04	1224.75	20.25	1204.50	225000.00	8.16	4723.99	9475.13	14199.12

SECNO	Q	AREA	CWSEL	DEPTH	ELMIN	QCH	VCH	TOPWID	SSTA	ENDST
29.923	20000.00	2803.66	1213.12	8.34	1204.78	20000.00	7.13	550.37	9617.28	10167.65
29.923	40000.00	5348.93	1217.08	12.30	1204.78	40000.00	7.48	740.90	9590.90	10331.80
29.923	60000.00	7549.92	1219.75	14.97	1204.78	60000.00	7.95	912.37	9573.16	10485.53

29.923	100000.00	14440.60	1222.64	17.86	1204.78	100000.00	6.92	3211.17	9483.28	12694.45
29.923	120000.00	17896.38	1223.71	18.93	1204.78	120000.00	6.71	3269.25	9436.30	12705.55
29.923	140000.00	19458.14	1224.18	19.40	1204.78	140000.00	7.19	3295.16	9415.35	12710.50
29.923	160000.00	21126.73	1224.69	19.91	1204.78	160000.00	7.57	3322.61	9393.14	12715.75
29.923	180000.00	22795.65	1225.19	20.41	1204.78	180000.00	7.90	3349.85	9371.10	12720.96
29.923	200000.00	24471.21	1225.68	20.90	1204.78	200000.00	8.17	3376.98	9349.16	12726.14
29.923	225000.00	22433.26	1225.08	20.30	1204.78	225000.00	10.03	3343.96	9375.87	12719.83
29.981	20000.00	3082.94	1213.72	8.72	1205.00	20000.00	6.49	578.29	9613.29	10191.58
29.981	40000.00	5604.39	1217.50	12.50	1205.00	40000.00	7.14	767.72	9588.13	10355.84
29.981	60000.00	7859.25	1220.14	15.14	1205.00	60000.00	7.63	937.98	9570.51	10508.49
29.981	80000.00	11877.83	1222.27	17.27	1205.00	80000.00	6.74	2303.71	9499.20	11802.91
29.981	100000.00	13722.57	1223.07	18.07	1205.00	100000.00	7.29	2346.87	9464.26	11811.13
29.981	120000.00	15915.94	1224.00	19.00	1205.00	120000.00	7.54	2397.18	9423.53	11820.71
29.981	140000.00	17056.54	1224.47	19.47	1205.00	140000.00	8.21	2422.93	9402.69	11825.61
29.981	160000.00	18239.21	1224.95	19.95	1205.00	160000.00	8.77	2449.34	9381.30	11830.64
29.981	180000.00	19411.75	1225.43	20.43	1205.00	180000.00	9.27	2475.25	9360.33	11835.58
29.981	200000.00	20580.45	1225.90	20.90	1205.00	200000.00	9.72	2500.81	9339.64	11840.45
29.981	225000.00	19614.98	1225.51	20.51	1205.00	225000.00	11.47	2479.71	9356.72	11836.43
30.194	20000.00	3019.00	1215.22	8.22	1207.00	20000.00	6.62	589.68	9611.66	10201.34
30.194	40000.00	5354.96	1218.69	11.69	1207.00	40000.00	7.47	764.11	9588.50	10352.61
30.194	60000.00	7534.18	1221.27	14.27	1207.00	60000.00	7.96	929.80	9571.36	10501.16
30.194	80000.00	12895.41	1223.90	16.90	1207.00	80000.00	6.20	2502.45	9481.98	11984.43
30.194	100000.00	14929.95	1224.71	17.71	1207.00	100000.00	6.70	2546.59	9446.19	11992.78
30.194	120000.00	16978.55	1225.51	18.51	1207.00	120000.00	7.07	2590.28	9410.77	12001.05
30.194	140000.00	18617.78	1226.13	19.13	1207.00	140000.00	7.52	2624.71	9382.85	12007.56
30.194	160000.00	20212.46	1226.74	19.74	1207.00	160000.00	7.92	2657.79	9356.04	12013.82
30.194	180000.00	21753.23	1227.31	20.31	1207.00	180000.00	8.27	2689.35	9330.44	12019.79
30.194	200000.00	23251.08	1227.87	20.87	1207.00	200000.00	8.60	2719.69	9305.84	12025.53
30.194	225000.00	24639.76	1228.38	21.38	1207.00	225000.00	9.13	2730.81	9300.00	12030.81
30.458	20000.00	2363.14	1217.65	8.65	1209.00	20000.00	8.46	534.49	9490.34	10024.83
30.458	40000.00	4878.61	1220.99	11.99	1209.00	40000.00	8.20	1158.67	9413.72	10572.39
30.458	60000.00	7386.94	1223.11	14.11	1209.00	60000.00	8.12	1219.46	9400.39	10619.85
30.458	80000.00	10168.87	1225.33	16.33	1209.00	80000.00	7.87	1286.78	9386.36	10673.14
30.458	100000.00	11236.57	1226.15	17.15	1209.00	100000.00	8.90	1312.50	9381.18	10693.68
30.458	120000.00	12237.91	1226.90	17.90	1209.00	120000.00	9.81	1336.18	9376.40	10712.58
30.458	140000.00	13103.47	1227.55	18.55	1209.00	140000.00	10.68	1356.32	9372.34	10728.66
30.458	160000.00	13914.54	1228.14	19.14	1209.00	160000.00	11.50	1373.52	9368.59	10742.10
30.458	180000.00	14671.92	1228.69	19.69	1209.00	180000.00	12.27	1385.22	9365.12	10750.34
30.458	200000.00	15386.79	1229.20	20.20	1209.00	200000.00	13.00	1396.18	9361.87	10758.05
30.458	225000.00	16129.11	1229.73	20.73	1209.00	225000.00	13.95	1407.46	9358.53	10765.99

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 29.753 PROFILE= 1 CRITICAL DEPTH ASSUMED

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CAUTION  SECNO=    29.753  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.753  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.753  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.753  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.753  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.753  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.753  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.753  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.753  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.753  PROFILE= 5  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.753  PROFILE= 5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.753  PROFILE= 5  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.753  PROFILE= 6  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.753  PROFILE= 6  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.753  PROFILE= 6  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.753  PROFILE= 7  CRITICAL DEPTH ASSUMED
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CAUTION  SECNO=    29.753  PROFILE= 8  CRITICAL DEPTH ASSUMED
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CAUTION  SECNO=    29.753  PROFILE= 8  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.753  PROFILE= 9  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.753  PROFILE= 9  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.753  PROFILE= 9  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.753  PROFILE=10  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.753  PROFILE=10  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.753  PROFILE=10  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    29.753  PROFILE=11  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    29.753  PROFILE=11  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    29.753  PROFILE=11  20 TRIALS ATTEMPTED TO BALANCE WSEL

NOTE     SECNO=    29.812  PROFILE=11  WSEL BASED ON X5 CARD
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 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION   50 51 52 53 54 55 56
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APPENDIX B

REFERENCE ON MODELING FLUVIAL PROCESSES IN STREAM WITH GRAVEL MINING

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REFERENCES

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hire, Wales', *Environmental Pollution*, 6,

'Historical valley alluviation in mid-

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of metal pollutants in active stream

Sediment Transport in Gravel-bed Rivers
Edited by C. R. Thorne, J. C. Bathurst and R. D. Hey
© 1987 John Wiley & Sons Ltd.

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San Diego State University, San Diego, California, USA

32

Modelling Fluvial Processes in Streams with Gravel Mining

ABSTRACT

The application of a mathematical model in evaluating stream channel changes induced by gravel mining is described. Analytically, the model employs, in addition to the ordinary physical relations governing the flow and sediment transport processes, the concept that an alluvial stream is constantly seeking to establish equal power expenditure per unit channel length. If the energy gradient is approximated by the water surface slope, then uniform power expenditure is equivalent to a straight water surface profile. Based upon this concept, channel width adjustment is such that the water surface profile approaches a straight line subject to the physical constraints. Physical examples are used to illustrate how scour and fill of the channel bed are delicately interrelated with width variation so that a straight water surface profile is effectively approached. While equal power expenditure along the channel is the direction toward which each stream channel evolves, the adjustment in channel width under this condition is not necessarily toward streamwise uniformity even if the roughness is constant. It is illustrated that uniform power expenditure is sometimes accomplished by significant streamwise variation in width. A physical example also shows that, even in the vicinity of a gravel pit, the time variation in width can be much greater than the associated change in channel bed elevation.

32.1 INTRODUCTION

Sand and gravel which are used as construction materials are important mineral resources. The supply of such materials is vital to any regional economic growth. Gravel is usually found in relatively steep streams which are generally supplied by smaller watersheds and characterised by significant variation in discharge. Gravel mining significantly distorts the natural equilibrium of stream channels, thereby inducing stream channel changes which take place mostly during major storm events.

While alluvial streams are a supplier of gravel, special attention must be paid to gravel mining because of its impact on stream morphology (Lagasse *et al.*, 1980). Physical or mathematical modelling are means of evaluating the impact of gravel mining. Mathematical modelling of stream channel changes, as compared with physical modelling, has the advantages of speed, economy, and the absence of scale distortion. Different plans or schemes may be evaluated using an adequate mathematical model and the results generated can be compared, in order to arrive at the optimum mining configuration.

Fluvial processes in a stream channel with gravel mining are complicated. The sediment imbalance caused by excavation often gives rise to significant erosion and sedimentation which are associated with changes in channel width, channel bed profile, bed material composition, etc. These changes occur as the stream seeks to establish its new equilibrium. It is important to stress that, for such streams, channel width variation is usually much greater than the concomitant change in channel bed elevation. In graphical representation of channel cross-sections, the vertical, or elevation, scale is usually enlarged and thus the elevation change is exaggerated.

This paper describes the fundamentals of fluvial processes that govern the changes in channel width and channel bed profile in distorted alluvial streams and the mathematical model, FLUVIAL-11, which incorporates such fundamental features. The application of this mathematical model is illustrated by the San Juan Creek study.

32.2 FUNDAMENTALS OF FLUVIAL PROCESSES IN DISTURBED STREAMS

Fluvial processes in an alluvial stream distorted by gravel mining are characterized by stream channel changes which occur as the stream seeks to establish a new equilibrium. Fluvial processes are governed by the ordinary physical relationships pertaining to flow and sediment transport, subject to the physical constraints. However, such physical conditions are insufficient to describe the complete fluvial processes which must include time and spatial variations in channel width.

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In searching for additional conditions governing the width variation, the rules that govern stream channel changes are considered. The state of equilibrium is the direction toward which each stream channel evolves. Although equilibrium may never be attained in nature, each stream is constantly adjusting itself toward that direction. In a relatively short stream reach of constant water discharge, the state of equilibrium is defined here by two conditions. Firstly, equal sediment discharge along the channel, and secondly, uniformity in the rate of energy (or power) expenditure per unit channel length. The power expenditure per unit channel length is given by γQS, in which γ = specific weight of water; Q = water discharge; and S = energy gradient. The contribution to power expenditure from sediment discharge is usually negligible. Because equal sediment discharge does not necessarily mean uniform power expenditure, these two conditions are independent. Because there is no spatial energy conversion under uniform power expenditure per unit channel length, the total power expenditure for the reach becomes a minimum.

If the energy gradient is approximated by the water surface slope, then uniform energy gradient is equivalent to a straight water surface profile along the channel. A stream reach undergoing changes usually has an uneven water surface profile, but it constantly seeks to establish a straight profile through adjustments in channel geometry, roughness and so on, subject to the physical constraints such as abutments, rigid banks, and check dams. This trend of stream channel adjustment provides the necessary condition with which the width variation may be determined.

A stream channel's adjustment in the direction of equal power expenditure, or straight water surface profile, does not necessarily mean movement toward uniformity in channel width. For one thing, the power expenditure is also affected by channel roughness and channel bed elevation, in addition to the width. But, more importantly, the adjustment toward uniformity in power expenditure is frequently accomplished by significant streamwise variation in width. Such spatial width variation generally occurs concurrently with stream bed scour or fill as illustrated by the aerial photograph in Fig. 32.1 for the San Diego River at Lakeside. Prior to the early 1981 storm, this portion of the stream bed was graded to a wavy profile. During the initial stage of flow, the water surface profile was not straight. But gradually, higher bed areas were scoured, while lower places filled. Small widths formed at areas with channel bed scour while large widths developed at places with deposition. This pattern of spatial variation in width actually represented the stream's movement toward equal power expenditure as explained below. An area undergoing scour had a higher channel bed elevation and a steeper energy gradient than its adjacent areas. Formation of a narrower and deeper channel during scour decreased the energy gradient due to reduced boundary resistance and lowered elevation. On the other hand, a place undergoing fill was lower in channel bed elevation and energy gradient. Widening at this place steepened its energy gradient due to increased boundary resistance.

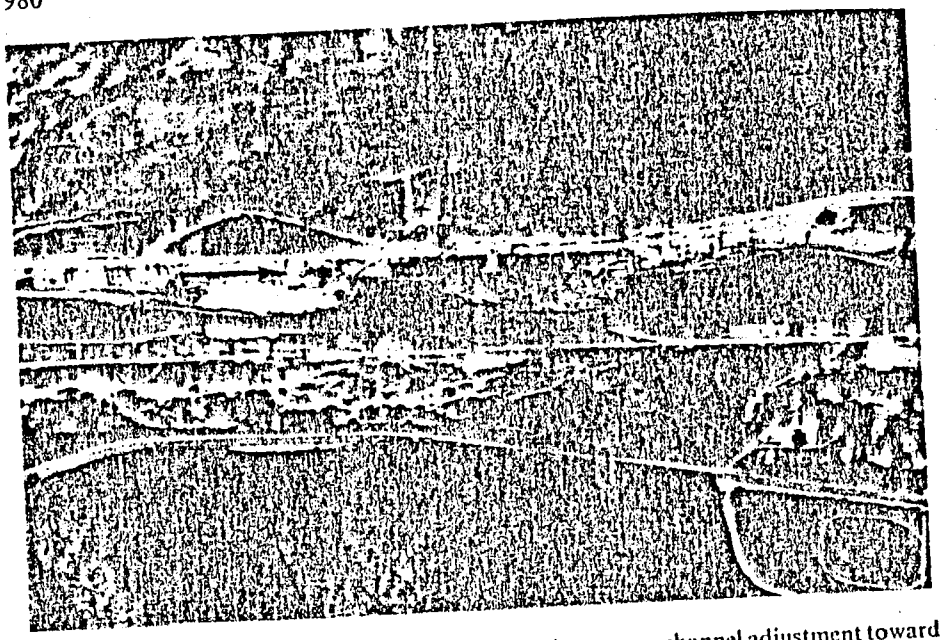

Fig. 32.1 Spatial variation in width developed during stream channel adjustment toward straight water surface profile. San Diego River at Lakeside, California

These adjustments in channel width reduced the spatial variation in energy gradient or non-uniformity in water surface profile. Because sediment discharge is a direct function of stream power per unit length (Bagnold, 1966), stream channel adjustment in the direction of equal power expenditure also favours an equilibrium, or uniformity, in sediment discharge. The development of small widths at places with channel bed scour represents the most efficient way to reach a straight water surface profile or uniformity in power expenditure. In addition to being narrow and deep, these channel areas also have a circular cross-sectional shape which conserves power for being closer to the best hydraulic section.

As storm flow enters a stream channel with gravel excavation, the initial water surface profile can be quite non-uniform and the sediment discharge also varies greatly along the channel. These non-uniformities will gradually be reduced through changes in width, channel bed elevation, and bed material composition, each of which contributes toward uniformities in sediment discharge and power expenditure. The magnitude of each change must be such that the movement toward uniform power expenditure is expedited subject to the physical constraints and physical conditions governing the flow and sediment transport.

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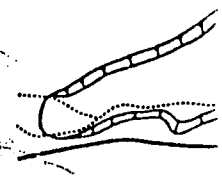

Fig. 32.2 Map of vi

32.3 MODEL DESCRIPTION

The mathematical model, FLUVIAL-11, was formulated and developed for water and sediment routing while simulating stream channel changes following the fundamentals of fluvial processes described previously. The model applies the basic equations of flow continuity, sediment continuity, flow momentum, flow resistance, and sediment transport as detailed in previous publications (Chang, 1980, 1984). It employs a space-time domain in which the space domain is defined by the discrete cross-sections along the channel and the time domain is represented by discrete time steps.

The mathematical model has four major components: water routing; sediment routing; changes in channel width; and changes in channel bed profile as detailed in previous publications (Chang, 1980, 1984). In water routing, the time and spatial variations of the discharge, stage, velocity, energy gradient and so on along the reach are obtained by an iterative procedure. At each time step, sediment discharge at each cross-section is computed; changes in channel width and

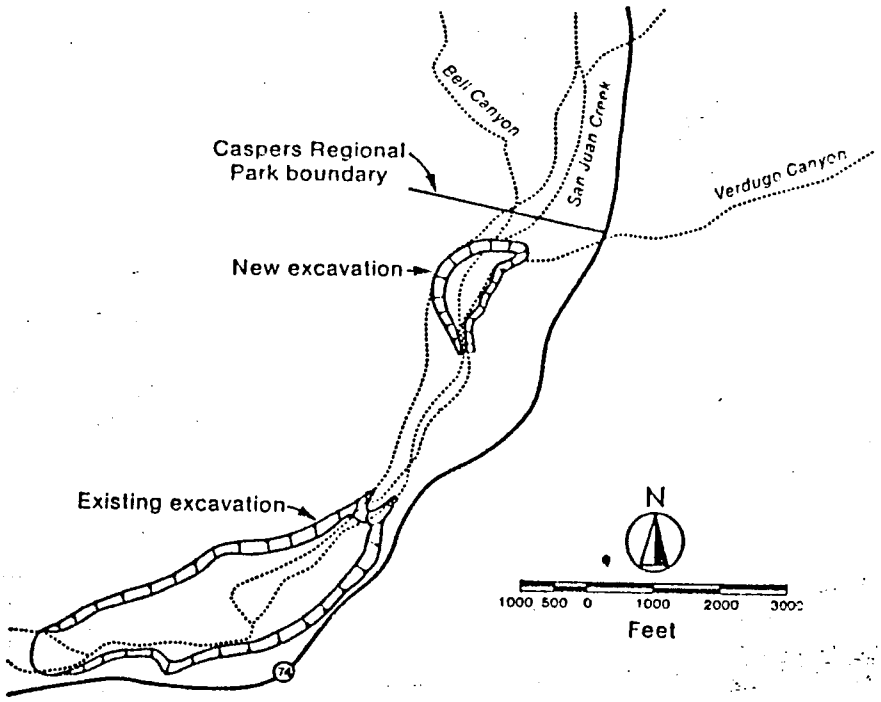

Fig. 32.2 Map of vicinity of gravel mining operation on San Juan Creek, California

channel bed profile are obtained and applied to each cross-section. The bed material composition is updated at each time step. Since changes in channel geometry and bed material composition are slow in comparison to water routing, corrections for them are made separately for each time step.

At each time step, changes in channel width are made such that the profile of γQS evolves toward uniformity. Such changes are limited by the rate of sediment movement and subject to rigid constraints such as bank protections, grade control structures, and bridge abutments. An adjustment in width reflects the channel's change in flow resistance; that is, in power expenditure. A reduction in width at a cross-section is usually associated with a decrease in energy gradient for the section because of the reduced wetted perimeter. On the other hand, an increase in width is accompanied by an increase in energy gradient. These are the guidelines for width correction in the model.

32.4 SAN JUAN CREEK STUDY

For over a decade, sand and gravel have been mined from San Juan Creek downstream of the Bell Canyon confluence in Orange County, California

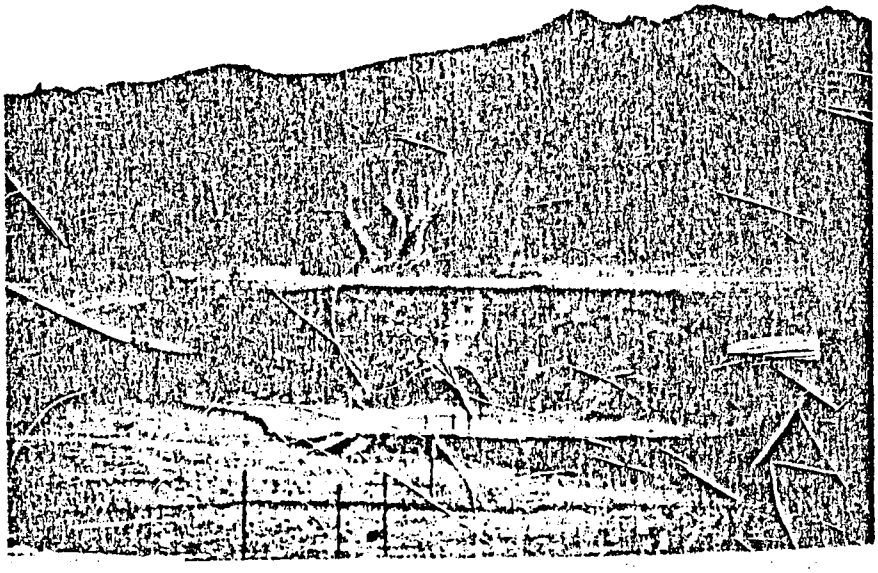

Fig. 32.3 View toward west bank of gravel pit, 17 January 1978

(Fig. 32.2). The gravel
depth of about 14 m.
catchment of San Ju
Canyon and Verdug
Hydrographs durin
et al. (1982), are show
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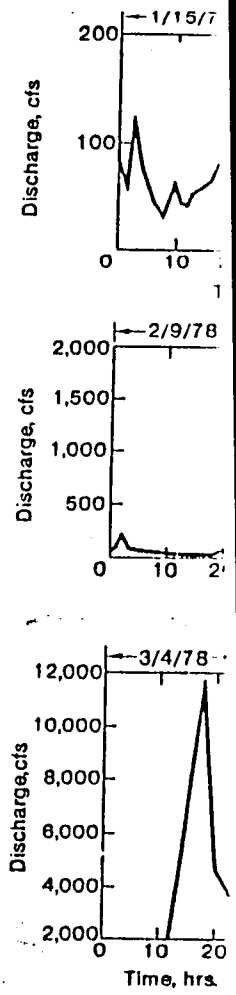

Fig. 32.4 Major storms in
confluence (afte

(Fig. 32.2). The gravel pit (Fig. 32.3) at its finished stage in 1977 had an average depth of about 14 m, a length of 520 m, and a maximum width of 245 m. The catchment of San Juan Creek has an area of 144 km². Its two tributaries, Bell Canyon and Verdugo Canyon, cover 45 and 10 km² respectively.

Hydrographs during the major storms of 1978, originally presented by Vanoni *et al.* (1982), are shown in Fig. 32.4. The storm of 4 March was estimated to have a return period in excess of 100 years. As a result of these major storms, significant changes in channel configuration were observed. The channels of San Juan

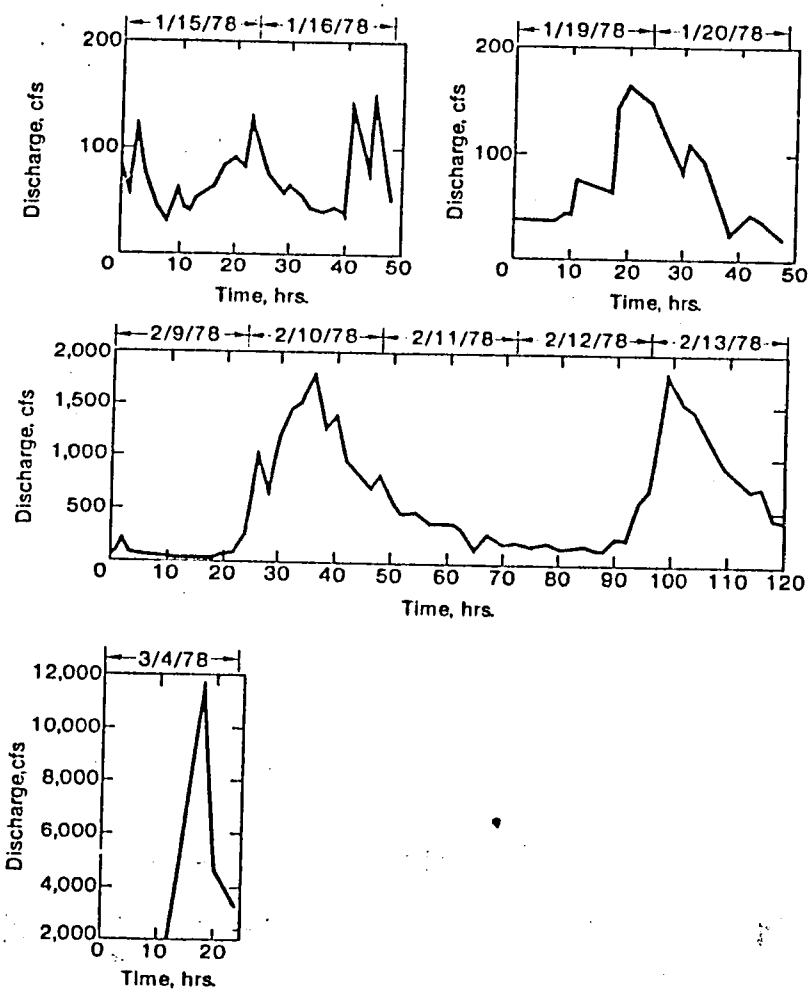

Fig. 32.4 Major storms in 1978, in San Juan Creek, downstream of Verdugo Canyon confluence (after Vanoni *et al.*, 1982). Note: 1 cfs = 0.0283 m³/s

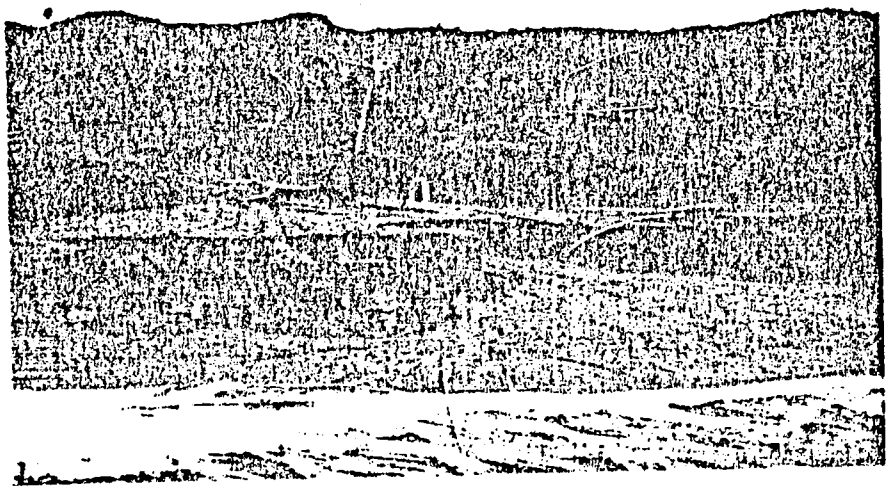

Fig. 32.5 Mouth of Verdugo Canyon at gravel pit, 17 January 1978. Note headward erosion and delta formation

Creek, Bell Canyon, and Verdugo Canyon upstream of the gravel pit went through severe headward erosion and deltas formed concurrently at the stream mouth as the eroded materials were deposited in the pit. Such a development at the mouth of Verdugo Canyon is shown in Fig. 32.5. Measured stream bed profiles at different time intervals for San Juan Creek are shown in Fig. 32.6(b). The streambed evolution was characterized by headward erosion, downstream erosion, deltaic deposition, and gradual refill of the pit. Sediment transport through the gravel pit was reestablished after the refill.

These vertical, or elevation, changes were accompanied by even greater lateral changes in channel width. During the initial stage of severe headward erosion, a relatively narrow channel developed upstream of the pit as shown in Figs 32.6(a) and 32.7 by the survey of February 6, 1978. This narrow channel widened immediately as it flowed into the gravel pit, resulting in significant streamwise variation in channel width. During subsequent storms, this width variation was gradually reduced, principally due to the progressive widening development upstream of the pit. This widening, as illustrated in Fig. 32.7 for Section 12, was accompanied by a gradual rise in streambed elevation.

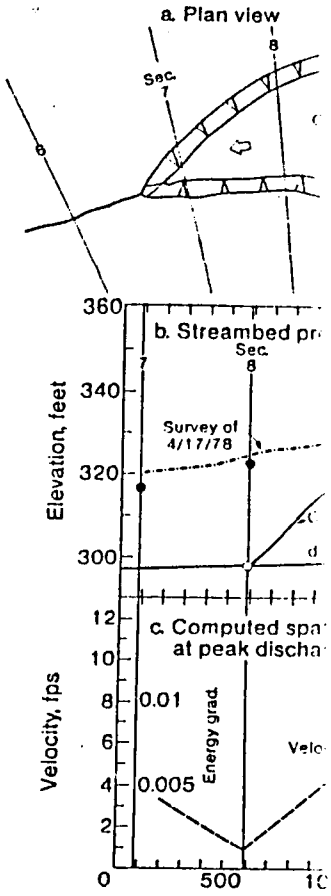

Fig. 32.6 Plan and profiles of S.

32.4.1 Fluvial processes induce

The FLUVIAL-11 model was u
gravel pit. Cross-sections were
distance of 3.2 km. Stream
considered. Sediment discharge
Sediment inflow into the reach
at the upstream section using
Simulated results shown in F

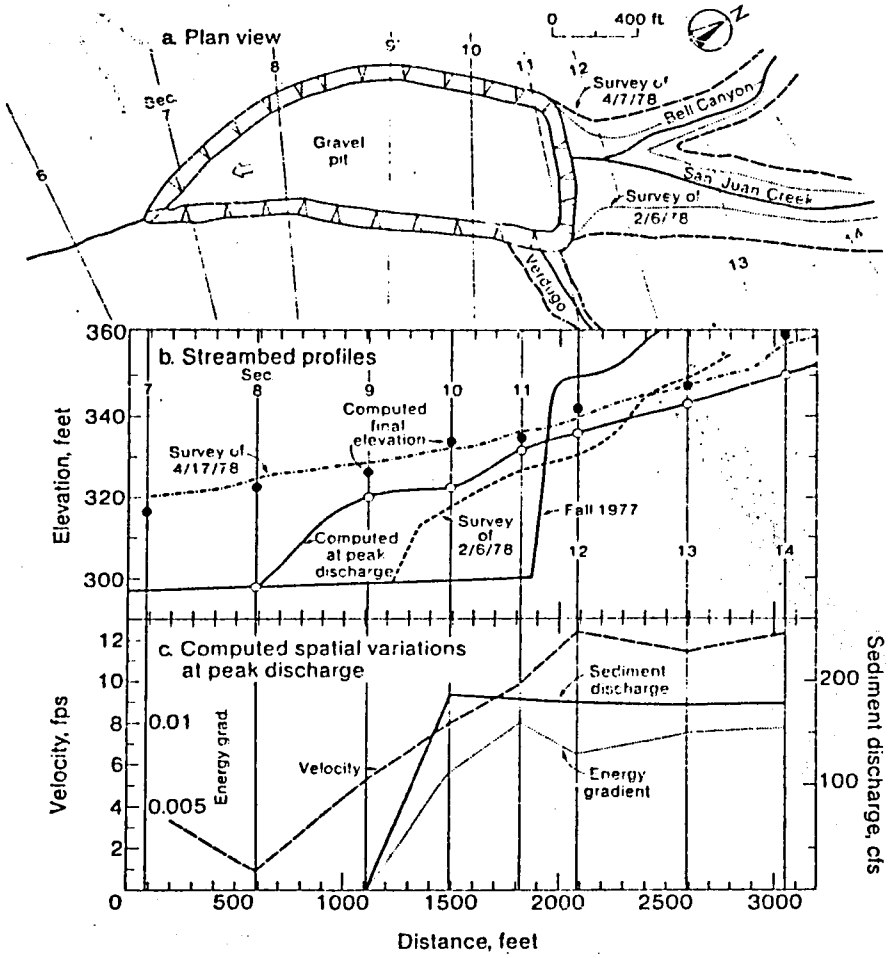

Fig. 32.6 Plan and profiles of San Juan Creek near gravel pit. Note: 1 ft = 0.3048 m; 1 cfs = 0.0283 $m^3/5$

32.4.1 Fluvial processes induced by gravel mining

The FLUVIAL-11 model was used to simulate stream channel changes near the gravel pit. Cross-sections were selected along the stream reach covering a total distance of 3.2 km. Stream channel changes outside this reach were not considered. Sediment discharge was computed using Graf's formula (Graf, 1971). Sediment inflow into the reach was based upon the computed sediment discharge at the upstream section using the same formula.

Simulated results shown in Figs 32.6(b), 32.6(c), and 32.7 are used to describe

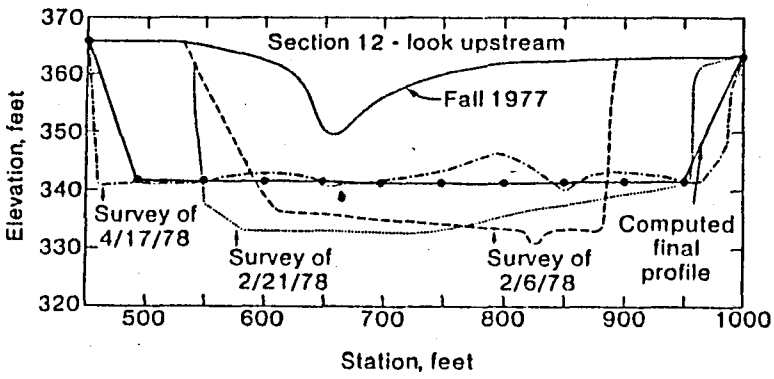

Fig. 32.7 Cross-sectional changes at Section 12, upstream of gravel-pit. Note: 1 ft = 0.3048 m

the fluvial processes near the gravel pit. The simulated spatial variations of velocity, sediment discharge, and energy gradient shown in Fig. 32.6(c) are for the peak discharge of 328 m^3/s on March 4, 1978. At this point in time, the gravel pit was still being refilled. This process of refill was related to the nonuniformity in sediment discharge which was high in the upstream refilled portion of the gravel pit and practically zero in the remaining pit. With continued refill, a more or less uniform sediment discharge was gradually established along the channel.

Stream channel changes occurred not only due to sediment imbalance, but also because of nonuniformity in power expenditure per unit channel length. During most of the storm periods, the power expenditure was not uniform along the channel and the water surface profile was not a straight line. Since channel roughness was assumed constant in this case study, adjustment in power expenditure was through changes in channel bed elevation and channel width. During the initial headward erosion, a steep energy gradient existed at Section 12 above the pit and a flat energy gradient at Section 11 in the pit. The formation of a gully at Section 12 was the most efficient way to reduce the energy gradient or power expenditure at this section. The opposite occurred at Section 11 where deposition was accompanied by widening. Thus, power expenditure at Section 11 was increased because of the greater wetted perimeter and higher bed elevation. Therefore, the initial spatial variation in energy gradient, i.e. the non-uniformity in water-surface profile, between Sections 11 and 12, was reduced through such fluvial processes. As explained previously, such stream channel changes also favoured the establishment of equal sediment discharge along the channel. It is interesting to point out that, during the initial stage, stream channel adjustment toward uniform power expenditure and sediment discharge was actually accomplished by developing significant spatial variation in width. But at a later point in time, such as at the peak discharge, stream channel adjustment was toward reducing the spatial variation in width because of channel widening upstream of the pit. This development may be explained by the computed spatial variations in sediment

discharge and energy gradient shown in Fig. 32.6(c). With reference to Section 12, it had a sediment discharge similar to those at the adjacent sections, but it had a lower energy gradient due to the smaller width. In the process of establishing uniform energy gradient, this section gradually widened so as to increase the energy gradient and the spatial variation in width was thus reduced. The simulated final cross-sectional shape compares favourably with measurement as shown in Fig. 32.7.

The changes in width and channel-bed elevation at Section 12 are compared based upon the measurements shown in Fig. 32.7. From the initial configuration to the final configuration, the maximum change in channel bed elevation was about 9 m. The change in width from February 6 to April 17, 1978 alone was over 60 m. Because the width change was much greater than the bed elevation change, it becomes clear that width changes must be included in modelling such streams.

32.5 SUMMARY AND CONCLUSIONS

The fluvial processes associated with gravel mining were described and mathematically modelled. The progressive stream channel changes induced by gravel mining in San Juan Creek included headward erosion, downstream erosion, gravel pit deposition and gradual establishment of a continuous stream bed profile. Throughout these processes, the scour and fill of the channel bed were accompanied by usually greater changes in channel width. During the initial stage of headward erosion and deposition in the pit at the stream mouth, the channel developed significant spatial variation in width. The part formed by headward erosion was shaped like a gully but it was followed by rapid widening into the pit. Subsequently, the narrow gully was gradually refilled, its width was concurrently increased, and the spatial variation in channel width was progressively reduced. Such time and spatial variations in width, whether they are in the direction of spatial uniformity or non-uniformity, were consistent with the channel's tendency in seeking equal streampower expenditure per unit channel length, that is a straight water surface profile, along the channel.

32.6 ACKNOWLEDGEMENTS

The data and photographs used in the study were suppled by Dr V. A. Vanoni, Professor Emeritus of Hydraulics, California Institute of Technology. His assistance is gratefully acknowledged.

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APPENDIX C

TECHNICAL PAPERS DESCRIBING ANALYTICAL BACKGROUND OF THE FLUVIAL-12 MODEL

Generalized Computer Program

FLUVIAL-12

Mathematical Model for Erodible Channels

Users Manual

prepared by
Howard H. Chang, Ph.D., P.E.
San Diego, California
August 1986

Generalized Computer program

FLUVIAL-12

MATHEMATICAL MODEL FOR ERODIBLE CHANNELS

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SAMPLE GRAPHICAL RESULTS FOR CROSS-SECTIONAL CHANGES

PROGRAM SUMMARY

The computer program FLUVIAL-12 is formulated and developed for water and sediment routing in natural and man-made channels. The hydraulics of flow and sediment transport are simulated with the associated river channel changes for a given flow period.

River channels changes simulated by the model include channel bed scour and fill (or aggradation and degradation), width variation, and changes in bed topography induced by the curvature effect. These inter-related changes are coupled in the model for each time step. While this model is for erodible channels, physical constraints, such as bank protection, grade-control structures and bedrock outcroppings, may also be specified. Applications of this model include evaluations of general scour at bridge crossings, sediment delivery, channel responses to sand and gravel mining, channelization, etc. It has been applied to many designs for bank protection and grade-control structures which must extended below the potential channel bed scour. This model has also been tested and calibrated with field data from several rivers.

Development of the FLUVIAL computer model dates back to 1973. Several publications describing the physical foundation, analytical background, and applications are included in this manual. Publications documenting the successive stages of development of the model are listed in the following:

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2. Chang, H. H., "Flood Plain Sedimentation and Erosion, Phase VI," Dept. of Sanitation and Flood Control, Public Works Agency, County of San Diego, July, 1975, 77 pp.

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12. Chang, H. H., "Channel Width Adjustment during Scour and Fill," Journal of Hydraulic Engineering, ASCE, Vol. 111, No. 10, October, 1985.

13. Chang, H. H., "River Channel Responses during Floods," Proceedings, The Third-International Symposium on river Sedimentation, Jackson, Mississippi, April, 1986.

Channel Width Adjustment during Scour and Fill

By Howard H. Chang,[1] M. ASCE

Introduction

The purpose of this article is to provide a physical explanation and an example for stream channel width adjustment during streambed scour and fill. Width adjustment as a part of stream channel changes is an intriguing problem for which an analytical basis has been pursued (3,4). While fluvial processes are governed by the principles of continuity, flow resistance, sediment transport and bank stability, such relations are insufficient to explain the time and spatial variations of channel width in an alluvial stream.

In a recent study of Andrews (1), the adjustment of stream channel width in the East Fork River appeared to be controlled by the processes of scour and fill. Generally, width adjustment occurs concurrently with changes in streambed profile, roughness, slope, channel pattern, etc. These changes are closely interrelated; they are delicately adjusted as the stream seeks to establish or to maintain its dynamic state of equilibrium. A condition for dynamic equilibrium has been hypothesized as equal power expenditure per unit channel length, γQS, along the channel (3,4), in which γ = specific weight of water; Q = water discharge; and S = energy gradient. The contribution to power expenditure from sediment movement is usually negligible. On the basis of this hypothesis, channel width adjustment is in the direction of uniform power expenditure subject to the constraints. Because of the difficulty in perceiving the physical meaning of power expenditure, this concept for channel width adjustment needs to be further elucidated. It is supplemented herein with a physical explanation, and illustrated by a field example.

Width Adjustment on Basis of Water-Surface Profile

The state of dynamic equilibrium is the direction toward which each stream channel evolves. Although equilibrium may never be attained in nature, each stream is constantly adjusting itself in that direction. It has been hypothesized that equal γQS along the channel is a condition for dynamic equilibrium (3,4). Under this condition, there is no spatial power conversion along the channel. It has also been verified that, under equal γQS, the total power expenditure in the entire channel reach becomes a minimum (3). Based upon this hypothesis, channel width adjustment is such that γQS changes in the direction of uniformity. In a short channel reach of constant discharge, uniform γQS becomes uniform energy

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gradient S. If the energy gradient is approximated by the water-surface slope, then uniform energy gradient is equivalent to the straight water-surface profile along the channel. A stream channel undergoing changes usually does not have a straight water-surface profile. On the basis of this hypothesis, it may therefore be stated that channel width adjustment, accompanied by other stream channel changes, is such that it reduces the non-uniformity in longitudinal water-surface profile. The rate of width adjustment is limited by the rate of sediment movement and subject to the rigid constraints, such as bank protections, abutments, etc.

Illustrative Example

That a stream channel's adjustment in width during streambed scour and fill is toward uniform power expenditure, or straight water-surface profile, is illustrated by a field example. Fig. 1 shows a short reach of the San Diego River at Lakeside, California, on February 25, 1981, during the initial stage of a storm. The estimated discharge of 600 cfs persisted for several subsequent days. Prior to the storm, this sandy streambed was graded, due to sand mining, to a wavy profile. As the flow first started, the water-surface profile was not straight because its gradient was steeper over higher streambed areas than over lower areas. Gradually, these higher streambed areas were scoured while lower places filled. Small widths formed with streambed scour, whereas large widths developed with fill, as shown in Fig. 1. This pattern of significant spatial variation in width actually represented the stream's adjustment toward equal energy gradient, as explained in the following. The streambed area undergoing scour had a steeper energy gradient (or water-surface slope) than its adjacent areas. Formation of a narrower and deeper channel was effective to reduce the energy gradient due to decreased boundary resistance and lowered streambed elevation. In addition, the cross section

FIG. 1.—Spatial Variation in Width Developed during Stream Channel Adjustment toward Straight Water-Surface Profile, San Diego River at Lakeside, California

developed a somewhat circular shape, which conserved power for being closer to the best hydraulic section. On the other hand, the streambed area undergoing fill had a lower streambed elevation and a flatter energy gradient. Channel widening at this area was effective to steepen its energy gradient due to the increasing boundary resistance and rising streambed elevation. In summary, these adjustments in channel width effectively reduced the spatial variation in power expenditure or nonuniformity in water-surface profile. Because sediment discharge is a direct function of stream power γQS (2), channel adjustment in the direction of equal power expenditure also favors the equilibrium, or uniformity, in sediment discharge.

The significant spatial width variation shown in Fig. 1 was temporary. The small width lasted while streambed scour continued, and the large width persisted with sustained fill. At a later stage, when scour and fill ceased, the energy gradient or water-surface slope associated with the small width became flatter than that for the large width. The new profile of energy gradient or water surface became a reversal of the initial profile. Then the small width started to widen while the large width began to slide back into the channel, resulting in a more uniform width along the channel.

Summary and Conclusions

The adjustment of stream channel width is explained by the stream's tendency to reach uniform power expenditure per unit channel length, i.e., straight water-surface profile, along the channel. While straight water-surface profile is the direction toward which each stream channel evolves, channel width adjustment under this condition is not necessarily toward streamwise uniformity. It is shown that straight water-surface profile can be approached by significant streamwise variation in width during streambed scour and fill.

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Modeling of River Channel Changes

By Howard H. Chang,[1] M. ASCE

Abstract: A computer-based flood- and sediment-routing model which simulates river channel changes is described together with its application in the case study of a disturbed river. Simulated results of this study are supported by field observations and measurements. This model incorporates the interrelated changes in channel bed profile, width, and lateral migration in channel bends. These changes reflect, in part, a river's adjustments in power expenditure. The interrelation of changes in channel bed profile and width is illustrated by a physical example and explained by the river's tendency to establish equal power expenditure along the channel. Such power transformation associated with river channel evolution tends to restore the dynamic equilibrium in sediment transport, that is, equal sediment load along the channel. The case study demonstrates that in the case of severely disturbed rivers, flood-level computation using a fixed-bed model may be quite inaccurate and improved accuracy can be provided by an erodible-bed model.

Introduction

River channel changes generally include channel-bed aggradation and degradation, width variation, and lateral migration in channel bends. These changes may occur naturally or as a result of a change in the environment. Man is also regarded as a geomorphic agent with certain activities such as sand and gravel mining, bridge construction, river control schemes, etc., having contributed to river channel changes. Langbein and Leopold (12) maintained that the equilibrium channel represents a state of balance with a minimum rate of energy expenditure or an equal rate of energy expenditure along the channel. Changes induced by nature or men's activities distort the channel equilibrium and therefore result in river channel changes.

The three types of river channel changes in channel-bed elevation, channel width, and lateral migration are closely interrelated to each other and may occur concurrently. Changes in channel-bed elevation are often inseparable from width variation because a channel tends to become narrower during degradation, and it tends to widen during aggradation. Earlier versions of the FLUVIAL model have considered channel-bed aggradation and degradation (3,4,5) and width variation (4,5). The current version FLUVIAL-11 which simulates all three types of changes has been formulated, developed and applied in a case study. This paper describes this model and its application in the case study. Special attention is given to the nature of energy (or power) transformation in alluvial rivers associated with river channel evolution.

Analytical Background

This mathematical model has five major components: (1) Water routing; (2) sediment routing; (3) changes in channel width; (4) changes in channel-bed profile; and (5) lateral migration of the channel. This model

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employs a space-time domain in which the space domain is represented by the discrete cross sections along the river reach and the time domain is represented by discrete time steps. In water routing, the time and spatial variations of the discharge, stage, velocity, energy gradient, etc., along the reach are obtained by an iterative procedure. At each time step, sediment discharge at each cross section is computed; changes in channel width, channel-bed profile and lateral migration are obtained and applied to each cross section. The bed-material composition is updated at each time step. Water routing is assumed to be uncoupled from the sediment processes. The five components are described.

Water Routing.—Basic equations for water routing include the continuity and momentum equation of flow, these are

$$\frac{\partial Q}{\partial x} + \frac{\partial A}{\partial t} - q = 0 \quad (1)$$

$$g\frac{\partial H}{\partial x} + \frac{1}{A}\frac{\partial Q}{\partial t} + \frac{1}{A}\frac{\partial}{\partial x}\left(\frac{Q^2}{A}\right) + gS - \frac{Q}{A^2}q = 0 \quad (2)$$

in which Q = flow discharge; x = distance in the longitudinal or flow direction; A = cross-sectional area of flow; t = time; q = lateral inflow rate per unit channel length; g = gravitational acceleration; H = stage or water surface elevation; and S = energy gradient. Eqs. 1 and 2 constitute a system of partial differential equations; they may be written in finite difference form in the space-time domain. With the prescribed initial and boundary conditions, time and spatial variations of Q and H along the reach may be obtained by an iterative procedure. This technique for water routing can be found elsewhere (6).

If the temporal terms in Eqs. 1 and 2 are ignored, water routing may be simplified by computing water-surface profiles at successive time steps. This option is available in the model. Computation of the water-surface profile at each time step is based upon the standard-step method using techniques similar to the HEC-2 computer model (9). For many cases, spatial variation in discharge due to channel storage is small and this technique produces closely similar results as the previous one.

Sediment Routing.—The sediment routing component has three major features: (1) Numerical solution of the continuity equation for sediment in the longitudinal direction; (2) computation of bed-material load using a formula suitable for the physical conditions; and (3) accounting of bed-material composition.

The continuity equation for sediment in the longitudinal direction is

$$(1-\lambda)\frac{\partial A_c}{\partial t} + \frac{\partial Q_s}{\partial x} - q_s = 0 \quad (3)$$

in which λ = porosity of bed material; A_c = cross-sectional area of channel bed within some arbitrary frame; Q_s = volumetric sediment rate; and q_s = lateral inflow rate of sediment per unit length. The change in cross-sectional area ΔA_c for each section at each time step is obtained through numerical solution of Eq. 3. Techniques for numerical solution can be found in the literature (3,4). The area change ΔA_c is applied to the bed and banks following the techniques of corrections of channel-bed profile

and channel width described in the following sections.

Sediment rate is computed separately for cases of erosion and deposition using different size fractions of the bed material. For a particular size, transport capacity is obtained from a sediment equation. In the case of deposition, sediment rate is controlled by the transport capacity but, in the case of erosion, sediment rate is availability controlled. Simulation of sediment transport and accounting of bed-material composition by tracking river channel evolution are similar to those developed by Bennett and Nordin (2). Materials eroded from the channel banks, excluding that portion in the wash load size range, are included in the accounting. Bed armouring develops if bed shear stress is too low to transport any available size.

Changes in Channel Width.—Simulation of width variation is based upon the concept of minimum stream power. At a time step, width corrections for all cross sections are such that the total stream power (or rate of energy expenditure) for the reach is minimized; these corrections are subject to the physical constraint of rigid banks and limited by the amount of sediment removal or deposition along the banks within the time step. Total stream power of a channel reach is

$$P = \int_L \gamma Q S dx \qquad (4)$$

in which P = total stream power of the reach; L = length of the reach; and γ = specific weight of water and sediment mixture. Written in finite difference form, this equation becomes

$$P = \sum_{i=1}^{N-1} \frac{1}{2} \gamma (Q_i S_i + Q_{i+1} S_{i+1}) \Delta x_i \qquad (5)$$

in which N = total number of cross-sections for the reach; i = cross section index counted from upstream to downstream; and Δx_i = distance between Sections i and $i + 1$. Previous studies (5,12,13) have established that minimum stream power for an alluvial river is equivalent to equal power expenditure per unit channel length, that is, constant γQS along the reach. A river channel undergoing changes usually has uneven spatial distribution in power expenditure or γQS. Usually the spatial variation in Q is small but that in S is pronounced. Total stream power of a reach decreases with the reduction in spatial variation in QS (or S if Q is nearly uniform) along the reach. Adjustments in channel widths are made in such a way that the spatial variation of QS is minimized subject to the constraints and limitations aforementioned. An adjustment in width reflects the river's adjustment in flow resistance, that is, in power expenditure. A reduction in width at a cross section is usually associated with a decrease in energy gradient for the section whereas an increase in width is accompanied by an increase in energy gradient. Using these guidelines, a technique for width correction has been developed as described in a previous publication (5).

Width changes in alluvial rivers are characterized by the formation of small widths at degrading reaches and widening at aggrading reaches (4,5,11,13,15). This type of width formation represents the river's ad-

justment in resistance to seek equal power expenditure along its course. A degrading reach usually has a higher channel-bed elevation and energy gradient than its adjacent reaches. Formation of a narrower and deeper channel at the degrading reach decreases its energy gradient due to reduced boundary resistance and lower bed elevation. On the other hand, an aggrading reach is usually lower in channel-bed elevation and energy gradient. Widening at the aggrading reach increases its energy gradient due to increased boundary resistance and higher bed elevation. These adjustments in channel width reduce the spatial variation in energy gradient and total power expenditure of the channel. Since sediment rate is directly proportional to γQS (1), these adjustments also favor the establishment of channel's equilibrium in sediment load, that is, equal sediment rate along the reach.

Changes in Channel-Bed Profile.—After the banks are adjusted, the remaining correction for ΔA_c obtained in sediment routing is applied to the bed. Erosion and deposition at a cross section have different patterns. Generally speaking, deposition tends to be more uniformly distributed in that it tends to build up the channel bed in horizontal layers. This process of deposition is often accompanied by channel widening. On the other hand, channel-bed erosion tends to be more confined with greater erosion in the thalweg. This process is usually associated with a reduction in width. These channel adjustments reduce the spatial variation in power expenditure as the river seeks to establish a new equilibrium. In the model, deposition at an aggrading section starts at the lowest point, and it builds up the channel bed in horizontal layers. For a degrading section, the change in area is distributed in proportion to the effective tractive force, $\tau - \tau_{cr}$, along the bed, where τ is the local tractive force and τ_{cr} is the critical tractive force.

Lateral Migration.—In a river bend, erosion on the concave bank and deposition on the convex bank results in lateral migration of the channel. This river channel change is attributed to the transverse currents in the river bend. In the present model, the mechanism for lateral migration is provided by transverse currents, transverse sediment movement and the continuity equation for sediment in the transverse direction. Bottom filaments of stream current in a bend have a component in the transverse direction toward the convex bank. The role of transverse velocity consists in moving the bottom layers of the stream away from the concave bank. Erosion of the concave bank occurs under the action of the transverse velocity which, being directed down the slope and added to the gravitational force, scours particles of the material on the concave bank. As particles are scoured from the concave bank, they tend to be deposited on the convex bank, resulting in a shift in channel course. Rozovskii (14) studied the angle of deviation of bottom filaments from the direction tangent to the centerline of a bend. Kikkawa, et al. (10, p. 1332) developed an analytical relationship for the angle of deviation β of mean particle path from the tangential direction. In the relationship, β is expressed as a function of the flow direction of bottom filaments, transverse bed slope, and flow and sediment characteristics. With this relationship, the transverse sediment rate is related to the longitudinal sediment rate as

$$q_s' = \tan \beta q_s \quad (6)$$

in which q_s' = transverse sediment rate per unit channel length; and q_s = longitudinal sediment rate per unit width. Erosion of the concave bank is simulated by the removal of sediment and bank collapse due to the combined effects of velocity and gravitational force. Because bank stability depends on a large number of factors including bank height, slope angle, drainage state, cohesion, etc. (17), the rate of bank erosion given by Eq. 6 is multiplied by a coefficient of bank erosion which is determined based upon river data. The change in channel-bed elevation at a point along a section is obtained from the continuity for sediment in the transverse direction, or

$$(1 - \lambda) \frac{\partial z}{\partial t} + \frac{1}{r} \frac{\partial}{\partial r} (r q_s') = 0 \quad (7)$$

in which z = channel-bed elevation at a point; and r = radial or transverse coordinate. With a forward difference in r for the spatial derivative as suggested by Chang and Hill (3), the change in channel-bed elevation Δz for a time step Δt due to transverse sediment movement is

$$\Delta z_k = \frac{\Delta t}{1 - \lambda} \frac{2}{r_k + r_{k+1}} \frac{r_{k+1} q_{s_{k+1}}' - r_k q_{s_k}'}{r_{k+1} - r_k} \quad (8)$$

in which k = radial coordinate index counted from the convex bank toward the concave bank.

Model Description

The mathematical model FLUVIAL-11 has been developed; its input data, computing procedures and output parameters are described.

Input Data.—Input to the model include the initial cross sections, channel roughness, initial bed-material composition, inflow hydrograph and physical constraints such as check dams, rigid banks, bedrock outcrops, etc. The input data follow the HEC-2 (9) format.

Computing Procedures.—Major steps of computation in the model include the following:

1. Enter input data.
2. Compute water-surface elevations and sediment loads at all cross sections.
3. Set $t = t + \Delta t$.
4. Determine changes in channel cross-sectional area using techniques for sediment routing.
5. Compute and apply changes in channel width.
6. Obtain new channel-bed profiles.
7. Compute and make changes in cross-sectional profile due to lateral migration for those sections in channel bends.
8. Update bed-material compositions.

After step 8, the computation returns to Step 2 for another time step. The iteration continues until the required time period is covered.

Output Description.—Output of the model include initial bed-material compositions, time and spatial variations of the water-surface profile, channel width, flow depth, flood discharge, velocity, energy gradient, roughness coefficient, median sediment size, and bed-material load. In addition, cross-sectional profiles are printed at different time intervals.

Case History of River Channel Changes

The San Dieguito River at Rancho Santa Fe, California, went through significant changes in a two-mile reach (see Fig. 1) during recent floods. Measurements of river channel changes and flood hydrographs were made by the County of San Diego (7,16), providing a valuable set of field data for river studies.

Physical Conditions.—The study reach is about four miles from the ocean and about five miles below Lake Hodges Dam. The channel has a wide and flat natural configuration; the natural slope and bed-material size decrease significantly in the downstream direction. Bed material of the study reach varies from coarse sand (d_{50} = 0.85 mm) at the upstream end to fine sand (d_{50} = 0.24 mm) downstream.

The natural channel configuration was distorted prior to recent flood events by man's activities including sand mining and construction of the Via de Santa Fe Road and bridge as shown in Fig. 1. As a result of sand mining, several large borrow pits with a depth as great as 25 ft were created. The natural wide channel was encroached upon by the road embankment on each side of the bridge (Section 51). While the river channel has an erodible bed and banks, the banks, however, are constrained by the hills at the south bank of Section 51 and along the north

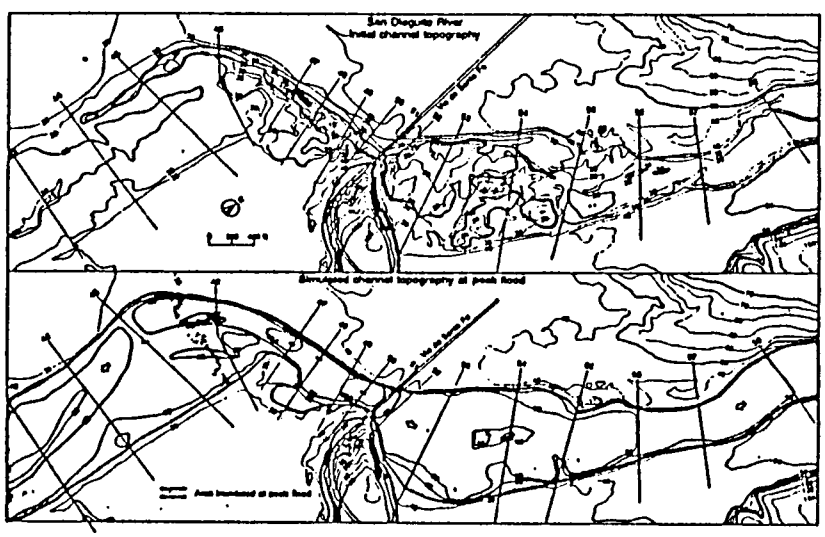

FIG. 1.—Topographies and Cross Section Locations

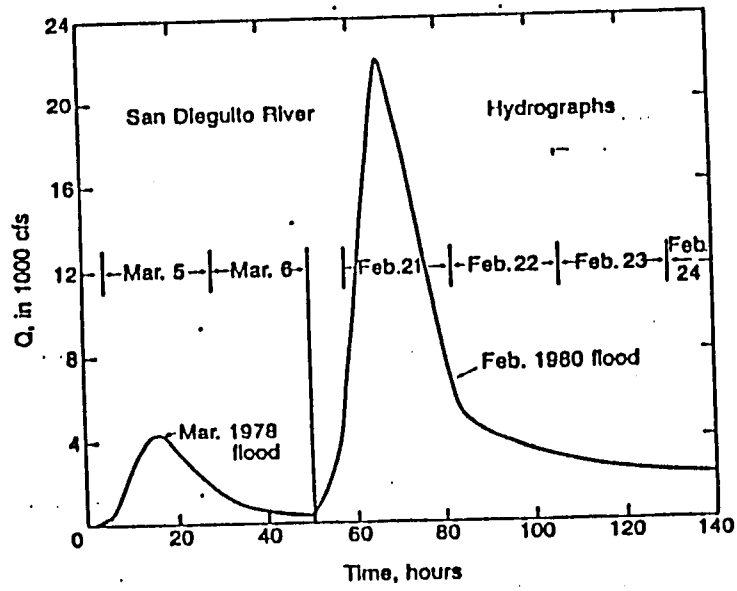

FIG. 2.—Flood Hydrographs

banks of Section 60–63 and by bank protections at the north banks of Sections 51 and 58.

Two floods passed through the river, one in March, 1978 (peak flow = 4,400 cfs), and another in February, 1980 (peak flow = 22,000 cfs),

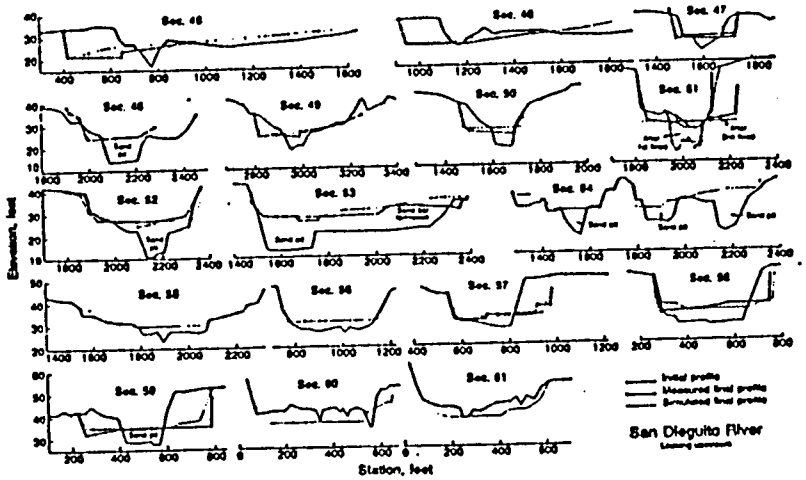

FIG. 3.—Simulated and Measured Cross-Sectional Changes

when Lake Hodges spilled. Hydrographs of these floods are shown in Fig. 2. Prior to these events, Lake Hodges had not spilled for 26 yr.

River Channel Changes.—Significant changes in the river channel were observed after the March, 1978, flood. Channel-bed scour occurred near borrow pits and notably at the bridge crossing where measurements were made as shown in Fig. 3 for Section 51. Deposition was observed in the borrow pits. With limited flood discharge and duration, these borrow pits were only partially refilled.

Major changes in the river channel occurred during the greater February, 1980, flood. These changes included channel-bed aggradation and degradation, width variation, and lateral migration of the channel as described below. These changes were recorded by photographs taken during the flood, by a high water mark at Section 52, and by channel-bed measurements at selected cross sections after the flood as shown in Fig. 3.

Major aggradation occurred in the borrow pits as they were largely refilled after the flood. Major degradation occurred near the borrow pits and at the bridge crossing during the flood. Failure of several bridge piers as shown in Fig. 4 was caused by channel-bed scour, high velocity, and debris accumulation on the piers.

Channel-bed aggradation and degradation were accompanied by changes in channel width. The initial channel width was highly uneven along the reach primarily due to width encroachment by road embankments at the bridge crossing. Sand mining also contributed to the initial uneven width variation. As shown in Fig. 3, changes in channel width that occurred during the flood consisted of widening at the bridge crossing (Section 51) and other initially narrow sections (Sections 47, 49, 50, 57, 58, 59) and reductions in width at initially wide sections, notably at

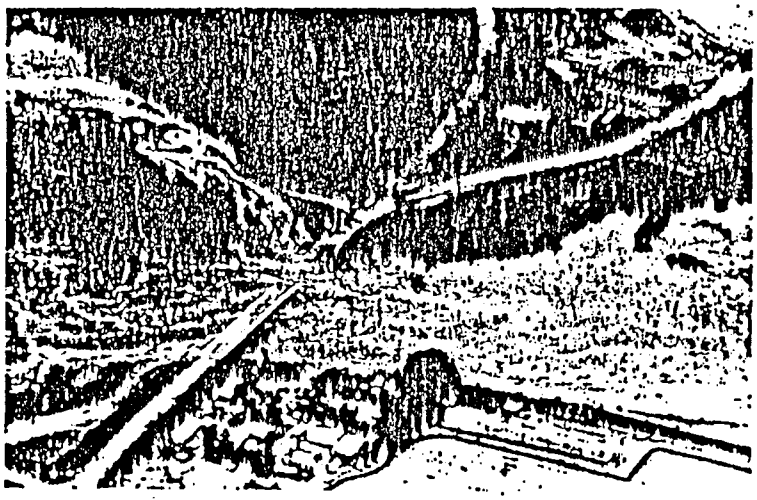

FIG. 4.—San Dieguito River Near Via de Santa Fe Road on February 21, 1980 (Looking Toward South)

FIG. 5.—Sand Bar Formation Near Section 53 (Looking Toward South)

Sections 53 and 54. Widening was accomplished by erosion of the channel banks subject to the physical constraints; reduction in width was due to sediment deposition along the banks in the form of sand bars. At Section 53, where the width showed a substantial reduction, the sand bar formed along the south bank at the end of the flood (see Figs. 3 and 5) had a width of about 400 ft or one-half of the initial channel width. The initial highly uneven spatial variation in channel width was gradually reduced during the flood.

Lateral migration of the river channel was pronounced along the channel bend from Section 44 to 46 where the concave bank was on erodible

FIG. 6.—Channel Bank Scour Near Sections 45 and 46 (Looking Toward North)

farm land. The channel shifted laterally toward the concave bank for as much as 200 ft, putting this part of the farm land into the river channel. A picture of the new concave channel bank taken after the flood is shown in Fig. 6.

Simulation and Results

The mathematical model FLUVIAL-11 was used to simulate river channel changes in the San Dieguito River during the 1978 and 1980 floods. Graf's equation (8) for bed-material load was used in computing the sediment movement. Channel roughness in terms of Manning's n was selected to be 0.035 in consideration of the channel irregularity and minor vegetation growth; it was estimated to be 0.04 at the bridge crossing. The combined duration of 140 hr for these two floods was computed using 2,000 time steps.

Simulated results as presented in Figs. 1, 3, and 7–10 are described.

Changes in River Channel Configuration.—River channel changes, including those in channel-bed profile, channel width, and lateral migration, as simulated by the computer model, are described herein. Changes in the longitudinal channel-bed profile (see Fig. 7) are characterized by aggradation in the borrow pits, erosion at higher grounds, and the gradual formation of a more or less smooth channel-bed profile at the end of the flood. In that process, considerable variation in the longitudinal channel-bed elevation through the downstream portion of the river reach is predicted at the peak flood as shown in Figs. 1 and 7. The higher channel-bed elevations at Sections 45, 46, and 48 are asso-

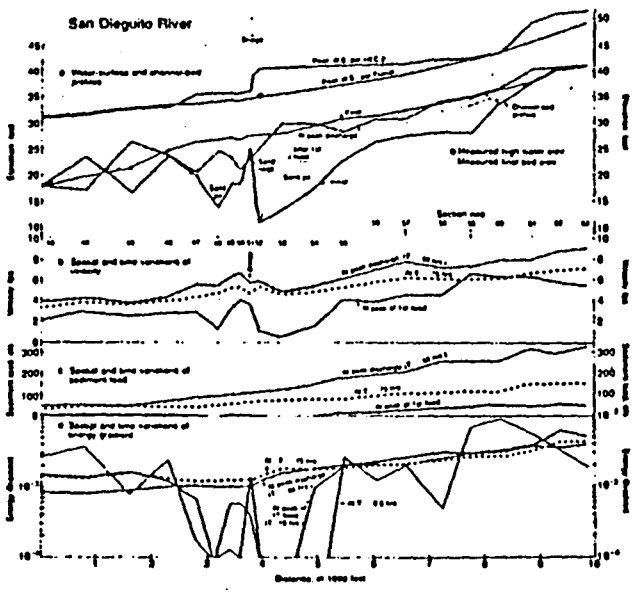

FIG. 7.—Simulated and Measured Results

ciated with large channel widths while the lower elevations at Sections 47 and 50 are due to their small widths.

Changes in channel width which occur concurrently with variations in channel-bed elevation and lateral migration are simulated. Width changes are characterized by the gradual widening at those initially narrow sections, notably at Sections 47, 49, 50, 51, 57, 58 and 59 and reductions in width at initially wide sections, notably at Sections 53 and 54. Initial and simulated final cross-sectional profiles of these sections are shown in Fig. 3 together with some measured profiles. Simulated channel width at the peak flood (shown in Fig. 1) is highly uneven in its spatial variation along the river. This variation is gradually reduced during the flood as reflected by the simulated final cross-sectional profiles in Fig. 3. By comparing the initial and final channel-bed profiles, one finds that widening at a section is through bank erosion and that the reduction in width is usually through sand-bar formation along the bank(s). Simulated time variation of the cross-sectional profile for Section 53 shown in Fig. 8 shows the sand-bar formation and the associated reduction in channel width. A picture of this sand bar taken at the end of the flood is shown in Fig. 5.

That changes in channel width and channel-bed elevation are closely related may be illustrated by the simulated time variation of the cross-sectional profile at Section 51 (see Fig. 9). Initially Section 51 is on a sand ridge with borrow pits existing on both sides. Gully erosion through this sand ridge during the first flood is simulated, followed by gradual widening and lessening of the gully depth during the second flood. The maximum scour depth is predicted to occur in the initial gully. The simulated results correlate well with measurements at this section shown in Fig. 3, in which the uneven final channel-bed profile as measured is related to the removal of several piers during the flood.

Lateral migration of the channel at Sections 44, 45, and 46 in the river bend as simulated is illustrated by the time variation of the cross-sectional profile at Section 46 (see Fig. 10). Lateral migration is through gradual erosion of the concave bank and deposition on the convex bank.

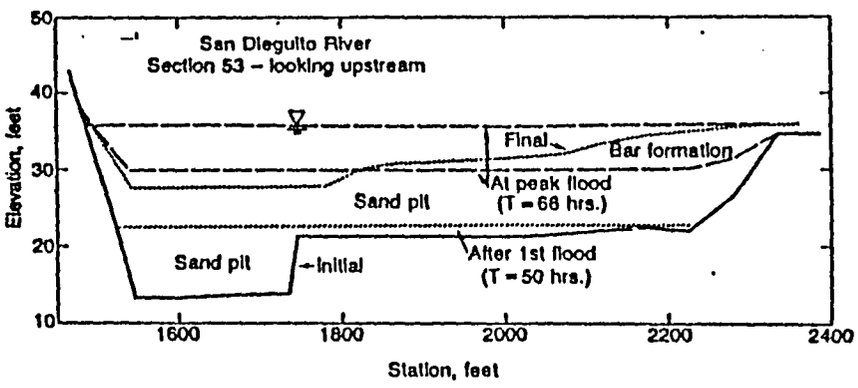

FIG. 8.—Simulated Cross-Sectional Changes at Section 53

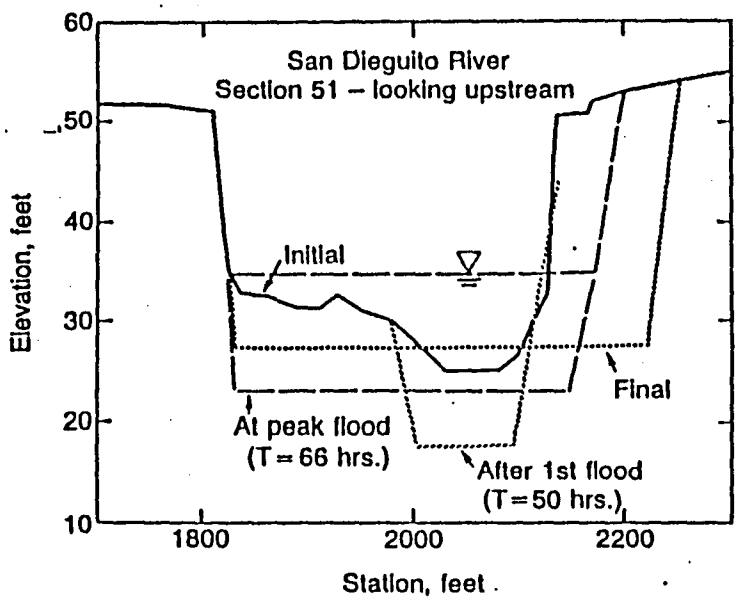

FIG. 9.—Simulated Cross-Sectional Changes at Via de Santa Fe Bridge

A picture of the eroded concave bank is shown in Fig. 6.

River Channel Changes in Relation to Power Expenditure.—Changes in river-channel configuration are accompanied by changes in flow resistance and hence the rate of energy (or power) expenditure. The γQS product represents the rate of energy expenditure per unit channel length. Since the spatial variation of Q is small, the spatial variation of γQS may be represented by the spatial variation of the energy gradient S shown in Fig. 7.

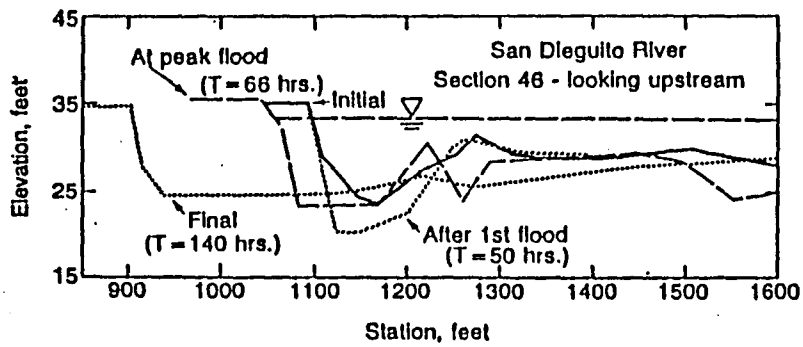

FIG. 10.—Simulated Cross-Sectional Changes at Section 46 Showing Lateral Migration Toward the Concave Bank

Simulated river channel changes are associated with the gradual reduction of the spatial variation of energy gradient along the channel subject to the physical constraint of rigid banks. That the adjustment in river-channel configuration is closely related to the change in power expenditure can be illustrated by the sequential changes of cross-sectional profile at Section 51 as shown in Fig. 9. Because it is an initial sand ridge (see Fig. 7), the energy gradient at this section is initially much greater than those of its adjacent sections. This pronounced spatial variation in energy gradient is reduced through gully erosion at this section and deposition at the adjacent sections. The gully which is small in width and has a low channel-bed elevation provides the least possible flow resistance and therefore lowest energy gradient at this section; it also reduces the back-water effect on the upstream section where the energy gradient is therefore increased. At subsequent time intervals, the energy gradient at Section 51 becomes less than its adjacent sections. Cross-sectional changes at this section then include widening in channel width and aggradation in the gully. These changes are accompanied by increases in boundary resistance and energy gradient at this section, favoring the establishment of equal energy gradient along the reach. This pattern of river channel changes, characterized by the formation of narrow channel width during channel-bed degradation and widening during aggradation, is evident in nature and has been reported in the literature (4,5,11,13,15).

Changes in Sediment and Hydraulic Parameters.—That flood- and sediment-routing in erodible channels is closely related to river-channel changes may be illustrated by the time and spatial variations of the velocity and sediment load shown in Fig. 7 at the peaks of the first and the second flood. The pronounced spatial variations in velocity and sediment load at the first peak flood are associated with the uneven river channel configuration dotted with borrow pits within which velocities and sediment loads are substantially lower. Changes in the river channel are such that they provide the mechanism to establish the dynamic equilibrium of sediment transport, that is, equal sediment load along the river reach. As shown, the spatial variation of sediment load is gradually reduced during the second flood. The same general trend may also be stated for the spatial variations in velocity and energy gradient. The slightly lower velocity at the bridge crossing is due to the additional flow resistance of bridge piers.

Variations of sediment size due to hydraulic sorting as simulated are not pronounced for this river reach. Certain trends can still be recognized, including coarsening of the material during scour and reduction in size during deposition. Channel widening through bank erosion brings finer bank materials into the channel and hence contributes to a reduction in sediment size.

Water-Surface Profiles.—The water-surface profile at the peak flood obtained using the FLUVIAL-11 model is compared with that obtained using the fixed-bed model HEC-2 in Fig. 7. The HEC-2 profile which is based upon the initial river-channel configuration indicates critical flow at Sections 46, 51, and 60, and subcritical flow at remaining sections, while the FLUVIAL-11 model predicts subcritical flow for the entire reach. The HEC-2 water-surface profile is highly uneven; the higher water-sur-

face elevations immediately upstream of the bridge crossing are primarily due to the higher bed elevation of the sand ridge and channel constriction at the bridge crossing. The FLUVIAL-11 water-surface profile is more uniform and its elevation at Section 52 is substantiated by the measured high water mark.

Summary and Conclusions

The mathematical model FLUVIAL-11 has been formulated and developed; it has been employed to simulate flood- and sediment-routing and associated river channel changes in the San Dieguito River near the Via de Santa Fe bridge. Simulated results using this model are supported by field observations and measurements.

An alluvial river is the author of its own geometry; therefore it will respond to any change imposed upon by nature or by men through self adjustments. River channel changes may include channel-bed aggradation and degradation, width variation, and lateral migration in channel bends. These changes are interrelated as they may occur concurrently. therefore, a mathematical model for erodible channels must include these variables.

River channel changes in the San Dieguito River are characterized by the trend toward a more uniform configuration from the initially distorted configuration. In this process, the river channel tends to become narrower during channel-bed degradation and it tends to widen during aggradation. This pattern of adjustments reflects the river's tendency to seek equal power expenditure along the channel. River channel changes also provide a mechanism with which the river seeks to establish the dynamic equilibrium in sediment transport, that is equal sediment load along the reach.

In severely disturbed rivers, flood-level computation using a fixed-bed model can be quite inaccurate. Improved accuracy for flood-level determination in such channels may be provided by an erodible-bed model.

Acknowledgment

The San Dieguito River study was made for the Committee on Hydrodynamic Models, National Research Council, National Academy of Sciences. This river was selected by the Committee as a test case for the study of computer-based flood and sediment routing models. This study was conducted for the Federal Emergency Management Agency by the Academy. The writer wishes to thank the staff of the County of San Dieguito for data collection. Suggestions on the manuscripts by Richard M. Fragaszy, Joseph C. Hill and V. Miguel Ponce are greatly appreciated.

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Appendix II.—Notation

The following symbols are used in this paper:

A = cross-sectional area of flow;
A_c = channel cross-sectional area within references frame;
D = average flow depth;
d_{50} = median size of sediment;
g = gravitational acceleration;
H = stage or water-surface elevation;
i = cross-section index counted from upstream to downstream;
k = radial (transverse) coordinate index;
L = length of stream reach;
N = total number of cross-sections for stream reach;
n = Manning's roughness coefficient;
P = total stream power of river reach;
Q = flow discharge;

Q_s = sediment discharge;
q = discharge of lateral inflow per unit channel length;
q_s = lateral inflow of sediment per unit channel length or longitudinal sediment rate per unit width;
q_s' = transverse sediment rate per unit channel length;
r = radial or transverse coordinate;
S = energy gradient;
t = time;
x = distance along longitudinal (flow) direction;
β = angle of deviation from direction tangent to centerline of channel;
γ = specific weight of water and sediment mixture;
λ = porosity;
τ = tractive force; and
τ_{cr} = critical tractive force.

MODELING SEDIMENT YIELD AFFECTED BY IN-STREAM SAND MINING

Howard H. Chang[1] and Robert C. MacArthur[2], Members, ASCE

Abstract: Sediment yield refers to the amount of sediment having passed a given river section for a specified duration. For the purposes of resources planning and management, it is often necessary to determine the amount of yield and the impacts on yield due to any project. In a river channel with in-stream sand mining, the yield is significantly affected by channel storage which occurs concurrently with river channel changes. While sediment will be stored in the borrow pit, it will also be depleted from channel boundary during headward and downstream erosion. The FLUVIAL model was employed to study river channel changes of the San Luis Rey River induced by in-stream sand mining. Spatial and time variations of sediment yield along the study reach during a 100-year flood were obtained. The study illustrates how channel storage (and depletion), a major factor affecting sediment yield, can be quantified by an erodible boundary model but not an erodible bed model.

Introduction

River sand is a major mineral resource in many communities in this nation. As the principle material for concrete, the demand for sand is very large in regions undergoing rapid urbanization. In-stream sand mining has impacts on flood level, floodway boundary, sediment yield, erosion of adjacent properties, etc. Any in-depth analysis soon reveals that these impacts are closely related as they will occur concurrently in a river channel disturbed by in-stream mining.

Sediment yield refers to the amount of sediment having passed a given river section for a specified time period. For the purposes of resources planning and management, it is often necessary to determine the amount of yield as affected by sand mining. This yield may be obtained by integrating the rate of sediment transport over the time period if this rate can be obtained. Bed-material load in alluvial rivers is affected by channel storage associated with river channel changes. Such storage effect is significant in the presence of in-

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stream sand mining. While sediment will be stored in the sand pit, it will also be depleted during headward and downstream erosion. The storage and depletion of sediment may be obtained by modeling river channel changes which occur both in the bed and along channel banks.

Configuration of Sand Excavation

The study reach of the San Luis Rey river covers a total distance of about 10 river miles; a portion of the reach near the mining area is shown in Fig. 1. This reach is defined by cross sections obtained from the 1986 flood insurance study made for the Federal Emergency Management Agency (FEMA). The extend of mining operation is roughly from river mile 1.4 to 2.0 in Fig. 1. The bridge crossing is at river mile 2.5. The existing borrow pit has an average width of about 400 feet and an average depth of about 10 feet.

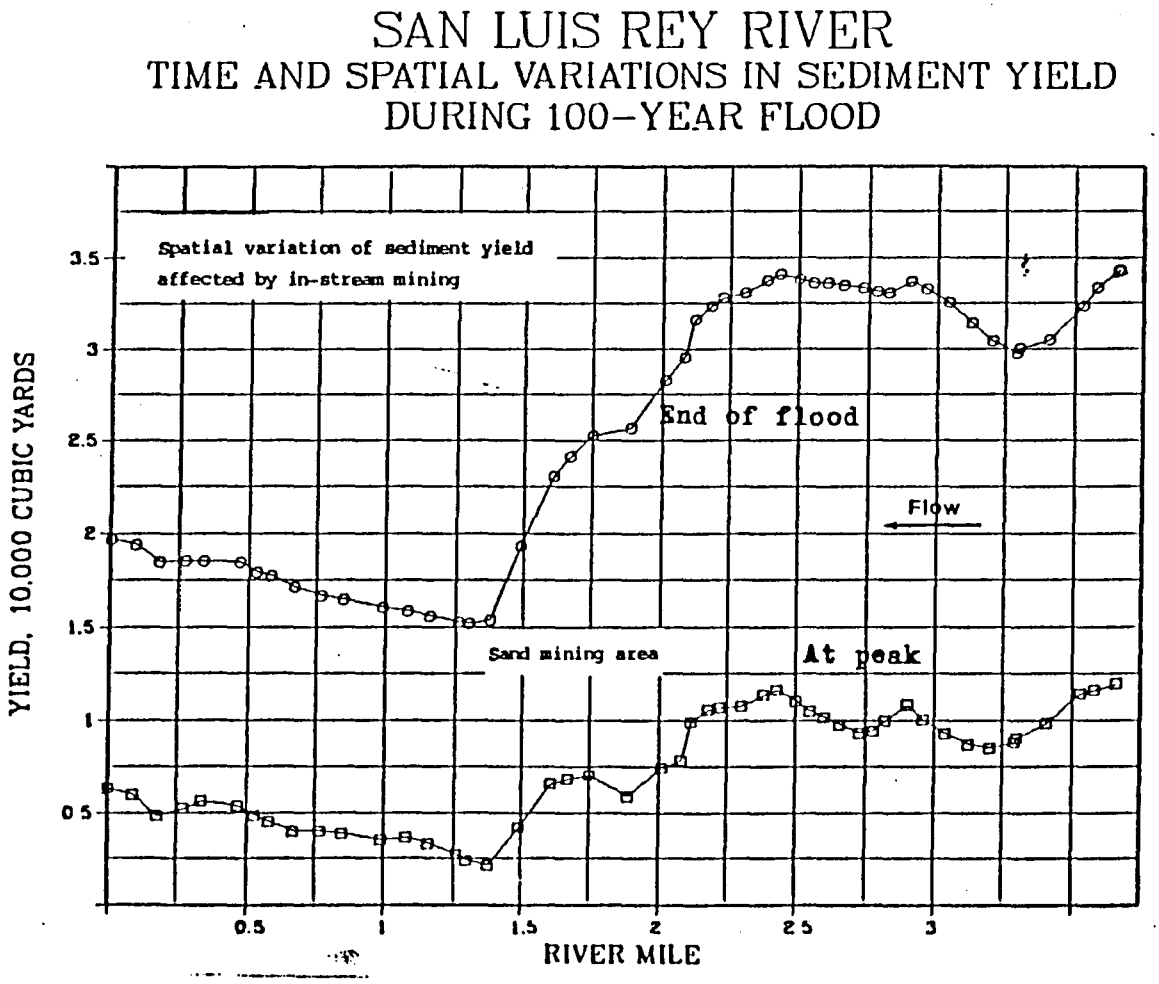


Fig. 1. - Simulated time and spatial variations in sediment yield near sand mining area

Mathematical Model for Fluvial Study

The latest version of FLUVIAL-12 (Chang 1984, 1985) for water and sediment routing through natural channels contains the necessary features for river channel changes during a flood. Detailed information of the technical background is given in previous publications. Briefly, this model, for a given flood hydrograph, simulates time and spatial variations in flood level, sediment transport and channel geometry. In the prediction of river channel changes, scour and fill are tied in with width variation and the effects of secondary currents under the changing channel curvature. In ~~the model,~~ scour and fill are computed on the basis of longitudinal imbalance in sediment discharge. At the same time, the variation in channel width is simulated such that the flow moves in the direction of equal power expenditure, i.e. equal energy gradient, subject to the physical constraints. If the energy gradient is approximated by the water-surface slope, then equal energy gradient is equivalent to the straight water-surface profile along the channel. In response to any design or scheme of sand excavation, the river channel evolves ~~in such a way~~ that uniformity in sediment discharge and straight water-surface profile ~~are approached~~ subject to the given constraints.

Simulated Sediment Yields

The FLUVIAL simulation was made for the 100-year flood established by the County of San Diego. The 100-year flood has a peak discharge of 51,000 cubic feet per second and a duration of two days along this river reach. In the computation, Manning's coefficient of 0.035 was used for the channel. This value reflects moderate growth of vegetation in the channel. A higher n value of 0.04 was used at the bridge crossing to account for the resistance due to bridge piers. Sediment transport in the river was computed using Yang's (1972) unit stream power equation.

Simulated results for sediment yield near the mining area are shown in Fig. 1. Sediment yield as shown is the accumulated bulk volume of bed material load having passed a given cross section at a given time during a flood. Spatial variations of sediment yield as simulated are for the peak flood and end of flood, respectively. The spatial variation of sediment yield is closely related to the potentials for scour and fill (aggradation and degradation) along the study reach.

A decreasing yield in the downstream direction indicates that sediment load is partially stored in the channel. Such sediment storage is associated with fill or aggradation of the channel bed. On the other hand, an increasing yield in the downstream direction means sediment removal from the channel bed, i.e., scour or degradation of the bed. A uniform sediment yield along the channel indicates sediment balance, i.e., dynamic equilibrium. It must be emphasized that scour and fill of

the channel bed are accompanied by significant changes in channel width which may contribute more to sediment storage and depletion.

As shown in Fig. 1, the spatial patterns of sediment yield are more or less uniform upstream of river mile 2.3. This trend indicates that this portion of the study reach is in an approximate state of equilibrium for which the amount of sediment inflow is in approximate balance with the outflow. Under this situation, the net scour or fill in the channel boundary should be small. It is important to note that cross sectional shape may still change even under sediment balance except deposition is more or less offset by erosion.

The decreasing trend of sediment yield in the reach from river mile 1.4 to 2.3 signifies net deposition in the channel and borrow pit, related to the refill of the pit. Downstream of the sand mining area, the sediment yield shows an increasing trend as the flow picks up additional material form the channel boundary.

Cross-Sectional Changes

~~The cross-sectional profiles shown in~~ Figs. 2 and 3 include those of the existing (the initial), at the peak discharge and at the end of flood. These cross-sectional profiles depict the potential river channel changes under the existing river channel conditions.

Simulated changes at river mile 2.7 exemplify the inter-related changes in bed profile and channel width. At this section, maximum fill of the channel bed is about 7 feet but width change is as much as 70 feet. Since the width change is greater than the corresponding change in bed elevation, it also has greater effect on sediment yield. Simulated changes in the borrow pit are exemplified by the results at river mile 1.8 which indicate net deposition. These cross-sectional changes are results of sediment storage and depletion and are therefore closely related to the sediment yield.

Summary and Conclusions

The sediment yield study of the San Luis Rey River was made using the FLUVIAL model which simulates the ~~hydraulic of flow~~, sediment transport and river channel changes. The simulated spatial variations in sediment yield indicate that the upper portion of the study reach is in an approximate state of equilibrium for which the amount of sediment inflow is in approximate balance with the outflow. The decreasing trend toward the mining area signifies net deposition in the sand pit. The mild increasing trend downstream of the sand pit is due to sediment depletion from the channel boundary.

Simulated changes at river mile 2.7 exemplify the inter-related

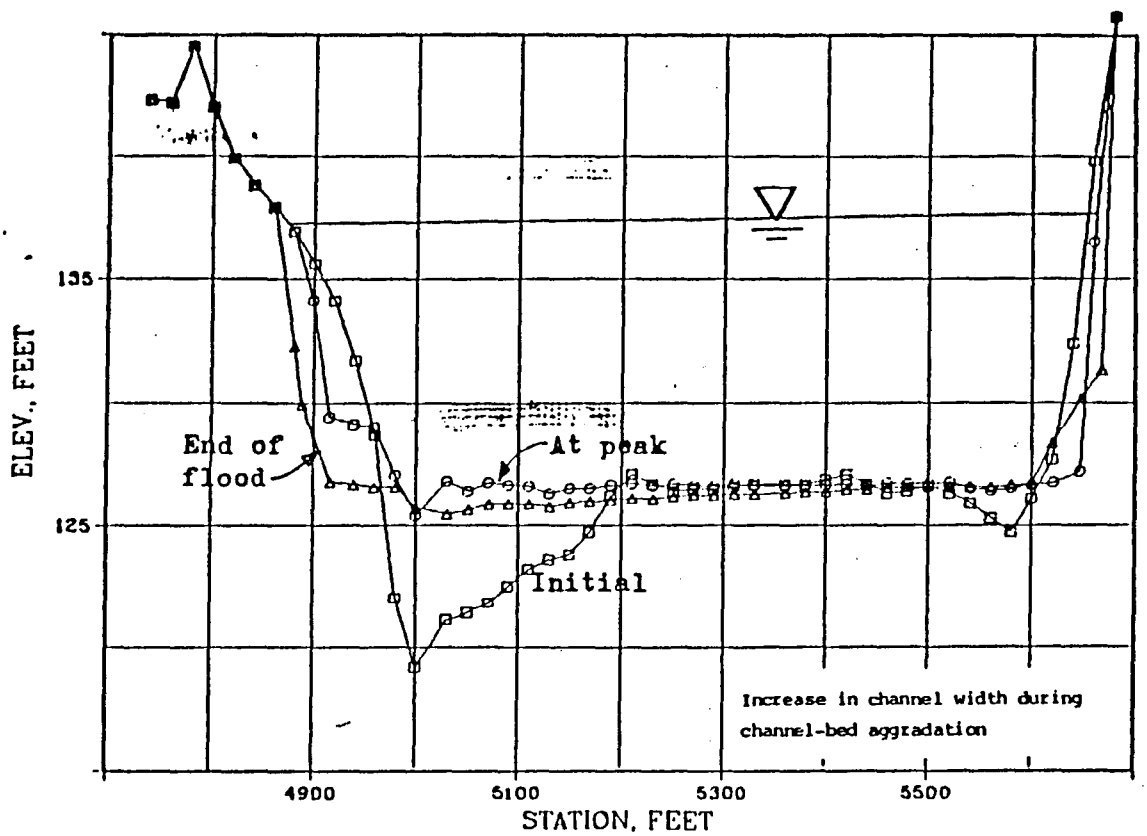


Fig. 2. Cross-sectional changes during 100-year flood at river mile 2.7

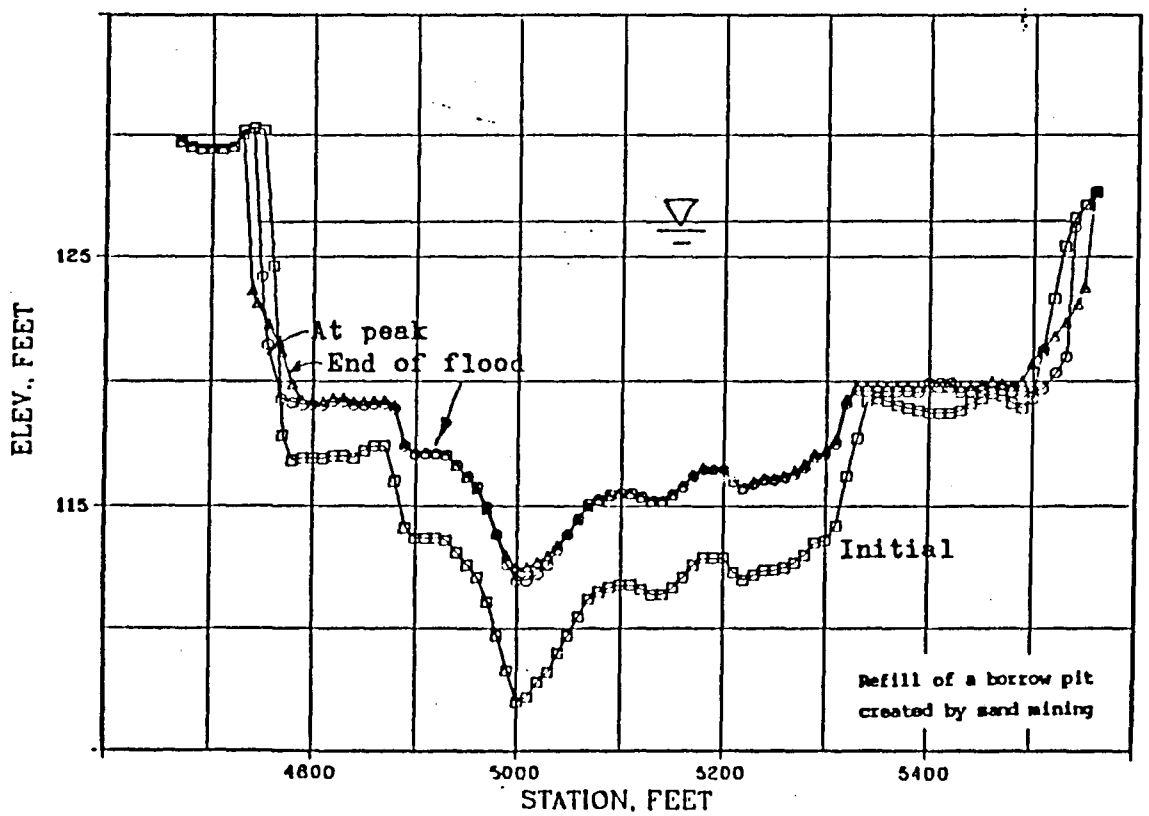


Fig. 3. Cross-sectional changes during 100-year flood at river mile 1.8

APPENDIX B. INPUT/OUTPUT INSTRUCTIONS FOR THE FLUVIAL MODEL

I. INPUT DESCRIPTION

The HEC-2 format for input data is used in all versions of the FLUVIAL model. Data records for HEC-2 pertaining to cross-sectional geometry (X1 and GR), job title (T1, T2, and T3), and end of job (EJ), are used in the FLUVIAL model. If a HEC-2 data file is available, it is not necessary to delete the unused records except that the information they contain are not used in the computation. For the purpose of water- and sediment-routing, additional data pertaining to sediment characteristics, flood hydrograph, etc., are required and supplied by other data records. Sequential arrangement of data records are shown in the following.

Records	Description of Record Type
T1, T2, T3	Title Records
G1	General Use Record
G2	General Use Records for Hydrographs
G3	General Use Record
G4	General Use Record for Plotting Selected Cross Sections
G5	General Use Record
GS	General Use Records for Initial Sediment Compositions
GB	General Use Records for Base-Level Variation
X1	Cross-Sectional Record
XF	Record for Specifying Special Features of a Cross Section
GR	Record for Ground Profile of a Cross Section
EJ	End of Job Record

Variable locations for each input record are shown by the field number. Each record has an input format of (A2, F6.0, 9F8.0). Field 0 occupying columns 1 and 2 is reserved for the required record identification characters. Field 1 occupies columns 3 to 8; Fields 2 to 10 occupy 8 columns each. The data records are tabulated and described in the following.

T1, T2, T3 Records

These three records are title records that are required for each job.

Field	Variable	Value	Description
0	IA	T1	Record identification characters
1-10	None		Numbers and alphameric characters for title

G1 Record

This record is required for each job, used to enter the general parameters listed below.

Field	Variable	Value	Description
0	IA	G1	Record identification characters
1	TYME	+	Starting time of computation on the hydrograph, in hours
2	ETIME	+	Ending time of computation on the hydrograph, in hours
3	DTMAX	+	Maximum time increment Δt allowed, in seconds 15
4	ISED	1	Select Graf's sediment transport equation.
		2	Select Yang's unit stream power equation. The sediment size is between 0.063 and 10 mm.
		3	Select Engelund-Hansen sediment equation.
		4	Select Parker gravel equation.
		5	Select Ackers-White sediment equation.
5	BEF	+	Bank erodibility factor for the study reach. This value is used for each section unless otherwise specified in Field 9 of the XF record. Use 1 for highly erodible banks; use 0.5 for moderately erodible banks; and 0.2 for erosion-resistant banks. Any value between 0 and 1 may be used.
6	IUC	0	English units are used in input and output.
		1	Metric units are used in input and output.
7	CNN	+	Manning's "n" value for the study reach. This value is used for a section unless otherwise spe-

			cified in Field 4 of the XF record. If bed roughness is computed based upon alluvial bedforms as specified in Field 5 of the G3 record, only an approximate n value needs to be entered here.
8	PTIME1	+	First time point on the hydrograph at which complete cross-sectional output is requested. It is usually the peak time, but it may be left blank if no output is requested.
9	PTIME2	+	Second time point on the hydrograph at which complete cross-sectional output is requested. It is not the end of the hydrograph because complete cross-sectional output ~~is automatically printed~~ at the end of each simulation. This field may be left blank if no output is requested.
10	KPF	+	Frequency of printing the summary output, in number of time steps

G2 Record

These records are required for each job, used to define the flow hydrograph(s) in the channel reach. The first G2 record is used to define the spatial variation in water discharge along the reach; the succeeding ones are employed to define the time variation(s) of the discharge. Up to five hydrographs, with a maximum of 20 points for each, are currently dimensioned. This size may be expanded if required.

Field	Variable	Value	Description
First G2			
0	IA	G2	Record identification characters
1	IHP1	+	Number of last cross section using the first hydrograph. The number of section is counted from downstream to upstream with the downstream section being number one.
2	NP1	+	Number of points connected by straight segments used to approximate the first hydrograph.
3	IHP2	+	Number of last section using the second hydrograph if any. Otherwise leave it blank.
4	NP2	+	Number of points used to approximate the second hydrograph

5	IHP3	+	Number of last section using the third hydrograph if any. Otherwise leave it blank.
6	NP3	+	Number of points used to approximate the third hydrograph

Succeeding G2 Record(s)

1	Q11, Q21 Q31	+	Discharge coordinate of point 1 for each hydrograph, in ft^3/sec or m^3/sec
2	TM11,TM21 TM23	+	Time coordinate of point 1 for each hydrograph, in hours
3	Q12, Q22 Q32	+	Discharge coordinate of point 2 for each hydrograph, in cfs or cms
4	TM12,TM22 TM23	+	Time coordinate of point 2 for each hydrograph, in hours

Continue with additional discharge and time coordinates.

G3 Record

This record is used to define required and optional river channel features for a job as listed below.

Field	Variable	Value	Description
0	IA	G3	Record identification characters
1	S11	+	Slope of the downstream section. Required for a job
2	BSP	0 +	One-on-one slope for rigid bank or bank protection Slope of bank protection in BSP horizontal units on 1 vertical unit. In the case of vertical bank, use 0.05 for BSP. This value is used for all cross sections unless otherwise specified in Field 8 of the XF record for a section.
3	DSOP	0 1	Downstream slope is allowed to vary during flow. Downstream slope is fixed at S11 given in Field 1.
4	TEMP	0 +	Water temperature is 15°C. Water temperature in degrees Celsius

2.	5	ICNN	0	Manning's n defined in Field 7 of the G1 record or Field 4 of the XF record are used.
			1	Brownlie's formula for alluvial bed roughness is used and Manning's n is simulated in the model.
2.	6	TDZAMA	0	Erodible bed layer is 100 ft (30.5 m) thick.
			+	Thickness of erodible bed layer in ft or m. This value is applied to the entire channel reach but it may be redefined for a section using Field 10 of the XF record.
2.	8	RLMN	0	Lateral migration of channel is not considered.
			+	Maximum rate of lateral migration in feet (or meter) per day at average discharge. Enter average discharge in cfs (or cms) in Field 9 of G3.
2.	10	RWD	+	Width of rigid bank zone, in ft or m. It is used to specify the width of bank protection of small channel in a flood plain. Channel and flood plain areas outside this zone remain erodible.

BACK

G4 Record

This is an optional record used to select certain cross sections for output at each summary output. Up to 4 cross sections may be selected. Each cross section is identified by its number which is counted form the downstream section.

Field	Variable	Value	Description
0	IA	G4	Record identification characters
1	IPLT1	+	Number of cross section
2	IPLT2	+	Number of cross section
3	IPLT3	+	Number of cross section
4	IPLT4	+	Number of cross section

G5 Record

This is an optional record used to specify certain selections for the job.

Field	Variable	Value	Description

0	IA	G5	Record identification characters
1	DT	0	The first time step is 50 seconds.
		+	Size of the first time step in seconds.
2	IROUT	0	Unsteady water routing is not used; water-surface profiles are computed using standard-step method.
		1	Unsteady water-routing based upon the dynamic wave is used to compute stages and water discharges at all cross sections for each time step.

2, **GS Record**

Two GS records are required for each job, used to specify initial bed-material compositions in the channel at the downstream and upstream cross sections. The first GS record is for the downstream section and the second is for the upstream section. From upstream to downstream, exponential decay in sediment size is assumed for the initial distribution. Sediment composition at each section is represented by five size fractions.

Field	Variable	Value	Description
0	IA	GS	Record identification characters
1	DFF	+	Geometric mean diameter of the smallest size fraction in mm
2	PC	+	Fraction of bed material in this size range

Continue with other DFF's and PC's.

GB Records

These optional records are used to define the time variation of base-level for rivers that discharge into a lake, reservoir or ocean. The GB input data, if included, will supersede other methods for determining the downstream water-surface elevation.

Field	Variable	Value	Description
First GB Record			
0	IA	GB	Record identification characters
1	KBL	+	Number of points used to define base-level changes

Succeeding GB Record(s)

0	IA	GB	Record identification characters
1	BSLL(1)	+	Base level of point 1, in ft or m
2	TMBL(1)	+	Time coordinate of point 1, in hours
3	BSLL(2)	+	Base level of point 2, in ft or m
4	TMBL(2)	+	Time coordinate of point 2, in hours

Continue with additional elevation and time coordinates.

X1 Record

This record is required for each cross section (100 cross sections can be used for the study reach); it is used to specify the cross-sectional geometry and program options applicable to that cross-section. Cross sections are arranged in sequential order starting from downstream.

Field	Variable	Value	Description
0	IA	X1	Record identification characters
1	SECNO	+	Original section number from the map
2	NP	+	Total number of stations or points on the next GR records for current cross section
7	DX	+	Length of reach between current cross section and next downstream section along the thalweg, in feet or meters
8	YFAC	0	Cross-section stations are not modified by the factor YFAC.
		+	Factor by which all cross-section stations are multiplied to increase or decrease area. It also multiplies YC1, YC2 and CPC in the XF record.

XF Record

This is an optional record used to specify special features of a cross section.

Field	Variable	Value	Description

0	IA	XF	Record identification characters
1	YC1	0	Regular erodible left bank
		+	Station of rigid left bank in ft or m, to the left of which channel is nonerodible.
2	YC2	0	Regular erodible right bank
		+	Station of rigid right bank, to the right of which channel is nonerodible
3	RAD	0	Straight channel with zero curvature
		+	Radius of curvature at channel centerline in ft or m. Center of radius is on same side of channel where the station (Y-coordinate) starts.
		-	Radius of curvature at channel centerline in ft or m. Center of radius is on opposite side of zero station.
4	CN	0	Roughness of this section is the same as that given in Field 7 of G1 record.
		+	Manning's "n" value for this section
5	CPC	0	Center of thalweg coincides with channel invert at this section.
		+	Station (Y-coordinate) of the thalweg in ft or m
6	IRC	0	Regular erodible cross section
		1	Rigid or nonerodible cross section such as drop structure or road crossing. ~~Up to 10 such sections are allowed in the study reach.~~ (unlimited)
8	BSP	0	Slope of bank protection is the same as that given in Field 2 of G3 record.
		+	Slope of bank protection at this section in BSP horizontal units on 1 vertical unit. Use 0.05 for vertical bank.
		5	Slope of rigid bank is defined by the GR coordinates.
9	BEFX	0	Bank erodibility factor is defined in Field 5 of the G1 record
		>0.01	Bank erodibility factor at this section.
10	TDZAM	0	Erodible bed layer at this section is defined by TDZAMA in Field 6 of the G3 record.
		+	Thickness of erodible bed layer in ft or m.

GR Record

This record specifies the elevation and station of each point for a digitized cross section; it is required for each X1 record.

Field	Variable	Value	Description
0	IA	GR	Record identification characters
1	Z1	±	Elevation of point 1, in ft or m. May be positive or negative.
2	Y1	±	Station of point 1, in ft or m
3	Z2	±	Elevation of point 2, in ft or m
4	Y2	±	Station of point 2, in ft or m

Continue with additional GR records using up to 47 points to describe the cross section. Stations should be in increasing order.

EJ Record

This record is required following the last cross section for each job. Each group of records beginning with the T1 record is considered as a job.

Field	Variable	Value	Description
0	IA	EJ	Record identification characters
1-10			Not used

II. OUTPUT DESCRIPTION

Output of the model include initial bed-material compositions, time and spatial variations of the water-surface profile, channel width, flow depth, water discharge, velocity, energy gradient, median sediment size, and bed-material discharge. In addition, cross-sectional profiles are printed at different time intervals.

Symbols used in the output are generally descriptive, some of them are

defined below:

SEC NO	Number of a cross-section
TIME	Time on the hydrograph
DT	Size of the time step or Δt in sec
W.S.ELEV	Water-surface elevation in ft or m
WIDTH	Surface width of channel flow in ft or m
DEPTH	Depth of flow measured from channel invert to the water-surface in ft or m
Q	Discharge of flow in cfs or cms
V	Mean velocity of a cross-section in fps or mps
SLOPE	Energy gradient
D50	Median size or d_{50} of sediment load in mm
QS	Bed-material discharge for all size fractions in cfs or cms
FR	Froude number at a cross section
N	Manning's roughness coefficient
SED. YIELD	Bulk volume of sediment having passed a cross section since beginning of simulation, in cubic yards or cubic meters
WSEL	Water-surface elevation, in ft or m
Z	Vertical coordinate (elevation) of a point on channel boundary of a cross-section, in ft or m
Y	Horizontal coordinate (station) of a point on channel boundary of a cross-section, in ft or m
DZ	Change in elevation during the current time step, in ft or m
TDZ	Total or accumulated change in elevation, in ft or m

III. IMPORTANT MESSAGES FOR INPUT PREPARATION

1. The computing time of this program is sensitive to the reach length between two adjacent cross sections, DX. Very small reach lengths which may result in excessive computing time should be avoided. In HEC-2, a downstream section and an upstream section are usually used at each bridge crossing, but these two sections should be combined into one, if possible, for the FLUVIAL application.

2. The GR points used to define the ground profile should be selected to provide an accurate definition of the initial profile. As such, sufficient points should be used for each cross section. Also, large spacing between adjacent points should be avoided even if there is no difference in initial elevation. Detailed results rely upon the adequate number of points used.

3. The number of GR points used in defining the ground profile also affects the computing time because these points are executed a great number of times for each job. Points that are definitely outside the flow boundary level should be deleted during initial editing. However, because of the possibility for bank erosion, there should be sufficient points to cover any such potential changes.

4. Ineffective flow areas should be specified, either by excluding them from the GR points or by raising the GR elevations above the water level.

5. Very fine sediments with a grain size less than 0.0625 mm constitute the wash load and should be excluded from the size-fraction data on GS records.

6. The bank erodibility factor, BEF, in Field 5 of Record G1, is a control for the rate of channel widening. A small value slows down widening. This value should be calibrated against field data whenever possible.

7. The radius of curvature, RAD, in Field 3 of the XF record may be specified only if the station of the concave bank is specified in Field 1 or 2 of the XF record. Under this situation, lateral migration is controlled by RLMN in the G3 record. In using this option, the GR stations should be approximately equally spaced in the erodible part of channel.

8. The radius of curvature r_c (or RAD) along a reach between two adjacent cross sections is computed by interpolating those defined at the cross

sections. Since r_c has infinite value at a straight section, its adjacent reaches also have infinite r_c. For this reason, a curved reach must be between cross sections with finite r_c values.

9. The device codes for running this program are as follows: 1 for READ, 3 for WRITE into an output file, and 5 for WRITE at the terminal.
PLACED AT INSIDE COVER

APPENDIX D

BED SEDIMENT GRADATION CURVE

DESERT EARTH ENGINEERING

Sieve Analysis

I.D. # 88-468F

PROJECT: CMG Sieves

DATE: September 30, 1988

CLIENT: CMG Drainage Engineering

SAMPLE LOCATION: -

VISUAL SOIL DESCRIPTION: SANDY GRAVEL

BORING/SAMPLE # S-1 DEPTH(FT.) - Sampled by: client

TEST: -200 Wash - Fine - Coarse - Complete XX

TEST SPECIFICATION: ASTM C 117, C 136

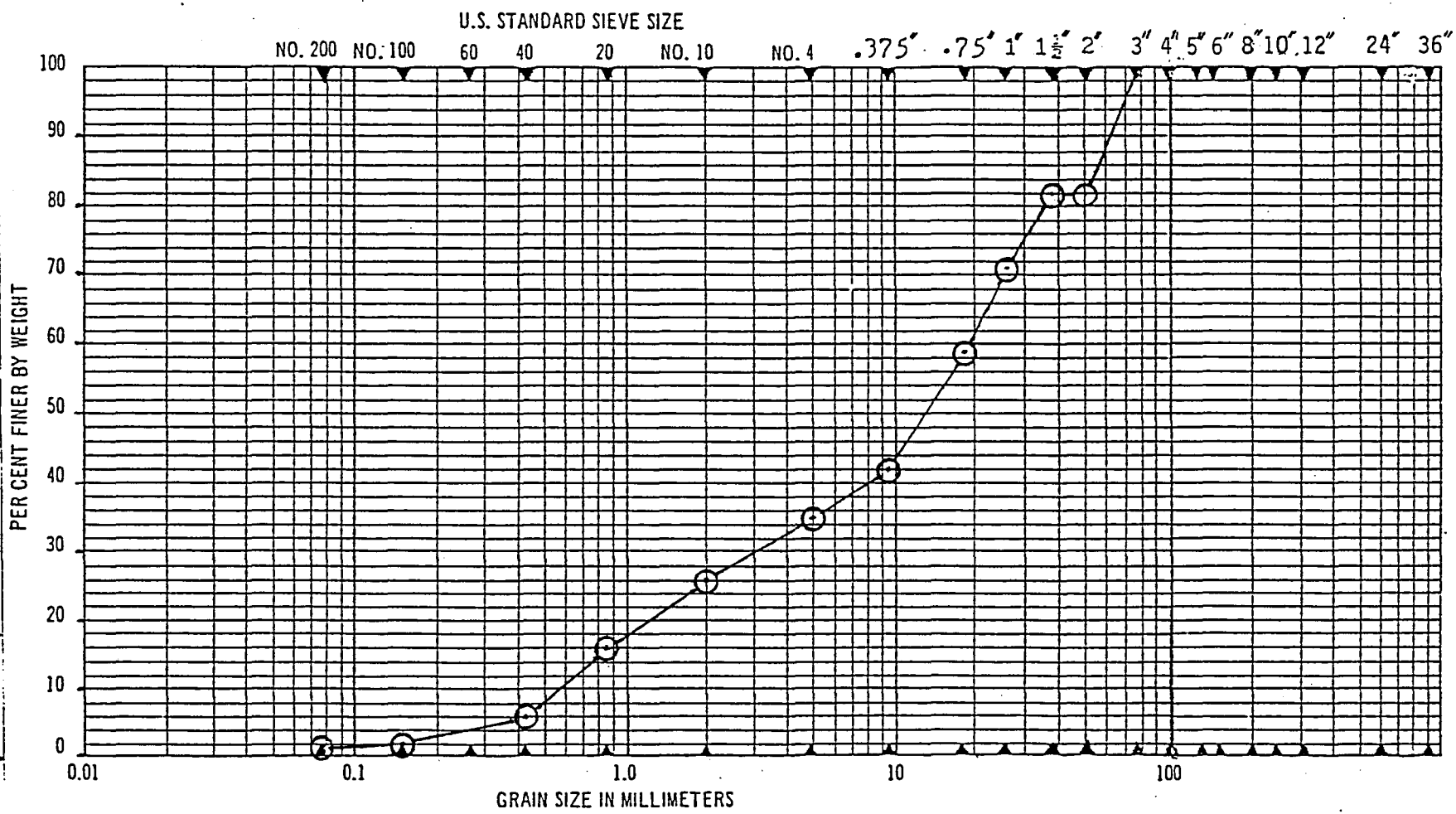
REMARKS AND OTHER INSTRUCTIONS: Sample submitted by client 9/29/88.

Analysis by: JM/GB

SIEVE SAMPLE	SIEVE SIZE	CUMULATIVE WEIGHT	% RETAINED	% PASSING
Total Wet Wt. 1878.0	4"			
Total Dry Wt. 1873.6	3"	0	0	100
Moisture % 0.2	2"	338.8	18	82
	1 1/2"	338.8	18	82
	1"	538.1	29	71
MOISTURE SAMPLE	3/4"	776.5	41	59
	3/8"	1078.2	58	42
	#4	1215.9	65	35
Wet Weight	#10	1381.4	74	26
Dry Weight	#20	1576.0	84	16
Moisture %	#40	1755.0	94	6
	#100	1836.8	98	2
	#200	1849.0	98.6	1.4
	TOTAL DRY	1873.6	100	0

JOB NO. 88-468F BY GJ DATE 10/03/88 Downstream

KEY	BORING	DEPTH	ELEV.	SOIL CLASSIFICATION
⊙	S-1	--	---	GW



SILT OR CLAY	SAND			GRAVEL		*
	FINE	MEDIUM	COARSE	FINE	COARSE	

*COBBLES

(UNIFIED SOIL CLASSIFICATION SYSTEM)

GRAIN-SIZE DISTRIBUTION

desert earth engineering

DESERT EARTH ENGINEERING

Sieve Analysis

I.D. # 88-468F

PROJECT: CMG Sieves

DATE: September 30, 1988

CLIENT: CMG Drainage Engineering

SAMPLE LOCATION: -

VISUAL SOIL DESCRIPTION: SANDY GRAVEL

BORING/SAMPLE # S-2 DEPTH(FT.) - Sampled by: client

TEST: -200 Wash - Fine - Coarse - Complete XX

TEST SPECIFICATION: ASTM C 117, 136

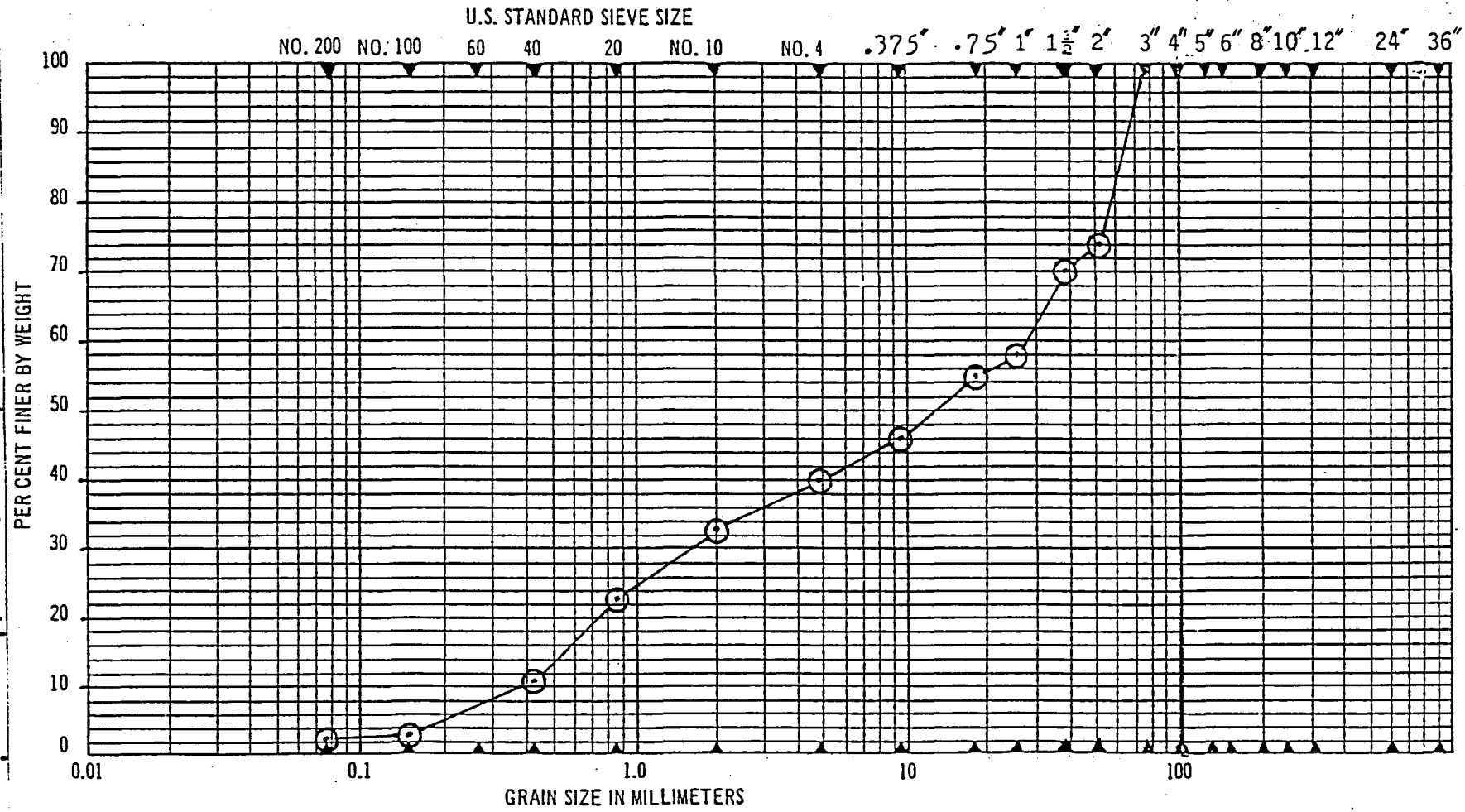
REMARKS AND OTHER INSTRUCTIONS: Sample submitted by client 9/29/88.

Analysis by: JM/GB

SIEVE SAMPLE	SIEVE SIZE	CUMULATIVE WEIGHT	% RETAINED	% PASSING
Total Wet Wt. 2309.5	4"			
Total Dry Wt. 2304.4	3"	0	0	100
Moisture % 0.2	2"	603.0	26	74
	1 1/2"	692.6	30	70
	1"	956.8	42	58
MOISTURE SAMPLE	3/4"	1043.1	45	55
	3/8"	1249.2	54	46
	#4	1372.1	60	40
Wet Weight	#10	1545.0	67	33
Dry Weight	#20	1776.6	77	23
Moisture %	#40	2050.2	89	11
	#100	2238.0	97	3
	#200	2265.3	98.3	2.7
	TOTAL DRY	2304.4	100	0

JOB NO. 88-468F BY GJ DATE 10/03/88 Upstream

KEY	BORING	DEPTH	ELEV.	SOIL CLASSIFICATION
⊙	S-2	--	---	GW



SILT OR CLAY	SAND			GRAVEL		*
	FINE	MEDIUM	COARSE	FINE	COARSE	

*COBBLES

(UNIFIED SOIL CLASSIFICATION SYSTEM)

GRAIN-SIZE DISTRIBUTION

desert earth engineering

APPENDIX E

SEDIMENT TRANSPORT MODEL INPUT/OUTPUT

EXISTING CONDITIONS
SEDIMENT TRANSPORT

```
1*********************************************************
*     FLUVIAL-12   SIMULATION OF RIVER HYDRAULICS.      *
*     SEDIMENT TRANSPORT AND RIVER CHANNEL CHANGES      *
*********************************************************
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```
T1 SALT RIVER FLOOD INSURANCE STUDY, COUNTRY CLUB TO GRANITE REEF
T2 INPUT FILE:99052E8W.FLI  (EXISTING CONDITIONS)
T3 BY CMG DRAINAGE ENGINEERING,JOB# 99052
G1      0.00   336.00  3600.00     3.00     0.50     0.00     0.03    72.00   300.00    10.00
G2     17.00    15.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
G2   9350.00     0.00 98790.00    24.00137720.00    48.00225000.00    72.00 72250.00    96.00
G2  53740.00   120.00 55430.00   144.00 82420.00   159.00 99640.00   192.00 54730.00   216.00
G2  52590.00   240.00 49000.00   264.00 18300.00   288.00 15100.00   312.00 14350.00   336.00
G3      0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
GP     15.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
GB   1205.20     0.00  1210.39    24.00  1212.53    48.00  1215.77    72.00  1209.52    96.00
GB   1208.60   120.00  1209.72   144.00  1210.11   168.00  1210.43   192.00  1208.59   216.00
GB   1208.60   240.00  1209.36   264.00  1206.15   288.00  1205.96   312.00  1205.77   336.00
GS      1.00     0.18     0.16     0.24    13.42     0.17    31.19     0.24    54.06     0.17
GS      1.00     0.25     0.16     0.21    13.42     0.19    31.19     0.19    54.06     0.16
J1      0.00     2.00     0.00     0.00     0.00     0.00     0.00     0.00  1217.31     0.00
J2     -1.00     0.00    -1.00     0.00     0.00     0.00     0.00     0.00     0.00    15.00
J3    38.00    43.00     1.00     8.00    42.00    55.00    26.00    56.00     4.00    53.00
J3    54.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
NC     0.03     0.03     0.03     0.03     0.50     0.00     0.00     0.00     0.00     0.00
OT     1.00225000.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
X1    29.93    24.00  8810.00 10940.00     0.00     0.00     0.00     0.00     0.00     0.00
GR  1220.00  8810.00  1209.00  8930.00  1204.00  8990.00  1204.00  9010.00  1204.00  9100.00
GR  1204.00  9200.00  1204.00  9300.00  1204.00  9400.00  1204.00  9500.00  1204.00  9600.00
GR  1204.00  9700.00  1204.00  9800.00  1204.00  9900.00  1204.00 10000.00  1204.00 10100.00
GR  1204.00 10170.00  1200.00 10250.00  1198.60 10320.00  1200.00 10400.00  1204.00 10450.00
GR  1209.00 10500.00  1212.00 10550.00  1215.00 10590.00  1220.00 10940.00
X1    29.02    24.00  8740.00 11000.00  1000.00  1020.00  1020.00     0.00     0.00     0.00
GR  1225.00  8740.00  1220.00  8770.00  1215.00  8900.00  1210.00  8920.00  1209.00  9150.00
GR  1209.00  9250.00  1209.00  9400.00  1209.00  9500.00  1209.00  9600.00  1208.00  9700.00
GR  1209.00  9800.00  1209.00  9900.00  1204.00  9970.00  1200.00 10010.00  1198.20 10080.00
GR  1200.00 10130.00  1204.00 10190.00  1204.00 10300.00  1204.00 10400.00  1204.00 10500.00
GR  1204.00 10600.00  1208.00 10610.00  1208.00 10920.00  1220.00 11000.00
X1    28.22    21.00  9150.00 11220.00   950.00   970.00  1020.00     0.00     0.00     0.00
GR  1204.00  9150.00  1220.00  9210.00  1209.00  9230.00  1209.00  9400.00  1209.00  9500.00
GR  1209.00  9600.00  1208.00  9700.00  1209.00  9800.00  1204.00  9820.00  1201.00 10000.00
GR  1204.00 10030.00  1208.00 10200.00  1212.00 10290.00  1212.00 10400.00  1212.00 10570.00
GR  1212.00 10700.00  1212.00 10800.00  1212.00 10900.00  1212.00 11000.00  1215.00 11150.00
GR  1224.00 11220.00
X1    29.47    15.00  9100.00 11730.00  1030.00   970.00  1020.00     0.00     0.00     0.00
GR  1230.00  9100.00  1208.00  9150.00  1204.00  9190.00  1204.00  9270.00  1204.00  9480.00
GR  1202.50  9540.00  1204.00  9570.00  1209.00  9800.00  1209.00  9900.00  1208.00 10020.00
GR  1212.00 10090.00  1215.00 10100.00  1215.00 10500.00  1215.00 11000.00  1216.00 11650.00
GR  1224.00 11730.00
X1    29.52    24.00  8800.00 11435.14   930.00   955.00   965.00     0.00     0.00     0.00
GR  1227.00  8800.00  1203.02  8925.67  1202.92  8965.55  1202.92  8971.11  1203.02  9159.34
GR  1207.00  9202.12  1211.02  9441.97  1211.02  9527.23  1211.02  9553.55  1211.02  9756.79
GR  1215.00  9926.59  1215.02  9912.23  1215.02  9997.79  1215.02 10093.35  1215.02 10158.90
GR  1215.00 10254.45  1215.02 10340.02  1215.02 10425.57  1215.02 10511.13  1215.02 10596.68
GR  1215.00 10682.24  1215.02 11024.47  1215.02 11359.14  1207.02 11435.14
X1    29.57    24.00  8800.00 11522.43   930.00   955.00   965.00     0.00     0.00     0.00
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GR 1207.30  9224.74  1211.35  9477.19  1211.35  9588.15  1211.35  9703.7   1211.35  9821.19
GR 1215.30  9884.45  1215.35  9974.82  1215.35 10055.19  1215.35 10155.55  1215.35 10245.93
GR 1215.30 10336.31  1215.35 10426.69  1215.35 10517.05  1215.35 10607.42  1215.35 10697.79
GR 1215.30 10788.16  1215.35 11149.64  1215.35 11502.09  1227.35 11593.43
X1   29.52    24.00  8900.00 11731.71   230.00   255.00   265.00     0.00     0.00     0.00
GR 1227.70  9800.00  1203.67  9928.56  1203.47  9895.19  1203.47  9990.37  1203.67  9199.79
GR 1207.70  9247.37  1211.67  9513.99  1211.57  9603.03  1211.67  9751.95  1211.57  9875.59
GR 1215.70  9942.23  1215.67 10037.41  1215.57 10132.60  1215.67 10227.78  1215.57 10322.97
GR 1215.70 10418.15  1215.67 10513.34  1215.67 10608.52  1215.67 10703.71  1215.67 10798.90
GR 1215.70 10994.08  1215.67 11274.82  1215.67 11546.05  1227.67 11731.71
X1   29.68    24.00  8900.00 11890.00   230.00   255.00   265.00     0.00     0.00     0.00
GR 1229.00  8900.00  1204.00  8820.00  1203.80  8900.00  1203.00  9000.00  1204.00  9220.00
GR 1209.00  9270.00  1212.00  9550.00  1212.00  9550.00  1212.00  9800.00  1212.00  9930.00
GR 1215.00 10000.00  1215.00 10100.00  1215.00 10200.00  1216.00 10300.00  1216.00 10400.00
GR 1215.00 10500.00  1215.00 10600.00  1216.00 10700.00  1215.00 10800.00  1216.00 10900.00
GR 1215.00 11000.00  1215.00 11400.00  1215.00 11700.00  1223.00 11800.00
X1   29.75    22.00  9300.00 13405.81   392.50   295.00   400.00     0.00     0.00     0.00
GR 1225.10  9300.00  1219.10  9512.53  1211.10  9575.15  1209.10  9821.04  1204.10 10039.45
GR 1204.10 10237.87  1207.10 10253.72  1211.10 10300.40  1215.10 10437.97  1219.10 10750.90
GR 1219.10 10967.33  1219.10 11175.75  1219.10 11394.17  1219.10 11593.53  1219.10 11901.00
GR 1219.10 12009.42  1219.10 12217.83  1219.10 12426.25  1219.10 12634.55  1219.10 12843.02
GR 1219.10 13259.91  1231.10 13405.81
X1   29.83    22.00  9300.00 12593.87   392.50   295.00   400.00     0.00     0.00     0.00
GR 1225.40  9300.00  1219.40  9559.42  1211.40  9510.10  1209.40  9730.69  1204.40  9932.97
GR 1204.40 10075.25  1207.40 10092.49  1211.40 10126.93  1215.40 10281.39  1219.40 10535.94
GR 1219.40 10679.22  1219.40 10950.50  1219.40 11022.78  1219.40 11195.05  1219.40 11357.33
GR 1219.40 11539.61  1219.40 11711.99  1219.40 11994.17  1219.40 12056.44  1219.40 12229.72
GR 1219.40 12573.28  1231.40 12593.87
X1   29.90    22.00  9300.00 11331.93   392.50   295.00   400.00     0.00     0.00     0.00
GR 1225.70  9300.00  1219.70  9504.21  1211.70  9545.05  1209.70  9640.35  1204.70  9775.49
GR 1204.70  9912.52  1207.70  9925.24  1211.70  9953.47  1215.70 10075.99  1219.70 10252.87
GR 1219.70 10339.11  1219.70 10525.35  1219.70 10551.39  1219.70 10797.53  1219.70 10933.67
GR 1219.70 11069.81  1219.70 11205.94  1219.70 11342.08  1219.70 11478.22  1219.70 11614.35
GR 1219.70 11895.64  1231.70 11981.93
X1   29.98    19.00  9300.00 11911.43   392.50   295.00   400.00     0.00     0.00     0.00
GR 1226.90  9300.00  1220.75  9556.47  1212.75  9519.77  1210.75  9744.12  1205.00  9921.77
GR 1205.00 10099.42  1208.75 10117.18  1212.75 10152.71  1216.75 10312.60  1220.75 10543.54
GR 1220.90 10721.19  1220.75 10998.93  1220.75 11076.48  1220.75 11254.13  1220.75 11431.78
GR 1220.90 11609.43  1220.75 11787.08  1232.75 11911.43
X1   30.19    19.00  9300.00 12099.07  1125.00  1175.00  1125.00     0.00     0.00     0.00
GR 1223.00  9300.00  1222.00  9556.47  1214.00  9519.77  1212.00  9744.12  1207.00  9921.77
GR 1207.00 10099.42  1210.00 10117.18  1214.00 10152.71  1218.00 10312.60  1222.00 10543.54
GR 1222.00 10721.19  1222.00 10998.93  1222.00 11076.48  1222.00 11254.13  1222.00 11431.78
GR 1222.00 11609.43  1222.00 11787.08  1222.00 11964.72  1234.00 12099.07
X1   30.46    15.00  9300.00 10900.00  1285.00  1035.00  1375.00     0.00     0.00     0.00
GR 1239.00  9300.00  1220.00  9420.00  1216.00  9540.00  1216.00  9660.00  1209.00  9750.00
GR 1209.00  9950.00  1216.00 10000.00  1220.00 10030.00  1220.00 10200.00  1220.00 10300.00
GR 1220.00 10400.00  1220.00 10550.00  1224.00 10640.00  1228.00 10740.00  1232.00 10800.00
X1   30.82    35.00  9539.20 11136.30  1350.00  1390.00  1330.00     0.00     0.00     0.00
GR 1239.80  5271.20  1239.50  5795.20  1241.10  5956.40  1239.20  6357.40  1239.30  6393.90
GR 1239.30  6408.90  1239.30  6442.00  1238.30  6533.60  1239.30  7017.50  1237.70  7620.10
GR 1237.70  7892.20  1239.00  7912.90  1238.50  8404.20  1240.20  8448.40  1240.30  8499.00
GR 1239.30  8970.10  1240.10  9221.80  1235.10  9405.90  1232.90  9470.50  1231.90  9514.00
GR 1236.50  9569.20  1225.20  9555.10  1226.50  9727.50  1219.10  9769.70  1217.50  9954.00
GR 1220.30 10000.00  1221.30 10343.20  1222.30 10487.00  1213.00 10770.60  1230.30 10871.60
GR 1251.60 11136.30  1255.50 11229.90  1255.50 11511.60  1259.20 11740.20  1257.60 11773.60
GR 1257.60 12053.00
X1   31.30    43.00  9539.60 10937.50  2255.00  2495.00  2545.00     0.00     0.00     0.00
GR 1245.20  7959.20  1245.30  7989.00  1242.40  8027.10  1242.70  8305.30  1240.30  8705.90
GR 1235.70  8967.30  1235.70  9104.00  1237.60  9154.80  1235.70  9275.70  1231.40  9394.30
GR 1225.60  9569.60  1220.20  9713.90  1220.10  9796.20  1222.40  9835.90  1222.40  9977.30
GR 1224.90  9942.00  1228.00 10000.00  1223.70 10036.20  1228.40 10194.40  1232.20 10225.80
GR 1232.70 10375.20  1232.20 10437.40  1225.90 10547.40  1231.40 10595.60  1229.50 10636.70
GR 1231.60 10565.20  1220.70 10967.50  1253.00 10911.90  1252.90 11065.20  1251.20 11234.10
GR 1253.90 11423.00  1259.80 11595.10  1250.00 11611.90  1250.00 11467.50  1250.00 11595.50
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GR	1259.70	11935.50	1259.00	12047.10	1259.90	12113.[illegible]					
X1	31.52	59.00	9428.50	11539.90	1120.00	1650.00	1150.00	0.00	0.00	0.00
GR	1247.00	7451.10	1244.40	7497.30	1244.90	7703.30	1245.20	9039.00	1235.10	9091.40
GR	1234.80	9179.10	1229.20	9272.70	1229.50	9334.70	1234.30	9431.90	1235.70	9429.30
GR	1240.00	9503.00	1237.20	9554.00	1235.70	9775.20	1242.20	9808.90	1242.90	9880.90
GR	1241.50	9924.50	1241.50	9926.10	1242.30	9962.30	1240.40	9152.30	1240.40	9235.30
GR	1244.50	9429.60	1233.40	9442.10	1229.50	9459.80	1228.50	9533.10	1229.10	9595.40
GR	1227.20	9595.40	1234.40	9740.40	1235.90	9872.40	1233.10	9957.40	1232.20	10000.00
GR	1233.10	10066.60	1234.90	10099.00	1235.00	10207.40	1238.40	10311.30	1235.80	10552.90
GR	1231.20	10705.70	1234.20	10790.50	1233.10	10902.80	1229.20	11141.20	1228.10	11281.20
GR	1224.40	11419.70	1230.00	11445.20	1230.60	11501.50	1254.20	11539.90	1254.40	11590.60
GR	1256.80	11671.00	1257.20	11759.90	1259.50	11785.70	1256.20	11931.40	1258.00	11973.50
GR	1270.50	12030.30	1254.40	12055.00	1255.70	12074.90	1255.70	12101.50	1254.50	12113.30
GR	1271.50	12150.90	1272.70	12335.10	1272.70	12497.90				
EJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TI INITIAL BED MATERIAL COMPOSITION

SECTION	SIZE MM	FRACTION	SIZE MM	FRACTION	SIZE MM	FRACTION	SIZE MM	FRACTION	SIZE MM	FRACTION
28.83	1.00	0.190	3.15	0.240	13.42	0.170	31.18	0.240	64.05	0.170
29.02	1.00	0.195	3.15	0.233	13.42	0.171	31.18	0.235	64.05	0.159
29.22	1.00	0.190	3.16	0.235	13.42	0.172	31.18	0.233	64.05	0.159
29.47	1.00	0.197	3.15	0.233	13.42	0.175	31.18	0.229	64.05	0.162
29.52	1.00	0.199	3.16	0.232	13.42	0.175	31.18	0.227	64.05	0.162
29.57	1.00	0.199	3.16	0.232	13.42	0.176	31.18	0.225	64.05	0.167
29.62	1.00	0.201	3.16	0.231	13.42	0.176	31.18	0.225	64.05	0.167
29.63	1.00	0.202	3.15	0.231	13.42	0.176	31.18	0.224	64.05	0.167
29.75	1.00	0.204	3.16	0.230	13.42	0.177	31.18	0.223	64.05	0.167
29.83	1.00	0.206	3.16	0.229	13.42	0.177	31.18	0.221	64.05	0.165
29.90	1.00	0.208	3.15	0.228	13.42	0.178	31.18	0.220	64.05	0.165
29.99	1.00	0.210	3.16	0.227	13.42	0.179	31.18	0.219	64.05	0.165
30.19	1.00	0.215	3.16	0.225	13.42	0.180	31.18	0.215	64.05	0.165
30.46	1.00	0.222	3.15	0.222	13.42	0.182	31.18	0.210	64.05	0.164
30.92	1.00	0.232	3.16	0.218	13.42	0.185	31.18	0.203	64.05	0.162
31.30	1.00	0.244	3.16	0.212	13.42	0.188	31.18	0.194	64.05	0.161
31.52	1.00	0.250	3.16	0.210	13.42	0.190	31.18	0.190	64.05	0.160

THE ENGELUND-HANSEN SEDIMENT FORMULA IS USED

TIME = 0.00 HRS DT = 100 SECS TIME STEP = 0

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	CS/C 1000 PPM	FR	SED. YIELD C. Y.
28.83	1205.20	1523.0	6.60	9350	3.39	0.00148	12.95	0.17	0.44	0.3555E+01
29.02	1206.34	576.7	7.54	9350	4.10	0.00095	12.90	0.15	0.39	0.3425E+01
29.22	1207.99	399.2	6.99	9350	6.90	0.00265	12.34	0.53	0.55	0.1115E+02
29.47	1209.95	903.8	7.45	9350	2.42	0.00024	11.90	0.01	0.01	0.3005E+00
29.52	1209.97	560.9	7.15	9350	3.27	0.00035	11.82	0.04	0.25	0.7675E+00
29.57	1210.07	578.1	6.92	9350	3.23	0.00035	11.74	0.04	0.25	0.7645E+00
29.62	1210.16	591.9	6.69	9350	3.23	0.00035	11.65	0.04	0.26	0.7935E+00
29.69	1210.26	605.1	6.46	9350	3.22	0.00036	11.56	0.04	0.25	0.8005E+00
29.75	1210.39	565.7	6.29	9350	4.04	0.00071	11.43	0.12	0.35	0.2535E+01
29.83	1210.63	453.4	6.23	9350	4.95	0.00107	11.34	0.28	0.43	0.5935E+01
29.90	1210.99	369.2	5.28	9350	5.19	0.00155	11.27	0.37	0.54	0.7955E+01
29.99	1211.79	464.9	5.79	9350	4.53	0.00090	11.09	0.17	0.39	0.3505E+01
30.19	1212.93	449.9	5.83	9350	5.31	0.00129	10.71	0.40	0.47	0.8035E+01
30.46	1215.00	305.6	5.00	9350	7.69	0.00255	10.41	1.73	0.69	0.3555E+02
30.92	1220.49	471.5	4.49	9350	9.53	0.00571	10.01	2.52	0.99	0.5905E+02
31.30	1226.73	590.2	6.53	9350	3.74	0.00057	9.10	0.09	0.32	0.1925E+01
31.52	1229.65	637.3	5.25	9350	7.50	0.00591	9.08	5.26	0.95	0.1115E+02

TIME = 1.10 HRS DT = 1276 SECS TIME STEP = 13

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	CS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1205.46	1536.4	5.96	13259	4.22	0.00193	13.05	0.32	0.52	0.385E+03
29.02	1206.89	987.9	9.09	13259	5.00	0.00117	12.53	0.29	0.45	0.347E+03
29.22	1209.09	993.7	8.13	13259	5.43	0.00052	13.49	0.32	0.61	0.475E+03
29.47	1211.29	928.4	9.99	13259	2.57	0.00019	11.57	0.01	0.19	0.150E+02
29.52	1211.40	955.9	9.53	13258	3.45	0.00053	11.92	0.05	0.30	0.994E+02
29.57	1211.54	1035.5	9.39	13258	3.42	0.00055	11.29	0.07	0.31	0.320E+02
29.62	1211.69	1056.9	9.22	13258	3.41	0.00059	11.70	0.05	0.31	0.581E+02
29.68	1211.81	715.7	9.03	13258	3.39	0.00034	10.72	0.04	0.25	0.498E+02
29.75	1211.92	670.5	7.79	13259	4.07	0.00057	9.99	0.10	0.32	0.103E+03
29.83	1212.09	547.9	7.57	13258	5.05	0.00092	10.49	0.24	0.41	0.319E+03
29.90	1212.34	430.9	7.69	13258	6.41	0.00144	12.77	0.35	0.52	0.432E+03
29.98	1213.11	550.0	9.03	13259	4.95	0.00079	9.50	0.20	0.39	0.254E+03
30.19	1214.12	538.6	6.99	13259	5.52	0.00124	9.95	0.48	0.47	0.530E+03
30.45	1216.43	479.2	7.41	13259	7.54	0.00297	10.64	1.35	0.71	0.898E+04
30.92	1221.45	899.1	5.59	13259	7.52	0.00591	12.50	1.97	0.96	0.325E+04
31.30	1229.35	744.0	9.10	13259	4.37	0.00383	9.51	0.24	0.39	0.203E+03
31.52	1230.39	751.7	5.99	13259	7.67	0.00549	9.02	4.19	0.89	0.692E+04

TIME = 9.55 HRS DT = 3600 SECS TIME STEP = 30

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	CS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1207.27	1631.5	8.74	40966	5.78	0.00227	14.99	0.99	0.62	0.127E+05
29.02	1209.54	1975.9	10.90	40966	6.32	0.00217	17.16	0.61	0.60	0.112E+05
29.22	1211.57	1947.5	10.90	40966	6.05	0.00224	19.57	0.56	0.54	0.916E+04
29.47	1213.73	952.0	11.03	40966	5.53	0.00050	6.11	0.22	0.39	0.265E+04
29.52	1213.79	991.9	11.16	40966	5.50	0.00107	13.47	0.42	0.46	0.503E+04
29.57	1214.14	1050.0	11.02	40966	6.27	0.00099	9.00	0.43	0.44	0.590E+04
29.62	1214.44	1106.6	10.71	40966	6.09	0.00096	3.09	0.51	0.44	0.594E+04
29.68	1214.69	1151.4	10.32	40966	6.16	0.00105	3.23	0.73	0.45	0.936E+04
29.75	1214.90	934.2	10.17	40966	7.80	0.00148	4.59	1.23	0.55	0.159E+05
29.83	1215.29	595.0	11.23	40966	8.96	0.00181	15.46	1.33	0.61	0.202E+05
29.90	1215.76	549.9	12.05	40966	10.13	0.00204	20.32	1.29	0.65	0.209E+05
29.98	1217.23	759.8	11.52	40966	7.90	0.00131	5.01	1.05	0.52	0.157E+05
30.19	1219.78	770.0	10.44	40966	8.34	0.00167	3.90	1.05	0.58	0.195E+05
30.45	1221.52	1172.7	13.39	40966	7.29	0.00196	13.33	0.69	0.59	0.419E+05
30.92	1224.91	1099.3	9.70	40966	7.52	0.00190	9.02	1.29	0.60	0.350E+05
31.30	1230.54	1150.9	10.34	40966	8.21	0.00271	2.20	2.40	0.69	0.339E+05
31.52	1233.90	1432.2	9.50	40966	7.55	0.00275	9.02	1.99	0.69	0.499E+05

TIME = 19.55 HRS DT = 3600 SECS TIME STEP = 30

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	CS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.43	1690.1	10.89	74052	7.70	0.00165	14.47	0.87	0.57	0.485E+05
29.02	1211.31	1981.9	12.53	74052	7.69	0.00204	18.70	0.87	0.62	0.497E+05
29.22	1213.49	1827.9	13.60	74052	8.60	0.00256	23.48	0.78	0.70	0.494E+05
29.47	1215.92	2537.6	13.92	74052	6.53	0.00154	4.15	0.58	0.54	0.375E+05
29.52	1217.40	2561.5	14.95	74052	5.42	0.00090	9.18	0.32	0.41	0.349E+05
29.57	1217.66	2705.9	14.29	74052	5.34	0.00092	2.72	0.44	0.42	0.337E+05
29.62	1217.91	2851.6	13.95	74052	5.39	0.00100	1.87	0.52	0.43	0.353E+05
29.68	1218.16	2991.3	12.77	74052	5.76	0.00134	1.78	1.01	0.49	0.455E+05
29.75	1218.14	1082.2	12.49	74052	9.31	0.00172	4.71	1.94	0.60	0.761E+05
29.83	1218.32	855.0	12.64	74052	11.87	0.00293	12.20	2.41	0.78	0.868E+05
29.90	1221.12	2442.1	17.50	74052	7.09	0.00205	15.20	0.59	0.50	0.929E+05
29.98	1221.93	2284.3	15.09	74052	6.75	0.00150	5.11	0.90	0.54	0.931E+05
30.19	1223.70	2491.3	15.01	74052	5.09	0.00127	5.52	0.52	0.49	0.860E+05
30.45	1225.09	1280.8	15.90	74052	7.33	0.00121	2.75	1.19	0.51	0.981E+05
30.92	1227.51	1201.6	12.14	74052	9.05	0.00190	4.39	2.04	0.51	0.103E+06
31.30	1232.37	1532.8	12.24	74052	8.02	0.00246	5.24	2.25	0.69	0.123E+06

TIME = 28.55 HRS DT = 3600 SECS TIME STEP = 40

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1210.90	1709.2	12.15	98054	8.30	0.00148	13.53	1.02	0.56	0.107E+05
29.02	1212.49	2031.9	13.52	98054	8.26	0.00193	18.39	1.07	0.60	0.113E+05
29.22	1214.39	1952.2	15.03	98054	8.31	0.00242	22.88	1.17	0.69	0.119E+05
29.47	1217.50	2542.0	15.36	98054	7.18	0.00155	5.90	1.02	0.55	0.861E+05
29.52	1218.10	2571.3	15.28	98054	6.65	0.00122	3.30	1.00	0.49	0.949E+05
29.57	1218.46	2717.0	14.50	98054	6.54	0.00124	2.09	1.09	0.49	0.908E+05
29.62	1218.81	2853.0	14.03	98054	6.53	0.00133	2.02	1.09	0.50	0.109E+05
29.69	1219.14	3000.2	12.95	98054	6.92	0.00172	3.36	1.28	0.56	0.125E+05
29.75	1219.93	3592.1	14.20	98054	7.69	0.00321	17.41	1.51	0.73	0.175E+05
29.83	1221.09	3102.0	16.40	98054	7.42	0.00231	10.86	1.54	0.64	0.175E+05
29.90	1221.87	2459.7	17.93	98054	7.92	0.00207	9.01	1.64	0.62	0.175E+05
29.93	1222.69	2341.1	15.14	98054	7.69	0.00175	3.81	1.52	0.59	0.154E+05
30.19	1224.69	2552.3	15.27	98054	7.13	0.00153	2.02	1.59	0.54	0.165E+05
30.46	1226.33	1334.4	16.23	98054	9.20	0.00150	2.52	2.03	0.57	0.221E+05
30.92	1229.09	1229.6	13.97	98054	9.97	0.00170	4.01	2.19	0.61	0.259E+05
31.30	1234.06	1552.9	14.26	98054	9.64	0.00217	7.12	2.31	0.67	0.294E+05
31.52	1237.03	2143.5	12.63	98054	8.91	0.00255	9.02	2.30	0.69	0.290E+05

TIME = 38.55 HRS DT = 3600 SECS TIME STEP = 50

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1211.69	1722.0	12.95	118445	8.97	0.00151	10.49	1.34	0.57	0.211E+05
29.02	1213.41	2242.0	14.33	118446	8.90	0.00172	14.21	1.50	0.60	0.229E+05
29.22	1215.19	1952.0	15.32	118446	8.71	0.00219	19.35	1.64	0.67	0.242E+05
29.47	1218.27	2545.7	15.02	118446	7.32	0.00151	2.69	1.67	0.57	0.209E+05
29.52	1218.72	2592.5	14.99	118446	7.45	0.00141	1.75	1.59	0.53	0.210E+05
29.57	1219.19	2727.5	14.02	118446	7.37	0.00145	1.73	1.74	0.53	0.221E+05
29.62	1219.60	2873.3	13.30	118446	7.36	0.00154	1.91	1.73	0.55	0.242E+05
29.69	1219.99	3007.4	13.30	118446	7.60	0.00192	2.70	1.90	0.59	0.275E+05
29.75	1220.84	3676.2	15.20	118446	7.44	0.00222	3.43	1.91	0.63	0.295E+05
29.83	1221.52	3115.2	16.93	118446	7.99	0.00225	5.36	2.11	0.65	0.348E+05
29.90	1222.35	2491.1	18.35	118446	8.66	0.00219	7.79	2.06	0.65	0.345E+05
29.93	1223.25	2393.2	13.57	118446	8.46	0.00193	3.29	2.07	0.62	0.333E+05
30.19	1225.46	2507.7	13.75	118446	7.85	0.00159	2.12	2.05	0.59	0.334E+05
30.46	1227.23	1355.9	15.92	118446	10.07	0.00163	3.01	2.23	0.61	0.418E+05
30.92	1230.14	1252.9	16.14	118446	10.55	0.00170	5.54	2.26	0.62	0.469E+05
31.30	1235.02	1593.2	15.29	118446	10.10	0.00202	8.04	2.19	0.66	0.493E+05
31.52	1238.04	2510.9	12.64	118446	8.96	0.00240	9.02	2.13	0.69	0.496E+05

TIME = 48.55 HRS DT = 3600 SECS TIME STEP = 60

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1212.50	1778.1	13.71	139713	9.58	0.00157	6.37	1.85	0.59	0.392E+05
29.02	1214.39	2053.0	15.11	139713	9.22	0.00167	7.74	1.83	0.60	0.410E+05
29.22	1216.06	1929.4	17.62	139713	10.00	0.00202	15.84	1.99	0.69	0.440E+05
29.47	1218.99	2555.3	15.76	139713	9.24	0.00154	2.50	1.82	0.55	0.395E+05
29.52	1219.45	2591.3	13.64	139713	8.03	0.00144	2.11	1.95	0.55	0.402E+05
29.57	1219.85	2733.9	13.64	139713	8.05	0.00157	2.15	1.90	0.56	0.414E+05
29.62	1220.33	2878.6	13.70	139713	7.96	0.00155	2.17	1.55	0.55	0.439E+05
29.69	1220.73	3013.2	13.92	139713	8.07	0.00180	2.51	1.97	0.59	0.478E+05
29.75	1221.58	3552.5	15.68	139713	7.77	0.00205	2.90	2.01	0.62	0.547E+05
29.83	1222.28	3139.6	17.38	139713	8.43	0.00219	5.15	2.21	0.65	0.569E+05
29.90	1222.97	2510.2	18.02	139713	9.15	0.00214	5.77	2.16	0.65	0.573E+05
29.98	1223.85	2437.5	13.03	139713	8.99	0.00194	3.53	2.15	0.63	0.550E+05
30.19	1226.11	2650.5	14.83	139713	8.49	0.00173	2.58	2.11	0.60	0.553E+05

30.82	1231.02	1291.7	17.10	139713	11.31	0.00177	3.16	0.03	0.64	0.595E+06
31.00	1235.17	1750.1	16.59	139713	10.21	0.00192	9.47	1.90	0.64	0.799E+05
31.52	1239.03	2747.3	14.63	139713	8.72	0.00205	9.02	1.74	0.64	0.595E+06

TIME = 59.55 HRS DT = 3600 SECS TIME STEP = 70

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1213.95	1895.8	15.19	176090	10.27	0.00159	7.60	1.85	0.60	0.636E+05
29.02	1215.70	2092.5	16.32	176090	9.95	0.00161	8.03	1.93	0.60	0.552E+05
29.22	1217.25	1929.0	19.13	176090	10.52	0.00181	14.07	1.90	0.64	0.585E+05
29.47	1220.04	2567.8	17.91	176090	8.99	0.00153	2.85	1.90	0.57	0.633E+05
29.52	1220.48	2599.2	13.47	176090	8.89	0.00149	2.45	1.89	0.57	0.641E+05
29.57	1220.93	2741.2	14.20	176090	8.75	0.00153	2.41	1.89	0.57	0.655E+05
29.62	1221.35	2992.1	14.97	176090	8.78	0.00165	2.70	1.97	0.59	0.695E+05
29.68	1221.92	3023.1	14.95	176090	8.76	0.00174	3.12	2.00	0.60	0.729E+05
29.75	1222.57	3739.5	15.24	176090	8.41	0.00202	3.19	1.97	0.63	0.802E+05
29.83	1223.34	3163.7	19.13	176090	9.01	0.00203	4.39	1.98	0.64	0.933E+05
29.90	1223.94	2546.4	19.97	176090	9.96	0.00205	6.21	2.19	0.66	0.955E+05
29.98	1224.77	2479.7	18.99	176090	9.76	0.00191	4.95	2.15	0.64	0.929E+05
30.19	1227.04	2595.3	11.61	176090	9.04	0.00184	4.03	2.10	0.62	0.929E+05
30.45	1228.91	1400.0	15.52	176090	12.27	0.00191	7.79	2.14	0.63	0.927E+05
30.82	1232.20	1322.5	18.73	176090	12.99	0.00193	11.93	1.95	0.67	0.950E+05
31.00	1237.74	2054.4	18.50	176090	10.32	0.00181	13.85	1.93	0.63	0.932E+05
31.52	1240.29	2816.1	15.89	176090	9.01	0.00174	9.02	1.53	0.60	0.997E+05

TIME = 68.55 HRS DT = 3600 SECS TIME STEP = 80

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1215.30	2012.8	16.55	212445	10.74	0.00155	7.63	1.79	0.60	0.929E+05
29.02	1216.95	2095.8	17.51	212445	10.54	0.00153	5.70	1.79	0.60	0.944E+05
29.22	1218.39	1924.7	20.44	212445	11.23	0.00170	10.59	1.95	0.63	0.987E+05
29.47	1221.12	2530.7	18.92	212445	9.59	0.00147	2.59	1.91	0.57	0.929E+05
29.52	1221.52	2606.1	13.95	212445	9.57	0.00150	3.29	2.15	0.58	0.945E+05
29.57	1221.95	2747.1	14.92	212445	9.52	0.00157	2.72	1.95	0.59	0.959E+05
29.62	1222.46	2999.9	15.95	212445	9.27	0.00155	3.00	1.72	0.58	0.999E+05
29.68	1222.93	3035.0	15.39	212445	9.15	0.00157	2.89	1.69	0.53	0.104E+07
29.75	1223.72	3931.9	15.99	212445	8.92	0.00190	3.73	2.02	0.52	0.112E+07
29.83	1224.30	3199.8	19.62	212445	9.56	0.00202	5.71	2.03	0.55	0.117E+07
29.90	1224.89	2590.2	20.92	212445	10.26	0.00193	7.49	2.04	0.65	0.119E+07
29.98	1225.65	2514.5	14.95	212445	10.39	0.00197	7.04	2.04	0.64	0.117E+07
30.19	1227.89	2729.4	12.37	212445	10.14	0.00192	7.64	2.02	0.64	0.116E+07
30.45	1229.62	1417.9	15.59	212445	13.31	0.00199	14.42	2.07	0.70	0.126E+07
30.82	1233.23	1393.3	20.25	212445	13.15	0.00197	16.35	1.90	0.69	0.128E+07
31.00	1232.85	2116.4	20.05	212445	10.32	0.00171	14.42	1.52	0.53	0.119E+07
31.52	1241.43	3005.4	17.03	212445	9.29	0.00163	9.02	1.50	0.59	0.114E+07

TIME = 72.55 HRS DT = 3600 SECS TIME STEP = 84

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1215.63	2040.9	15.95	221511	10.85	0.00155	7.21	1.89	0.60	0.105E+07
29.02	1217.26	2099.8	17.71	221511	10.74	0.00155	7.25	1.80	0.60	0.107E+07
29.22	1218.70	1915.7	20.70	221511	11.32	0.00164	9.19	1.81	0.62	0.112E+07
29.47	1221.37	2583.6	19.10	221511	9.71	0.00146	2.97	1.79	0.58	0.105E+07
29.52	1221.80	2609.2	14.48	221511	9.59	0.00143	2.91	1.79	0.57	0.107E+07
29.57	1222.23	2746.4	15.55	221511	9.47	0.00147	3.07	1.72	0.57	0.109E+07
29.62	1222.66	2991.1	16.03	221511	9.41	0.00153	3.64	1.74	0.59	0.112E+07
29.68	1223.03	3037.1	15.01	221511	9.67	0.00180	3.57	2.21	0.52	0.117E+07
29.75	1224.04	3966.4	17.17	221511	9.80	0.00197	4.80	2.03	0.62	0.125E+07
29.83	1224.50	3206.2	18.76	221511	9.59	0.00193	5.60	1.94	0.64	0.121E+07

29.99	1226.99	2523.0	15.01	221511	0.32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30.19	1228.09	2729.7	12.52	221511	10.37	0.00195	9.09	1.92	0.65	0.130E+07	
30.45	1229.94	1422.9	15.91	221511	13.45	0.00196	15.79	2.07	0.70	0.141E+07	
30.82	1233.41	1403.4	20.75	221511	18.31	0.00195	17.45	1.95	0.68	0.140E+07	
31.30	1239.05	2125.2	20.39	221511	10.99	0.00171	14.59	1.70	0.63	0.131E+07	
31.52	1241.57	3146.8	17.27	221511	9.39	0.00170	9.02	1.50	0.60	0.125E+07	

ID
15 SECTION 31.30 TIME = 72.55 HRS WS =1239.05 WIDTH = 2125.2

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1245.30	0.00	0.00	7959.2	1245.30	0.00	0.00	7999.0	1242.40	0.00	0.00	8037.1
1242.70	0.00	0.00	8306.3	1240.30	0.00	0.00	8705.8	1235.57	0.00	-0.03	8957.3
1235.63	0.00	-0.07	9104.0	1237.59	0.00	-0.02	9154.8	1235.52	0.00	-0.09	9275.7
1231.05	-0.01	-0.35	9394.2	1224.73	-0.02	-0.87	9599.5	1219.83	-0.03	-1.37	9713.9
1219.54	-0.03	-1.45	9785.3	1221.20	-0.03	-1.00	9835.9	1221.24	-0.03	-1.15	9907.3
1223.91	-0.02	-0.99	9942.0	1227.35	-0.02	-0.65	10000.0	1229.17	-0.01	-0.53	10035.2
1227.86	-0.02	-0.54	10184.4	1231.92	-0.01	-0.28	10235.8	1232.43	-0.01	-0.22	10275.2
1231.95	-0.01	-0.24	10437.4	1229.44	-0.01	-0.36	10547.4	1231.14	-0.01	-0.25	10595.6
1229.18	-0.01	-0.32	10529.7	1221.25	-0.02	-0.39	10665.2	1225.10	-0.01	4.40	10957.5
1257.34	-0.01	-5.65	10911.9	1252.90	0.00	0.00	11055.2	1251.20	0.00	0.00	11234.1
1253.90	0.00	0.00	11423.0	1259.90	0.00	0.00	11596.1	1253.00	0.00	0.00	11611.9
1260.00	0.00	0.00	11647.0	1250.00	0.00	0.00	11695.5	1257.00	0.00	0.00	11702.1
1259.40	0.00	0.00	11720.4	1259.90	0.00	0.00	11752.7	1255.60	0.00	0.00	11756.8
1259.20	0.00	0.00	11815.4	1259.70	0.00	0.00	11925.5	1259.00	0.00	0.00	12047.1
1259.80	0.00	0.00	12118.1								

ID
15 SECTION 30.82 TIME = 72.55 HRS WS =1233.41 WIDTH = 1403.4

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1239.90	0.00	0.00	5271.2	1239.50	0.00	0.00	5795.2	1241.10	0.00	0.00	5955.4
1238.20	0.00	0.00	6357.4	1239.30	0.00	0.00	6393.9	1239.30	0.00	0.00	6408.9
1238.30	0.00	0.00	6442.0	1238.30	0.00	0.00	6523.5	1232.30	0.00	0.00	7017.9
1237.70	0.00	0.00	7620.1	1237.70	0.00	0.00	7992.2	1239.00	0.00	0.00	7912.9
1238.50	0.00	0.00	8404.2	1240.30	0.00	0.00	8448.4	1240.30	0.00	0.00	8499.3
1239.30	0.00	0.00	8970.1	1240.10	0.00	0.00	9221.8	1235.10	0.00	0.00	9405.9
1232.90	0.00	0.00	9470.5	1231.88	0.00	-0.02	9514.0	1235.50	0.00	0.00	9568.2
1222.97	-0.02	-0.23	9662.9	1223.19	-0.02	-0.31	9707.5	1219.08	-0.02	0.98	9759.5
1219.55	-0.04	1.05	9954.0	1221.32	-0.03	0.52	10000.0	1221.40	-0.05	0.10	10346.2
1222.07	-0.05	-0.23	10487.0	1212.60	-0.05	-3.40	10772.5	1229.16	-0.02	-1.14	10872.0
1231.60	0.00	0.00	11135.3	1255.50	0.00	0.00	11229.9	1256.50	0.00	0.00	11511.5
1259.20	0.00	0.00	11740.2	1257.60	0.00	0.00	11773.3	1257.60	0.00	0.00	12053.0

ID
14 SECTION 30.45 TIME = 72.55 HRS WS =1229.94 WIDTH = 1422.9

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1239.00	0.00	0.00	9300.0	1215.95	-0.03	-4.05	9415.9	1215.88	-0.03	-0.12	9540.2
1215.93	-0.03	-0.17	9560.0	1212.91	-0.02	3.91	9750.0	1212.91	-0.02	3.91	9850.0
1219.99	-0.03	2.98	9999.8	1219.15	-0.03	-0.95	10050.0	1219.20	-0.03	-0.80	10300.0
1219.23	-0.03	-0.77	10390.0	1219.27	-0.03	-0.73	10400.0	1219.36	-0.02	-0.54	10550.2
1219.40	-0.02	-4.50	10543.9	1227.81	-0.01	-0.19	10740.0	1232.00	0.00	0.00	10800.0

ID
13 SECTION 30.19 TIME = 72.55 HRS WS =1228.09 WIDTH = 2729.7

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.33	0.00	0.00	9300.0	1220.40	0.01	-1.60	9552.5	1220.15	0.01	5.15	9519.2
1219.51	0.01	7.51	9744.1	1215.59	0.01	8.58	9921.9	1215.59	0.01	8.58	10099.6
1217.62	0.01	7.82	10117.2	1220.25	0.01	5.25	10153.2	1220.27	0.01	2.27	10312.7

1220.40	0.01	-1.60	11076.5	1220.40	0.01	-1.60	11254.1	1220.40	0.01	-1.60	11431.9
1220.40	0.01	-1.60	11609.4	1220.40	0.01	-1.60	11787.1	1220.40	0.01	-1.60	11964.7
1224.00	0.00	0.00	12089.1								

ID
12 SECTION 29.99 TIME = 72.55 HRS WS =1225.99 WIDTH = 2523.9

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1225.90	0.00	0.00	9300.0	1218.40	0.00	-2.35	9553.5	1214.64	0.01	1.39	9517.9
1214.40	0.01	3.65	9744.1	1210.69	0.01	5.58	9921.8	1210.69	0.01	5.68	10099.4
1214.01	0.01	5.26	10117.2	1215.87	0.00	4.12	10153.1	1218.24	0.00	1.49	10314.1
1219.41	0.00	-2.34	10543.5	1219.45	0.00	-2.35	10721.2	1219.45	0.00	-2.30	10899.0
1219.47	0.00	-2.29	11076.5	1219.49	0.00	-2.27	11254.1	1219.50	0.00	-2.25	11431.9
1219.53	0.00	-2.27	11609.4	1219.57	0.00	-2.19	11790.0	1222.75	0.00	0.00	11911.4

ID
11 SECTION 29.90 TIME = 72.55 HRS WS =1225.15 WIDTH = 2501.9

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1225.70	0.00	0.00	9300.0	1219.92	0.00	0.22	9504.5	1214.72	0.00	3.02	9547.5
1204.34	0.00	-5.35	9640.4	1204.09	0.00	-0.62	9779.5	1204.09	0.00	-0.52	9912.6
1204.09	0.00	-3.52	9926.2	1205.43	0.00	-5.27	9953.2	1215.90	0.00	0.10	10075.3
1219.17	0.00	-0.52	10253.0	1219.20	0.00	-0.50	10399.1	1219.23	0.00	-0.47	10525.2
1219.25	0.00	-0.45	10651.4	1219.29	0.00	-0.42	10797.5	1219.31	0.00	-0.39	10933.7
1219.34	0.00	-0.36	11069.8	1219.37	0.00	-0.33	11205.9	1219.40	0.00	-0.30	11342.1
1219.43	0.00	-0.27	11478.2	1219.45	0.00	-0.24	11614.4	1221.33	0.00	1.63	11885.9
1231.70	0.00	0.00	11991.9								

ID
10 SECTION 29.83 TIME = 72.55 HRS WS =1224.50 WIDTH = 3205.3

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1225.40	0.00	0.00	9300.0	1222.17	0.01	2.77	9550.0	1214.50	0.01	3.20	9612.7
1206.03	0.01	-3.37	9730.7	1205.85	0.01	1.45	9903.0	1205.85	0.01	1.46	10075.2
1205.87	0.01	-1.53	10092.5	1207.56	0.01	-3.94	10125.3	1215.01	0.01	-0.39	10221.6
1219.26	0.01	-0.14	10505.9	1219.32	0.01	-0.09	10670.2	1219.38	0.01	-0.02	10850.5
1219.44	0.01	0.04	11022.8	1219.51	0.01	0.11	11195.0	1219.57	0.01	0.17	11367.3
1219.63	0.01	0.23	11539.6	1219.69	0.01	0.29	11711.9	1219.75	0.01	0.35	11884.2
1219.81	0.01	0.41	12056.4	1219.87	0.01	0.47	12229.7	1224.57	0.00	5.17	12570.5
1231.40	0.00	0.00	12693.9								

ID
9 SECTION 29.75 TIME = 72.55 HRS WS =1224.04 WIDTH = 3355.4

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1225.10	0.00	0.00	9300.0	1222.16	-0.01	3.06	9514.2	1209.29	-0.10	-1.81	9573.3
1209.14	-0.10	0.04	9921.0	1206.94	-0.03	2.74	10029.5	1205.94	-0.03	2.74	10237.9
1209.44	-0.11	1.34	10233.7	1211.92	-0.09	0.92	10300.7	1213.40	-0.07	-1.70	10433.5
1219.65	-0.03	0.55	10759.9	1219.67	-0.02	0.57	10957.3	1219.68	-0.02	0.58	11175.7
1219.70	-0.02	0.60	11394.2	1219.72	-0.02	0.62	11592.6	1219.74	-0.02	0.64	11831.0
1219.75	-0.01	0.65	12009.4	1219.77	-0.01	0.67	12217.8	1219.79	-0.01	0.69	12426.2
1219.80	-0.01	0.70	12634.7	1219.82	-0.01	0.72	12843.1	1222.77	0.00	3.67	13053.0
1231.10	0.00	0.00	13405.9								

ID
8 SECTION 29.68 TIME = 72.55 HRS WS =1223.03 WIDTH = 3037.1

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1223.00	0.00	0.00	9900.0	1205.75	-0.23	2.75	9835.5	1205.72	-0.30	2.92	9900.0
1213.07	-0.18	0.27	9900.0	1213.34	-0.17	0.34	[illegible]	1215.58	-0.13	0.58	[illegible]

1215.94	-0.09	3.84	9990.9	1215.96	-0.05	-0.16	10000.0	[illegible]	[illegible]	[illegible]	[illegible]
1215.95	-0.09	-0.05	10200.0	1215.97	-0.09	-0.03	10300.0	1216.00	-0.07	0.00	10400.0
1216.02	-0.07	0.02	10500.0	1216.05	-0.06	0.05	10600.0	1216.07	-0.06	0.07	10700.0
1216.09	-0.06	0.09	10800.0	1216.12	-0.05	0.12	10900.0	1216.14	-0.05	0.14	11000.0
1216.23	-0.03	0.23	11400.0	1216.32	-0.01	0.32	11793.4	1228.00	0.00	0.00	11800.0

ID
7 SECTION 29.62 TIME = 72.55 HRS WS =1222.99 WIDTH = 2891.1

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1227.70	0.00	0.00	9900.0	1207.09	0.39	3.41	8922.1	1207.02	0.39	3.55	8995.2
1214.10	0.31	10.63	8990.4	1214.36	0.30	10.59	9199.9	1214.29	0.30	9.58	9247.4
1214.59	0.30	2.91	9513.9	1214.63	0.30	2.95	9509.1	1214.71	0.30	3.04	9751.9
1214.77	0.30	3.10	9876.2	1214.90	0.30	-0.90	9942.2	1214.99	0.29	-0.69	10037.4
1215.03	0.29	-0.64	10132.6	1215.09	0.29	-0.59	10227.9	1215.13	0.29	-0.54	10322.0
1215.14	0.29	-0.55	10418.2	1215.22	0.29	-0.45	10513.3	1215.27	0.29	-0.40	10608.5
1215.31	0.29	-0.35	10703.7	1215.36	0.29	-0.31	10799.9	1215.37	0.29	-0.30	10894.1
1215.59	0.28	-0.09	11274.9	1215.53	0.27	0.86	11551.2	1227.57	0.00	0.00	11731.7

ID
6 SECTION 29.57 TIME = 72.55 HRS WS =1222.23 WIDTH = 2745.4

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1227.30	0.00	0.00	9900.0	1207.14	0.01	3.79	9919.1	1205.70	0.01	3.55	9990.4
1213.18	0.01	10.03	9990.7	1213.39	0.01	10.03	9179.5	1213.10	0.01	5.90	9224.7
1213.42	0.01	2.07	9477.9	1213.47	0.01	2.12	9553.2	1213.53	0.01	2.13	9703.7
1213.58	0.01	2.33	9921.1	1213.82	0.01	-1.49	9994.5	1213.95	0.01	-1.50	9974.9
1213.99	0.01	-1.45	10065.2	1213.93	0.01	-1.42	10155.6	1213.97	0.01	-1.39	10245.9
1214.02	0.01	-1.28	10336.3	1214.05	0.01	-1.30	10426.7	1214.09	0.01	-1.26	10517.0
1214.13	0.01	-1.22	10607.4	1214.17	0.01	-1.19	10697.9	1214.20	0.01	-1.10	10789.1
1214.36	0.01	-0.99	11149.6	1215.59	0.01	0.23	11509.1	1227.35	0.00	0.00	11593.4

ID
5 SECTION 29.52 TIME = 72.55 HRS WS =1221.30 WIDTH = 2603.2

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1227.00	0.00	0.00	9900.0	1207.26	-0.11	4.24	9910.4	1207.21	-0.11	4.39	9935.5
1212.54	-0.07	9.72	9971.1	1212.71	-0.07	9.69	9159.3	1212.69	-0.07	5.69	9222.1
1212.73	-0.06	1.71	9441.7	1212.77	-0.06	1.75	9527.0	1212.83	-0.05	1.91	9655.5
1212.95	-0.05	1.93	9765.9	1213.05	-0.05	-1.95	9926.7	1213.04	-0.04	-1.99	9910.0
1213.09	-0.04	-1.94	9997.9	1213.11	-0.04	-1.91	10083.3	1213.14	-0.04	-1.83	10168.9
1213.21	-0.03	-1.79	10254.5	1213.21	-0.03	-1.81	10340.0	1213.24	-0.03	-1.78	10425.6
1213.27	-0.03	-1.75	10511.1	1213.31	-0.02	-1.71	10596.7	1213.33	-0.02	-1.67	10682.2
1213.46	-0.01	-1.55	11024.5	1213.61	0.00	-1.41	11373.0	1227.02	0.00	0.00	11435.1

ID
4 SECTION 29.47 TIME = 72.55 HRS WS =1221.37 WIDTH = 2593.6

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1200.00	0.00	0.00	9100.0	1203.40	0.00	0.40	9150.2	1203.95	0.00	-0.05	9190.0
1203.51	0.00	-0.09	9270.0	1203.79	0.00	-0.21	9480.0	1202.27	0.00	-0.23	9540.0
1202.77	0.00	-0.23	9570.0	1203.05	0.00	0.05	9800.0	1209.09	0.00	0.09	9900.0
1209.13	0.00	0.13	10020.0	1211.54	0.00	-0.46	10080.4	1216.11	0.00	0.11	10100.0
1216.14	0.00	0.14	10500.0	1215.17	0.00	0.17	11000.0	1215.96	0.00	0.96	11559.5
1224.00	0.00	0.00	11700.0								

ID
3 SECTION 29.22 TIME = 72.55 HRS WS =1218.70 WIDTH = 1915.7

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y

1205.90	-0.07	-2.10	9400.0	1205.78	-0.07	-2.05	9500.0	1205.67	-0.07	-2.00	9600.0
1205.41	-0.09	-2.59	9700.0	1205.25	-0.09	-2.75	9800.0	1199.75	-0.09	-4.25	9920.0
1197.93	-0.02	-2.02	10000.0	1199.75	-0.09	-4.25	10080.0	1205.28	-0.09	-2.72	10200.0
1210.99	-0.05	-1.11	10280.0	1210.97	-0.05	-1.03	10400.0	1211.09	-0.04	-0.92	10570.0
1211.15	-0.04	-0.84	10700.0	1211.23	-0.04	-0.77	10800.0	1211.29	-0.03	-0.71	10900.0
1216.23	0.38	4.23	10937.4	1219.75	0.00	2.75	11149.4	1224.00	0.00	0.00	11220.0

ID
2 SECTION 29.02 TIME = 72.55 HRS WS =1217.25 WIDTH = 2099.8

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1225.00	0.00	0.00	8740.0	1220.00	0.00	0.00	8870.0	1215.06	0.00	0.05	8900.0
1212.36	-0.01	0.35	8920.0	1209.61	-0.01	0.61	9150.0	1208.60	-0.01	0.60	9250.0
1208.59	-0.02	0.59	9400.0	1209.53	-0.02	0.59	9500.0	1208.57	-0.02	0.57	9600.0
1209.56	-0.02	0.55	9700.0	1209.55	-0.02	0.55	9800.0	1209.54	-0.02	0.54	9900.0
1204.56	-0.03	0.56	9970.0	1200.57	-0.04	0.57	10010.0	1199.51	-0.03	0.71	10030.0
1200.57	-0.04	0.57	10190.0	1204.56	-0.03	0.56	10190.0	1204.58	-0.03	0.58	10300.0
1204.30	-0.03	0.50	10400.0	1204.52	-0.03	0.52	10500.0	1204.54	-0.02	0.54	10600.0
1209.59	-0.02	0.57	10610.0	1209.60	-0.01	0.60	10920.0	1220.00	0.00	0.00	11000.0

ID
1 SECTION 28.23 TIME = 72.55 HRS WS =1215.53 WIDTH = 2040.9

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1220.00	0.00	0.00	9210.0	1209.25	0.00	0.25	9330.0	1204.32	0.00	0.32	9390.0
1204.32	0.00	0.32	9010.0	1204.32	0.00	0.32	9100.0	1204.31	0.00	0.31	9200.0
1204.30	0.00	0.30	9300.0	1204.29	0.00	0.29	9400.0	1204.29	0.00	0.29	9500.0
1204.28	0.00	0.28	9600.0	1204.27	0.00	0.27	9700.0	1204.26	0.00	0.26	9800.0
1204.25	0.00	0.25	9900.0	1204.25	0.00	0.25	10000.0	1204.24	0.00	0.24	10100.0
1204.24	0.00	0.24	10170.0	1200.20	0.00	0.20	10250.0	1199.78	0.00	0.18	10320.0
1200.21	0.00	0.21	10400.0	1204.23	0.00	0.23	10450.0	1203.21	0.00	0.21	10500.0
1212.02	0.00	0.02	10550.0	1215.00	0.00	0.00	10890.0	1220.00	0.00	0.00	10940.0

TIME = 79.55 HRS DT = 3600 SECS TIME STEP = 90

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.93	1214.09	1905.5	15.22	193323	10.55	0.00166	7.13	1.94	0.62	0.124E+07
29.02	1215.90	2070.3	16.36	193323	10.30	0.00170	6.72	1.90	0.62	0.129E+07
29.22	1217.49	1819.7	19.39	193323	10.65	0.00160	6.58	1.96	0.61	0.130E+07
29.47	1220.10	2570.7	17.89	193323	9.34	0.00154	3.04	1.92	0.60	0.125E+07
29.52	1220.59	2602.6	14.94	193323	9.20	0.00160	3.09	1.95	0.59	0.126E+07
29.57	1221.06	2740.4	15.59	193323	9.12	0.00165	3.97	1.93	0.59	0.127E+07
29.62	1221.52	2990.5	16.47	193323	9.13	0.00178	5.44	1.99	0.61	0.131E+07
29.69	1222.02	3029.2	15.33	193323	9.11	0.00199	5.10	1.79	0.62	0.135E+07
29.75	1222.92	3552.4	16.41	193323	8.78	0.00206	6.09	1.75	0.64	0.143E+07
29.83	1223.61	3055.7	17.75	193323	9.27	0.00202	9.15	1.77	0.64	0.149E+07
29.90	1224.27	2551.9	20.12	193323	9.74	0.00193	8.21	1.75	0.63	0.151E+07
29.93	1225.00	2482.4	14.29	193323	9.78	0.00183	9.52	1.77	0.63	0.150E+07
30.19	1227.17	2593.7	11.72	193323	9.76	0.00201	10.05	1.80	0.65	0.149E+07
30.45	1229.09	1415.4	15.89	193323	11.97	0.00165	15.31	1.78	0.63	0.150E+07
30.82	1232.01	1224.7	19.42	193323	12.35	0.00173	17.17	1.83	0.65	0.155E+07
31.30	1237.41	2035.3	18.95	193323	10.85	0.00199	15.12	1.97	0.65	0.150E+07
31.52	1240.25	2815.6	15.85	193323	9.43	0.00193	9.02	1.85	0.63	0.142E+07

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TIME = 88.55 HRS DT = 3600 SECS TIME STEP = 100

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.93	1211.52	1718.9	12.94	119573	9.39	0.00173	7.39	1.63	0.61	0.145E+07
29.02	1213.49	2040.6	14.16	119573	9.15	0.00199	8.35	1.55	0.61	0.147E+07

29.47	1217.82	2544.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29.52	1218.44	2595.1	13.95	119578	8.23	0.00192	5.15	1.52	0.61	0.146E+07
29.57	1218.98	2731.2	14.17	119578	8.20	0.00204	5.45	1.52	0.62	0.148E+07
29.62	1219.55	2853.2	15.04	119578	8.19	0.00217	7.35	1.51	0.64	0.151E+07
29.69	1220.17	3013.6	13.97	119578	8.09	0.00222	8.13	1.42	0.64	0.155E+07
29.75	1221.10	3148.8	14.97	119578	7.90	0.00219	9.88	1.46	0.64	0.163E+07
29.83	1221.92	2316.0	15.10	119578	8.01	0.00195	9.42	1.41	0.61	0.162E+07
29.90	1222.53	2519.3	18.10	119578	8.20	0.00183	7.35	1.43	0.60	0.170E+07
29.98	1223.35	2421.0	12.56	119578	8.22	0.00175	7.09	1.41	0.59	0.169E+07
30.19	1225.44	2597.2	10.30	119578	8.40	0.00205	9.14	1.49	0.63	0.169E+07
30.46	1227.49	1409.4	13.47	119578	9.50	0.00139	5.33	1.52	0.56	0.130E+07
30.82	1230.02	1299.3	15.38	119578	10.38	0.00164	7.41	1.99	0.61	0.182E+07
31.30	1234.71	1582.8	15.97	119578	10.15	0.00202	6.73	2.45	0.65	0.175E+07
31.52	1237.72	2402.1	13.32	119578	9.50	0.00282	9.02	2.98	0.73	0.172E+07

TIME = 95.09 HRS DT = 2570 SECS TIME STEP = 110

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	DSC MM	OS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.50	1592.4	10.95	72176	7.60	0.00164	9.75	1.02	0.57	0.152E+07
29.02	1211.49	1969.9	12.37	72175	7.81	0.00219	12.25	1.07	0.62	0.155E+07
29.22	1213.44	1674.2	12.59	72176	7.40	0.00149	5.53	0.92	0.54	0.152E+07
29.47	1214.89	951.5	12.52	72176	9.53	0.00114	5.92	0.99	0.51	0.152E+07
29.52	1215.40	2577.7	14.48	72175	8.99	0.00305	17.84	1.76	0.90	0.155E+07
29.57	1215.99	2719.9	12.74	72175	7.85	0.00343	13.61	1.32	0.75	0.153E+07
29.62	1217.82	2751.7	13.52	72176	7.12	0.00273	11.06	1.04	0.67	0.157E+07
29.69	1218.55	2993.8	13.29	72175	6.75	0.00238	13.41	0.91	0.63	0.162E+07
29.75	1219.31	1192.4	12.45	72175	7.42	0.00095	3.23	0.71	0.46	0.169E+07
29.83	1219.95	2559.9	14.36	72175	7.46	0.00282	11.75	1.51	0.69	0.175E+07
29.90	1221.04	2477.0	15.26	72175	6.92	0.00200	6.14	1.26	0.59	0.171E+07
29.98	1221.92	2253.4	10.50	72175	6.77	0.00174	5.39	1.17	0.55	0.175E+07
30.19	1223.91	2501.2	8.95	72175	6.93	0.00203	8.54	1.13	0.60	0.175E+07
30.46	1225.91	1395.4	11.93	72175	7.33	0.00113	2.57	1.02	0.49	0.187E+07
30.82	1228.11	1270.8	13.38	72175	8.33	0.00155	3.54	1.59	0.57	0.192E+07
31.30	1232.73	1529.3	13.96	72175	8.62	0.00219	4.93	2.27	0.65	0.189E+07
31.52	1235.59	1936.6	11.29	72175	8.54	0.00291	9.02	2.53	0.72	0.187E+07

TIME = 104.73 HRS DT = 3300 SECS TIME STEP = 120

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	DSC MM	OS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.24	1694.9	10.58	65515	7.41	0.00170	9.28	1.04	0.57	0.159E+07
29.02	1211.18	1948.3	12.22	65515	7.47	0.00213	14.36	1.05	0.62	0.162E+07
29.22	1213.08	1661.0	12.25	65515	7.20	0.00152	5.25	0.99	0.54	0.163E+07
29.47	1214.65	951.9	11.44	65515	8.58	0.00137	7.77	1.09	0.55	0.159E+07
29.52	1215.54	2559.0	14.64	65515	7.58	0.00323	16.75	1.33	0.73	0.161E+07
29.57	1216.45	2705.1	15.22	65515	7.44	0.00325	17.29	1.33	0.73	0.161E+07
29.62	1217.38	2845.1	14.93	65515	7.11	0.00300	16.36	1.24	0.70	0.163E+07
29.69	1218.22	2992.7	14.05	65515	5.72	0.00265	13.70	1.05	0.65	0.167E+07
29.75	1218.79	1270.4	10.89	65515	7.69	0.00133	3.00	1.15	0.52	0.174E+07
29.83	1218.94	914.2	11.32	65515	8.92	0.00140	7.25	1.40	0.55	0.181E+07
29.90	1220.22	2425.4	14.81	65515	7.31	0.00263	15.23	1.35	0.67	0.184E+07
29.98	1221.27	2347.2	9.95	65515	6.89	0.00207	7.34	1.25	0.60	0.182E+07
30.19	1223.64	2475.7	8.79	65515	5.72	0.00205	6.54	1.19	0.60	0.181E+07
30.46	1225.71	1395.5	11.80	65515	7.19	0.00120	1.98	1.24	0.50	0.192E+07
30.82	1229.02	1273.1	12.10	65515	8.05	0.00155	2.65	1.62	0.56	0.200E+07
31.30	1232.54	1459.5	13.23	65515	9.30	0.00205	3.82	2.03	0.63	0.200E+07
31.52	1235.39	1921.6	10.93	65515	8.42	0.00290	9.02	2.41	0.72	0.199E+07

TIME = 114.73 HRS DT = 2600 SECS TIME STEP = 130

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	DSC MM	OS/Q 1000 PPM	FR	SED. YIELD C. Y.

29.02	1210.79	1923.0	11.91	57902	7.13	0.00213	15.00	1.20	1.51	0.165E+07
29.22	1212.71	1649.4	10.75	57902	6.92	0.00156	5.79	0.93	0.54	0.167E+07
29.47	1214.35	952.9	10.59	57902	9.38	0.00144	3.39	1.20	0.55	0.164E+07
29.52	1215.18	2144.1	13.99	57902	7.48	0.00299	19.74	1.06	0.59	0.168E+07
29.57	1215.96	2528.3	15.71	57902	7.11	0.00303	17.30	1.04	0.70	0.169E+07
29.62	1216.89	2596.9	16.15	57902	7.05	0.00303	19.32	1.30	0.70	0.170E+07
29.69	1217.78	2942.1	15.44	57902	6.52	0.00277	14.95	1.23	0.66	0.173E+07
29.75	1218.40	1279.0	10.99	57902	7.45	0.00142	3.96	1.24	0.53	0.179E+07
29.83	1218.53	909.5	9.36	57902	9.86	0.00161	7.63	1.21	0.59	0.185E+07
29.90	1219.91	2121.1	14.20	57902	6.73	0.00199	9.55	0.96	0.59	0.190E+07
29.99	1220.77	2327.9	9.30	57902	5.95	0.00051	3.47	1.47	0.55	0.189E+07
30.19	1223.42	2451.3	8.64	57902	5.31	0.00195	3.07	1.25	0.59	0.197E+07
30.46	1225.44	1397.5	11.94	57902	5.83	0.00123	1.90	1.25	0.49	0.199E+07
30.92	1227.80	1272.4	10.64	57902	7.53	0.00152	2.31	1.53	0.55	0.208E+07
31.30	1232.19	1297.0	12.53	57902	8.12	0.00194	3.99	2.03	0.61	0.210E+07
31.52	1234.88	1647.3	10.48	57902	8.36	0.00393	9.02	2.41	0.72	0.211E+07

TIME = 124.72 HRS DT = 3600 SECS TIME STEP = 140

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.93	1208.62	1675.7	9.94	54073	6.95	0.00175	10.56	1.01	0.57	0.169E+07
29.02	1210.61	1910.9	11.75	54073	6.97	0.00213	13.53	1.05	0.61	0.170E+07
29.22	1212.54	1647.1	9.80	54073	6.80	0.00151	5.02	1.05	0.55	0.170E+07
29.47	1214.26	954.3	9.79	54073	8.21	0.00143	5.87	1.23	0.55	0.169E+07
29.52	1215.01	1990.0	13.78	54073	7.40	0.00255	15.45	1.33	0.56	0.173E+07
29.57	1215.79	2174.4	15.30	54073	7.27	0.00292	19.24	1.51	0.59	0.174E+07
29.62	1216.54	2055.1	15.55	54073	7.13	0.00256	15.43	1.41	0.66	0.175E+07
29.69	1217.34	2554.5	17.03	54073	6.92	0.00291	15.43	1.55	0.63	0.178E+07
29.75	1218.07	1275.0	9.99	54073	7.50	0.00159	3.30	1.44	0.56	0.185E+07
29.83	1218.49	914.5	9.20	54073	9.41	0.00149	5.29	1.42	0.55	0.192E+07
29.90	1219.61	1939.3	13.46	54073	6.89	0.00203	5.73	1.41	0.60	0.196E+07
29.99	1220.57	2313.8	9.55	54073	6.77	0.00249	10.37	1.42	0.64	0.193E+07
30.19	1223.23	2433.1	8.51	54073	5.22	0.00201	3.39	1.34	0.59	0.192E+07
30.46	1225.33	1399.4	11.60	54073	5.78	0.00122	1.70	1.34	0.50	0.204E+07
30.92	1227.77	1274.0	9.56	54073	7.42	0.00152	2.14	1.53	0.55	0.215E+07
31.30	1232.09	1290.0	12.33	54073	7.91	0.00192	3.03	1.91	0.51	0.219E+07
31.52	1234.72	1599.2	10.32	54073	8.13	0.00379	9.32	2.16	0.70	0.221E+07

TIME = 134.73 HRS DT = 3600 SECS TIME STEP = 150

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.93	1209.67	1676.3	9.94	54777	7.02	0.00179	7.19	1.21	0.57	0.173E+07
29.02	1210.69	1915.0	11.78	54777	6.99	0.00211	9.03	1.28	0.61	0.175E+07
29.22	1212.62	1654.3	9.53	54777	6.92	0.00159	3.62	1.28	0.56	0.177E+07
29.47	1214.42	956.0	9.47	54777	8.31	0.00152	4.51	1.43	0.55	0.175E+07
29.52	1215.26	1925.3	13.90	54777	7.21	0.00237	14.42	1.69	0.64	0.180E+07
29.57	1215.95	2243.4	15.29	54777	7.09	0.00271	15.51	1.54	0.57	0.180E+07
29.62	1216.66	2193.6	16.67	54777	6.94	0.00245	13.35	1.47	0.64	0.182E+07
29.69	1217.33	2236.9	17.69	54777	6.85	0.00252	11.67	1.53	0.65	0.185E+07
29.75	1217.99	1279.3	9.23	54777	7.57	0.00169	4.24	1.49	0.57	0.191E+07
29.83	1218.44	914.5	9.29	54777	9.52	0.00153	5.31	1.43	0.57	0.192E+07
29.90	1219.58	1908.4	13.42	54777	7.09	0.00204	5.73	1.47	0.60	0.200E+07
29.99	1220.55	2297.7	9.93	54777	6.79	0.00244	9.75	1.44	0.64	0.200E+07
30.19	1223.21	2431.1	9.48	54777	5.34	0.00210	3.02	1.47	0.59	0.199E+07
30.46	1225.42	1400.9	11.35	54777	5.92	0.00125	1.72	1.46	0.51	0.211E+07
30.92	1227.94	1279.0	9.95	54777	7.45	0.00153	2.16	1.54	0.55	0.222E+07
31.30	1232.31	1234.7	12.29	54777	7.32	0.00191	3.15	1.93	0.60	0.227E+07
31.52	1234.90	1554.4	10.50	54777	7.90	0.00252	9.02	1.52	0.69	0.230E+07

TIME = 144.73 HRS DT = 3600 SECS TIME STEP = 160

28.83	1208.75	1677.4	9.99	56253	7.12	0.00192	5.51	1.36	0.59	0.1795E+07
29.02	1210.78	1921.5	11.89	56253	7.02	0.00208	7.07	1.39	0.61	0.1816E+07
29.22	1212.72	1660.9	7.99	56253	7.06	0.00174	3.40	1.41	0.57	0.1836E+07
29.47	1214.55	957.7	9.75	56253	9.42	0.00153	5.32	1.51	0.56	0.1861E+07
29.52	1215.47	2229.5	13.85	56253	7.07	0.00250	9.75	1.50	0.66	0.1865E+07
29.57	1216.23	2485.9	15.35	56253	6.75	0.00258	9.14	1.48	0.65	0.1867E+07
29.62	1216.93	2507.8	15.83	56253	6.69	0.00245	9.10	1.41	0.64	0.1869E+07
29.69	1217.63	2741.7	18.05	56253	6.40	0.00246	9.01	1.40	0.62	0.1872E+07
29.75	1219.20	1291.2	8.99	56253	7.57	0.00157	5.56	1.33	0.56	0.1885E+07
29.83	1219.59	919.7	9.42	56253	9.53	0.00149	5.59	1.10	0.55	0.2065E+07
29.90	1219.79	1980.7	13.50	56253	6.90	0.00205	8.91	1.09	0.50	0.2095E+07
29.99	1221.05	2303.9	10.79	56253	5.04	0.00150	4.59	0.93	0.53	0.2065E+07
30.19	1223.13	2405.2	9.61	56253	6.64	0.00233	3.04	1.67	0.52	0.2065E+07
30.46	1225.52	1402.4	10.95	56253	7.06	0.00139	1.79	1.52	0.52	0.2175E+07
30.82	1228.11	1293.9	9.25	56253	7.54	0.00154	2.26	1.54	0.55	0.2305E+07
31.30	1232.49	1425.7	12.43	56253	7.79	0.00192	3.71	1.73	0.51	0.2355E+07
31.52	1235.11	1765.2	10.71	56253	7.59	0.00253	9.02	1.76	0.67	0.2395E+07

TIME = 154.73 HRS DT = 3600 SECS TIME STEP = 170

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	OS/O 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.34	1595.0	10.55	67499	7.52	0.00190	5.56	1.49	0.59	0.1865E+07
29.02	1211.34	1959.2	12.43	67499	7.40	0.00200	7.03	1.50	0.60	0.1885E+07
29.22	1213.24	1681.4	8.39	67499	7.63	0.00180	5.35	1.51	0.59	0.1915E+07
29.47	1215.11	970.7	9.44	67499	9.13	0.00151	5.19	1.49	0.59	0.1935E+07
29.52	1216.39	2570.7	14.56	67499	6.65	0.00202	3.22	1.34	0.59	0.1935E+07
29.57	1216.92	2705.2	15.75	67499	6.74	0.00225	6.33	1.51	0.62	0.1945E+07
29.62	1217.55	2944.9	17.25	67499	6.70	0.00237	4.30	1.54	0.63	0.1965E+07
29.69	1218.21	2993.1	18.49	67499	6.55	0.00233	4.65	1.52	0.62	0.1995E+07
29.75	1219.67	1311.3	8.93	67499	8.39	0.00178	7.20	1.55	0.60	0.2065E+07
29.83	1219.20	1202.6	9.79	67499	9.95	0.00197	15.53	1.63	0.63	0.2135E+07
29.90	1220.65	2444.7	14.20	67499	6.75	0.00198	3.24	1.49	0.59	0.2155E+07
29.99	1221.43	2311.9	11.01	67499	5.89	0.00185	2.91	1.53	0.59	0.2145E+07
30.19	1223.71	2459.2	9.40	67499	6.83	0.00205	2.72	1.71	0.60	0.2145E+07
30.46	1225.98	1409.0	11.09	67499	7.86	0.00157	1.93	1.80	0.55	0.2285E+07
30.82	1228.90	1297.4	9.22	67499	8.12	0.00157	2.53	1.76	0.57	0.2395E+07
31.30	1233.25	1538.5	13.20	67499	8.05	0.00193	4.34	1.71	0.51	0.2445E+07
31.52	1235.79	1909.9	11.39	67499	7.89	0.00229	9.02	1.73	0.56	0.2476E+07

TIME = 158.98 HRS DT = 1170 SECS TIME STEP = 180

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	OS/O 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.88	1694.0	11.14	77901	7.97	0.00174	5.53	1.49	0.58	0.1945E+07
29.02	1211.93	1991.5	12.91	77901	7.74	0.00195	7.34	1.51	0.61	0.1965E+07
29.22	1213.69	1697.5	8.69	77901	8.09	0.00183	7.43	1.52	0.60	0.1985E+07
29.47	1215.54	973.2	10.00	77901	9.74	0.00153	12.54	1.45	0.60	0.1955E+07
29.52	1216.95	2573.7	14.54	77901	6.84	0.00193	4.17	1.29	0.57	0.2005E+07
29.57	1217.45	2709.9	16.04	77901	6.85	0.00201	4.55	1.43	0.59	0.2015E+07
29.62	1218.01	2945.7	17.35	77901	6.91	0.00216	5.13	1.56	0.61	0.2035E+07
29.69	1218.60	2993.4	19.50	77901	6.93	0.00232	5.55	1.55	0.63	0.2075E+07
29.75	1219.25	1333.4	9.29	77901	8.81	0.00177	11.57	1.55	0.60	0.2135E+07
29.83	1220.52	2569.0	10.87	77901	7.49	0.00259	5.91	1.32	0.57	0.2205E+07
29.90	1221.55	2488.7	12.43	77901	6.69	0.00161	2.85	1.21	0.54	0.2245E+07
29.99	1222.17	2370.7	11.84	77901	5.81	0.00151	2.82	1.22	0.55	0.2225E+07
30.19	1224.14	2491.4	9.94	77901	7.21	0.00207	2.45	1.99	0.61	0.2225E+07
30.46	1225.41	1413.5	11.30	77901	8.40	0.00162	2.13	1.89	0.52	0.2355E+07
30.82	1229.34	1315.1	8.19	77901	8.65	0.00164	2.69	1.93	0.58	0.2475E+07
31.30	1233.85	1555.5	13.79	77901	8.38	0.00194	4.73	1.73	0.50	0.2535E+07
31.52	1236.29	1953.0	11.99	77901	8.18	0.00229	9.02	1.76	0.55	0.2565E+07

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.93	1210.11	1697.4	11.35	92435	8.13	0.00172	5.27	1.45	0.59	0.1995E+07
29.02	1212.05	2003.1	13.14	92435	7.84	0.00191	9.82	1.46	0.62	0.2003E+07
29.22	1213.89	1704.2	9.94	92435	8.44	0.00197	5.62	0.89	0.62	0.2005E+07
29.47	1217.09	2540.3	11.93	92435	7.31	0.00203	17.49	0.59	0.51	0.2015E+07
29.52	1218.29	2564.1	15.72	92435	5.46	0.00091	5.55	0.91	0.40	0.2042E+07
29.57	1218.43	2712.6	15.88	92435	5.83	0.00111	4.00	0.59	0.45	0.2055E+07
29.62	1219.75	2854.3	17.95	92435	6.25	0.00144	3.54	0.82	0.51	0.2075E+07
29.68	1219.11	2987.7	18.55	92435	6.72	0.00195	4.97	1.32	0.59	0.2115E+07
29.75	1219.76	3011.3	9.87	92435	8.30	0.00398	18.35	1.64	0.91	0.2135E+07
29.83	1221.27	2728.3	12.01	92435	8.44	0.00143	5.35	0.85	0.52	0.2055E+07
29.90	1221.82	2504.5	12.67	92435	6.79	0.00159	2.64	1.22	0.54	0.2005E+07
29.98	1222.43	2337.9	11.94	92435	7.03	0.00158	2.41	1.51	0.56	0.2037E+07
30.19	1224.41	2499.5	10.14	92435	7.20	0.00191	2.45	1.79	0.59	0.2027E+07
30.45	1225.55	1415.3	11.30	92435	8.56	0.00187	2.22	1.65	0.59	0.2415E+07
30.82	1229.59	1333.4	9.67	92435	8.95	0.00167	2.93	1.97	0.59	0.2505E+07
31.30	1234.12	1352.9	14.04	92435	9.50	0.00190	4.87	1.72	0.60	0.2535E+07
31.52	1235.52	1972.0	12.12	92435	8.27	0.00224	9.02	1.75	0.55	0.2615E+07

TIME = 172.50 HRS DT = 2172 SECS TIME STEP = 200

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.93	1210.17	1698.4	11.45	93773	8.19	0.00171	7.77	1.10	0.58	0.2005E+07
29.02	1212.03	2008.6	13.33	93773	7.79	0.00194	14.47	1.03	0.59	0.2045E+07
29.22	1213.87	1703.2	9.03	93773	9.54	0.00200	10.62	1.01	0.63	0.2055E+07
29.47	1217.07	2539.9	11.38	93773	7.35	0.00207	19.95	0.79	0.51	0.2045E+07
29.52	1218.22	2593.9	14.90	93773	5.79	0.00096	2.15	0.60	0.43	0.2095E+07
29.57	1218.43	2721.3	15.51	93773	5.35	0.00141	2.17	1.11	0.51	0.2095E+07
29.62	1218.80	2857.6	17.75	93773	5.60	0.00170	2.54	1.35	0.55	0.2115E+07
29.68	1219.25	2989.3	18.37	93773	5.93	0.00201	3.99	1.49	0.59	0.2155E+07
29.75	1219.90	3011.5	10.73	93773	7.71	0.00305	21.05	1.59	0.72	0.2235E+07
29.83	1221.07	2748.2	11.54	93773	7.05	0.00200	3.11	1.57	0.60	0.2395E+07
29.90	1221.93	2511.1	11.18	93773	7.06	0.00178	3.58	1.58	0.57	0.2325E+07
29.98	1222.52	2392.9	11.79	93773	7.13	0.00173	2.31	1.65	0.57	0.2315E+07
30.19	1224.53	2488.7	10.23	93773	7.19	0.00185	2.39	1.75	0.58	0.2385E+07
30.45	1225.62	1415.1	11.25	93773	8.69	0.00165	2.31	1.91	0.59	0.2475E+07
30.82	1229.64	1344.9	9.11	93773	8.92	0.00170	3.00	1.86	0.60	0.2595E+07
31.30	1234.20	1555.2	14.11	93773	8.53	0.00179	5.05	1.70	0.50	0.2595E+07
31.52	1236.60	1979.2	12.20	93773	9.27	0.00220	9.02	1.71	0.64	0.2665E+07

TIME = 181.89 HRS DT = 3600 SECS TIME STEP = 210

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.93	1210.30	1700.2	11.61	95597	8.27	0.00171	8.19	1.46	0.59	0.2105E+07
29.02	1212.22	2017.8	13.31	95597	7.92	0.00191	9.12	1.44	0.61	0.2125E+07
29.22	1214.05	1709.3	9.39	95597	8.47	0.00187	12.79	1.46	0.61	0.2155E+07
29.47	1215.95	2475.0	12.15	95597	7.76	0.00229	19.30	1.49	0.54	0.2135E+07
29.52	1217.69	2590.2	13.31	95597	7.05	0.00177	2.62	1.49	0.57	0.2155E+07
29.57	1218.20	2725.9	15.53	95597	5.95	0.00191	3.06	1.41	0.57	0.2175E+07
29.62	1218.69	2860.3	17.71	95597	7.03	0.00201	3.03	1.47	0.60	0.2205E+07
29.68	1219.21	2993.4	18.52	95597	7.26	0.00235	5.15	1.75	0.54	0.2255E+07
29.75	1220.31	3022.6	11.47	95597	7.26	0.00240	9.59	1.76	0.54	0.2335E+07
29.83	1221.23	2785.3	11.54	95597	7.15	0.00205	2.80	1.69	0.51	0.2395E+07
29.90	1222.00	2525.0	9.32	95597	7.26	0.00189	2.56	1.68	0.59	0.2435E+07
29.98	1222.73	2413.3	11.54	95597	7.22	0.00175	2.25	1.69	0.57	0.2425E+07
30.19	1224.75	2494.6	10.37	95597	7.20	0.00190	2.37	1.71	0.59	0.2455E+07
30.45	1226.77	1418.0	11.19	95597	8.75	0.00153	2.51	1.92	0.52	0.2535E+07
30.82	1229.74	1355.3	9.54	95597	9.02	0.00159	3.58	1.78	0.60	0.2705E+07
31.30	1234.32	1559.5	14.33	95597	8.35	0.00181	5.47	1.97	0.60	0.2745E+07

TIME = 191.99 HRS DT = 3600 SECS TIME STEP = 230

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.93	1210.43	1702.1	11.72	89505	8.41	0.00173	7.53	1.49	0.59	0.221E+07
29.02	1212.39	2025.9	13.42	89505	8.07	0.00191	9.17	1.51	0.61	0.223E+07
29.22	1214.23	1715.6	9.48	89505	8.62	0.00190	9.30	1.45	0.62	0.226E+07
29.47	1216.59	1813.1	12.09	89505	8.33	0.00193	9.41	1.37	0.60	0.224E+07
29.52	1217.43	2591.9	12.83	89505	7.69	0.00227	3.43	1.66	0.64	0.227E+07
29.57	1218.07	2727.5	15.79	89505	7.37	0.00230	4.43	1.32	0.64	0.228E+07
29.62	1219.73	2959.7	17.40	89505	7.34	0.00221	5.93	1.64	0.62	0.232E+07
29.68	1219.31	2996.6	18.50	89505	7.50	0.00262	5.37	1.59	0.57	0.236E+07
29.75	1220.51	3026.0	12.19	89505	7.08	0.00211	7.29	1.29	0.61	0.244E+07
29.83	1221.72	2916.4	12.16	89505	6.57	0.00157	2.57	1.15	0.54	0.250E+07
29.90	1222.29	2537.6	8.62	89505	7.13	0.00171	2.61	1.47	0.55	0.254E+07
29.99	1222.95	2429.1	10.17	89505	7.23	0.00159	2.23	1.52	0.55	0.254E+07
30.19	1224.90	2499.3	10.47	89505	7.29	0.00190	2.41	1.73	0.59	0.257E+07
30.45	1226.91	1419.8	10.99	89505	9.94	0.00151	2.75	1.79	0.59	0.273E+07
30.82	1229.87	1352.9	9.85	89505	9.12	0.00170	4.19	1.77	0.60	0.283E+07
31.20	1234.45	1572.1	14.35	89505	8.79	0.00191	5.33	1.70	0.61	0.295E+07
31.52	1236.95	2039.6	12.55	89505	8.29	0.00218	9.03	1.70	0.64	0.300E+07

TIME = 201.99 HRS DT = 3600 SECS TIME STEP = 230

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.93	1209.71	1691.1	10.97	75260	8.00	0.00184	7.16	1.42	0.60	0.231E+07
29.02	1211.76	1995.2	12.74	75260	7.59	0.00200	7.12	1.50	0.61	0.233E+07
29.22	1213.66	1695.9	8.99	75260	8.03	0.00187	6.59	1.50	0.60	0.235E+07
29.47	1216.12	1745.9	10.23	75260	7.92	0.00189	5.54	1.50	0.60	0.235E+07
29.52	1216.87	2585.2	12.25	75260	7.22	0.00231	4.31	1.55	0.63	0.239E+07
29.57	1217.52	2721.9	14.99	75260	7.14	0.00239	4.92	1.55	0.64	0.240E+07
29.62	1218.17	2845.6	16.81	75260	7.14	0.00253	5.11	1.72	0.65	0.243E+07
29.68	1218.78	2506.2	18.10	75260	7.00	0.00220	4.32	1.32	0.62	0.247E+07
29.75	1219.32	1521.3	9.90	75260	8.15	0.00170	3.09	1.61	0.58	0.256E+07
29.83	1220.35	2475.5	11.75	75260	7.34	0.00229	4.57	1.90	0.64	0.259E+07
29.90	1221.29	2493.4	8.23	75260	7.29	0.00225	3.51	1.70	0.63	0.256E+07
29.99	1222.13	2404.1	7.35	75260	7.07	0.00194	2.52	1.53	0.59	0.256E+07
30.19	1224.35	2420.9	9.90	75260	6.91	0.00193	2.43	1.54	0.58	0.259E+07
30.45	1226.39	1415.2	10.15	75260	8.04	0.00143	2.96	1.52	0.55	0.283E+07
30.82	1229.16	1350.6	9.51	75260	8.51	0.00169	4.49	1.53	0.59	0.294E+07
31.20	1233.73	1551.8	13.51	75260	8.31	0.00197	5.94	1.53	0.61	0.297E+07
31.52	1236.21	1945.4	11.81	75260	8.05	0.00227	9.02	1.69	0.65	0.301E+07

TIME = 211.99 HRS DT = 3600 SECS TIME STEP = 240

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.93	1208.98	1679.9	10.23	60714	7.45	0.00191	7.26	1.35	0.60	0.239E+07
29.02	1211.08	1937.9	12.05	60714	7.23	0.00208	6.34	1.25	0.61	0.241E+07
29.22	1213.03	1674.9	8.19	60714	7.35	0.00182	6.09	1.22	0.59	0.244E+07
29.47	1215.46	1685.5	9.35	60714	7.44	0.00192	4.99	1.44	0.60	0.243E+07
29.52	1215.18	2552.9	11.40	60714	6.92	0.00254	7.40	1.45	0.66	0.247E+07
29.57	1216.93	2705.7	14.32	60714	6.53	0.00245	7.97	1.31	0.64	0.249E+07
29.62	1217.55	2506.2	16.16	60714	6.67	0.00227	5.59	1.25	0.62	0.251E+07
29.68	1218.11	2275.1	17.37	60714	6.74	0.00205	5.44	1.23	0.60	0.255E+07
29.75	1219.71	1499.8	10.09	60714	7.41	0.00152	3.11	1.24	0.56	0.264E+07
29.83	1219.65	2171.0	11.00	60714	7.03	0.00202	5.33	1.51	0.62	0.271E+07
29.90	1220.63	2437.5	8.19	60714	6.90	0.00243	4.99	1.52	0.64	0.274E+07
29.99	1221.60	2387.0	6.57	60714	6.51	0.00195	2.53	1.33	0.59	0.274E+07

30.90	1228.44	1842.9	9.32	60714	7.91	0.00195	4.28	1.40	0.57	0.3[illegible]E+07
31.30	1232.99	1530.3	12.81	60714	7.73	0.00191	5.34	1.53	0.60	0.305E+07
31.52	1235.49	1645.3	11.09	60714	7.60	0.00232	9.02	1.57	0.64	0.310E+07

TIME = 221.89 HRS DT = 3600 SECS TIME STEP = 250

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.55	1675.0	9.92	54229	7.13	0.00191	5.72	1.22	0.59	0.244E+07
29.02	1210.75	1915.5	11.75	54229	5.92	0.00203	5.97	1.25	0.60	0.247E+07
29.22	1212.73	1655.0	7.79	54229	7.08	0.00195	5.03	1.25	0.59	0.250E+07
29.47	1215.18	1691.7	9.19	54229	7.11	0.00191	4.74	1.25	0.59	0.249E+07
29.52	1215.95	2247.5	11.03	54229	6.69	0.00230	5.70	1.39	0.62	0.253E+07
29.57	1216.51	2529.0	13.30	54229	6.59	0.00252	9.91	1.45	0.64	0.254E+07
29.62	1217.15	2350.7	15.70	54229	6.50	0.00234	5.80	1.41	0.62	0.257E+07
29.68	1217.72	2095.5	16.82	54229	6.58	0.00207	9.53	1.39	0.60	0.261E+07
29.75	1219.37	1490.9	9.41	54229	7.29	0.00177	3.45	1.42	0.58	0.265E+07
29.83	1219.60	924.3	8.21	54229	8.53	0.00157	4.25	1.41	0.57	0.271E+07
29.90	1219.95	2144.5	8.89	54229	7.07	0.00259	10.45	1.39	0.66	0.281E+07
29.92	1220.35	2359.3	5.58	54229	6.64	0.00239	3.66	1.45	0.63	0.290E+07
30.19	1223.45	2342.2	8.87	54229	6.17	0.00185	2.59	1.22	0.56	0.291E+07
30.45	1225.50	1405.5	8.70	54229	6.92	0.00137	2.45	1.17	0.52	0.295E+07
30.92	1228.16	1343.7	9.40	54229	7.45	0.00165	3.74	1.35	0.56	0.309E+07
31.30	1232.64	1477.9	12.37	54229	7.49	0.00191	5.36	1.45	0.59	0.312E+07
31.52	1235.10	1762.9	10.70	54229	7.44	0.00237	9.02	1.55	0.65	0.317E+07

TIME = 231.89 HRS DT = 3600 SECS TIME STEP = 260

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.53	1674.4	9.85	53379	7.10	0.00193	5.57	1.21	0.59	0.250E+07
29.02	1210.72	1913.7	11.71	53379	5.97	0.00207	5.67	1.24	0.60	0.252E+07
29.22	1212.71	1654.5	7.64	53379	7.05	0.00197	4.34	1.25	0.59	0.255E+07
29.47	1215.19	1707.2	9.21	53379	7.05	0.00193	4.43	1.39	0.59	0.255E+07
29.52	1215.95	2227.2	10.93	53379	6.65	0.00229	5.43	1.42	0.62	0.259E+07
29.57	1216.49	2339.7	13.75	53379	6.57	0.00233	5.50	1.43	0.62	0.260E+07
29.62	1217.07	2156.9	15.49	53379	6.69	0.00221	4.79	1.44	0.61	0.263E+07
29.68	1217.53	2071.7	16.59	53379	6.73	0.00215	4.34	1.42	0.61	0.267E+07
29.75	1219.32	1492.9	8.62	53379	7.31	0.00193	4.29	1.41	0.58	0.276E+07
29.83	1219.44	920.1	7.99	53379	8.50	0.00165	6.51	1.42	0.59	0.284E+07
29.90	1219.72	2063.4	9.24	53379	7.04	0.00249	10.40	1.44	0.65	0.289E+07
29.92	1220.80	2355.7	5.12	53379	6.51	0.00239	4.73	1.42	0.63	0.295E+07
30.19	1223.34	2357.2	8.83	53379	6.23	0.00197	2.77	1.30	0.58	0.295E+07
30.45	1225.50	1408.2	8.47	53379	6.92	0.00140	2.35	1.23	0.52	0.301E+07
30.92	1228.19	1352.0	9.79	53379	7.33	0.00165	3.50	1.35	0.56	0.315E+07
31.30	1232.52	1459.7	12.31	53379	7.43	0.00189	4.99	1.42	0.59	0.319E+07
31.52	1235.06	1743.5	10.65	53379	7.39	0.00233	9.02	1.50	0.64	0.324E+07

TIME = 241.89 HRS DT = 3600 SECS TIME STEP = 270

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.58	1673.5	9.79	52400	7.06	0.00194	5.24	1.34	0.59	0.255E+07
29.02	1210.69	1910.7	11.65	52400	5.82	0.00205	5.30	1.35	0.60	0.252E+07
29.22	1212.67	1663.4	7.47	52400	7.02	0.00198	4.19	1.35	0.59	0.251E+07
29.47	1215.17	1723.5	9.41	52400	6.99	0.00195	4.32	1.39	0.59	0.251E+07
29.52	1215.93	2216.8	10.98	52400	6.59	0.00224	5.35	1.39	0.61	0.255E+07
29.57	1216.45	2334.8	13.70	52400	6.50	0.00230	5.37	1.39	0.62	0.256E+07
29.62	1217.02	2117.6	15.41	52400	6.64	0.00217	4.98	1.35	0.61	0.259E+07
29.68	1217.53	2053.5	16.53	52400	6.59	0.00215	4.89	1.37	0.61	0.273E+07
29.75	1219.27	1494.0	8.02	52400	7.30	0.00197	5.03	1.37	0.59	0.282E+07
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

29.90	1220.93	3341.3	3.31	52400	5.35	0.00189	[illegible]	1.45	0.51	0.3[illegible]E+07
30.19	1223.24	2346.9	8.78	52400	6.25	0.00202	2.95	1.23	0.52	0.292E+07
30.46	1225.46	1405.7	8.25	52400	6.92	0.00143	2.39	1.09	0.53	0.305E+07
30.82	1228.20	1357.8	10.05	52400	7.31	0.00165	3.45	1.34	0.56	0.320E+07
31.30	1232.50	1454.9	12.23	52400	7.37	0.00136	4.95	1.39	0.59	0.325E+07
31.52	1235.01	1714.3	10.61	52400	7.35	0.00230	9.02	1.46	0.64	0.330E+07

TIME = 251.89 HRS DT = 3600 SECS TIME STEP = 290

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.83	1209.48	1672.1	9.59	50952	7.01	0.00197	5.15	1.35	0.59	0.261E+07
29.02	1210.51	1905.3	11.39	50952	6.75	0.00207	5.03	1.34	0.60	0.264E+07
29.22	1212.59	1661.1	7.27	50952	6.93	0.00188	4.10	1.34	0.58	0.267E+07
29.47	1215.10	1731.4	9.46	50952	5.99	0.00195	4.74	1.24	0.59	0.267E+07
29.52	1215.75	2206.1	10.79	50952	6.52	0.00204	5.01	1.34	0.61	0.270E+07
29.57	1216.37	2323.0	13.61	50952	6.42	0.00230	5.17	1.34	0.61	0.272E+07
29.62	1216.93	2077.7	15.21	50952	6.60	0.00216	5.32	1.33	0.60	0.275E+07
29.83	1217.50	2050.7	15.53	50952	6.63	0.00216	5.30	1.33	0.60	0.279E+07
29.75	1219.19	1491.1	7.85	50952	7.02	0.00186	5.20	1.33	0.59	0.287E+07
29.83	1219.43	921.0	7.79	50952	8.29	0.00155	5.09	1.33	0.57	0.289E+07
29.90	1219.55	1799.0	9.37	50952	6.95	0.00209	5.30	1.33	0.61	0.290E+07
29.98	1220.55	2324.4	5.41	50952	5.52	0.00240	5.71	1.33	0.52	0.292E+07
30.19	1223.13	2335.5	9.72	50952	6.21	0.00204	5.30	1.32	0.59	0.295E+07
30.46	1225.33	1405.0	8.02	50952	6.95	0.00145	2.42	1.24	0.53	0.312E+07
30.82	1228.15	1351.9	10.05	50952	7.22	0.00165	3.50	1.31	0.56	0.325E+07
31.30	1232.54	1420.1	12.12	50952	7.29	0.00181	4.79	1.33	0.58	0.330E+07
31.52	1234.80	1558.5	10.50	50952	7.32	0.00225	9.02	1.42	0.63	0.335E+07

TIME = 261.89 HRS DT = 3600 SECS TIME STEP = 299

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.83	1209.39	1659.0	9.61	49325	6.95	0.00199	5.26	1.32	0.59	0.265E+07
29.02	1210.53	1959.4	11.50	49325	6.99	0.00207	5.12	1.31	0.60	0.269E+07
29.22	1212.51	1658.7	7.09	49325	6.95	0.00189	4.23	1.29	0.58	0.272E+07
29.47	1215.02	1728.0	9.09	49325	6.92	0.00195	5.00	1.23	0.59	0.272E+07
29.52	1215.57	2194.1	10.69	49325	5.47	0.00226	5.57	1.30	0.61	0.275E+07
29.57	1216.29	2310.7	13.53	49325	6.39	0.00231	5.19	1.30	0.61	0.277E+07
29.62	1216.95	2064.2	15.22	49325	6.54	0.00217	5.39	1.30	0.60	0.280E+07
29.83	1217.42	2039.4	15.45	49325	6.56	0.00215	5.51	1.29	0.60	0.284E+07
29.75	1218.11	1497.5	7.77	49325	7.13	0.00185	5.34	1.28	0.59	0.289E+07
29.83	1219.43	921.3	7.53	49325	8.11	0.00153	5.22	1.29	0.55	0.291E+07
29.90	1219.49	1753.2	9.30	49325	6.84	0.00201	5.46	1.30	0.59	0.295E+07
29.98	1220.47	2307.8	5.53	49325	5.44	0.00237	5.91	1.31	0.62	0.294E+07
30.19	1223.02	2325.3	9.57	49325	6.15	0.00205	5.01	1.29	0.59	0.303E+07
30.46	1225.29	1404.4	7.81	49325	5.90	0.00147	2.47	1.22	0.53	0.317E+07
30.82	1228.09	1355.3	10.43	49325	7.13	0.00166	3.57	1.27	0.56	0.331E+07
31.30	1232.49	1393.7	11.99	49325	7.21	0.00175	4.59	1.28	0.57	0.336E+07
31.52	1234.80	1604.1	10.40	49325	7.29	0.00229	9.02	1.37	0.62	0.340E+07

TIME = 271.89 HRS DT = 3600 SECS TIME STEP = 300

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.83	1207.63	1527.2	9.94	39913	5.50	0.00221	6.05	1.19	0.61	0.271E+07
29.02	1209.94	1959.3	10.96	39913	5.15	0.00211	5.56	1.10	0.59	0.274E+07
29.22	1211.95	1540.9	6.42	39913	5.21	0.00193	4.57	1.05	0.56	0.277E+07
29.47	1214.42	1681.6	9.23	39913	5.29	0.00199	5.78	1.04	0.58	0.279E+07
29.52	1215.03	2057.1	10.05	39913	5.10	0.00234	8.40	1.05	0.61	0.280E+07
29.57	1215.67	2113.7	12.30	39913	5.03	0.00233	7.73	1.10	0.61	0.281E+07
29.62	1216.21	1942.1	14.49	39913	5.19	0.00197	5.68	1.10	0.57	0.284E+07

29.75	1217.49	1460.2	7.17	39913	6.46	0.00119	[illegible]	[illegible]	[illegible]	[illegible]
29.83	1217.93	907.4	5.92	39913	7.14	0.00133	3.12	1.03	0.51	0.305E+07
29.90	1219.92	1543.9	9.59	39913	6.46	0.00210	5.29	1.17	0.60	0.309E+07
29.99	1219.93	2175.5	5.23	39913	6.16	0.00259	7.04	1.15	0.54	0.302E+07
30.19	1222.52	2273.0	8.23	39913	5.52	0.00202	3.12	1.03	0.57	0.307E+07
30.46	1224.74	1339.2	7.12	39913	5.07	0.00137	2.40	0.94	0.53	0.321E+07
30.92	1227.42	1354.1	9.94	39913	5.52	0.00167	3.29	1.12	0.55	0.336E+07
31.30	1231.65	1245.1	11.06	39913	5.83	0.00175	3.31	1.22	0.55	0.340E+07
31.52	1233.97	1447.8	9.57	39913	7.05	0.00237	3.02	1.41	0.54	0.347E+07

TIME = 291.99 HRS DT = 3600 SECS TIME STEP = 310

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.83	1206.71	1577.5	9.19	25121	5.92	0.00237	7.90	0.92	0.61	0.274E+07
29.02	1209.13	1803.4	10.20	25121	5.37	0.00219	5.43	0.94	0.59	0.276E+07
29.22	1211.16	1515.7	5.53	25121	5.29	0.00177	4.32	0.77	0.53	0.279E+07
29.47	1213.59	1616.9	7.19	25121	5.46	0.00199	6.22	0.84	0.55	0.279E+07
29.52	1214.16	1929.9	9.15	25121	5.46	0.00235	10.59	0.95	0.59	0.283E+07
29.57	1214.30	1905.1	12.03	25121	5.33	0.00239	10.12	0.92	0.59	0.284E+07
29.62	1215.34	1615.6	13.43	25121	5.41	0.00194	5.51	0.79	0.55	0.286E+07
29.93	1215.90	1422.9	14.79	25121	5.50	0.00173	5.04	0.77	0.53	0.291E+07
29.75	1216.50	1414.3	5.29	25121	5.61	0.00192	5.42	0.79	0.54	0.299E+07
29.83	1217.03	876.1	5.59	25121	5.05	0.00125	2.97	0.75	0.49	0.307E+07
29.90	1217.72	1435.9	7.49	25121	5.98	0.00229	9.59	0.94	0.60	0.312E+07
29.99	1218.95	2302.1	5.55	25121	5.92	0.00327	12.35	0.95	0.59	0.311E+07
30.19	1221.37	2215.4	7.61	25121	4.74	0.00189	3.29	0.70	0.53	0.309E+07
30.46	1223.93	1331.5	9.19	25121	5.03	0.00124	2.18	0.64	0.46	0.323E+07
30.92	1225.47	1333.0	9.98	25121	5.59	0.00167	3.05	0.99	0.53	0.339E+07
31.30	1230.61	1107.0	9.87	25121	5.97	0.00162	3.10	0.95	0.53	0.342E+07
31.52	1232.79	1152.9	8.39	25121	6.53	0.00239	9.02	1.26	0.63	0.350E+07

TIME = 291.99 HRS DT = 3600 SECS TIME STEP = 320

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.83	1206.10	1544.7	7.69	17791	4.97	0.00227	10.23	0.64	0.57	0.275E+07
29.02	1207.72	937.7	9.57	17791	5.70	0.00125	4.39	0.57	0.49	0.277E+07
29.22	1209.93	1576.4	4.53	17791	5.71	0.00372	13.79	0.84	0.72	0.280E+07
29.47	1213.21	1533.9	5.70	17791	4.27	0.00143	4.97	0.43	0.47	0.283E+07
29.52	1213.64	1759.8	8.52	17791	4.56	0.00205	12.99	0.52	0.54	0.284E+07
29.57	1214.19	1790.5	11.42	17791	4.51	0.00213	14.34	0.51	0.55	0.285E+07
29.62	1214.50	1102.5	12.80	17791	4.76	0.00127	2.95	0.50	0.46	0.287E+07
29.68	1214.99	932.1	13.39	17791	5.10	0.00133	3.20	0.57	0.47	0.292E+07
29.75	1215.56	1358.1	5.59	17791	5.09	0.00209	9.19	0.65	0.56	0.300E+07
29.83	1215.18	845.7	4.45	17791	5.29	0.00125	3.32	0.59	0.47	0.308E+07
29.90	1216.82	1165.7	6.52	17791	5.62	0.00235	14.29	0.71	0.60	0.314E+07
29.99	1218.11	1873.2	5.29	17791	5.51	0.00415	19.12	0.75	0.74	0.312E+07
30.19	1221.39	2145.4	7.10	17791	4.00	0.00171	3.17	0.47	0.49	0.310E+07
30.46	1223.29	1385.1	5.45	17791	4.22	0.00114	2.21	0.45	0.43	0.323E+07
30.92	1225.73	1316.3	8.23	17791	4.83	0.00168	2.84	0.71	0.51	0.339E+07
31.30	1229.62	988.5	9.73	17791	5.42	0.00145	2.55	0.79	0.50	0.344E+07
31.52	1231.70	933.6	7.30	17791	6.24	0.00249	9.02	1.20	0.63	0.352E+07

TIME = 300.99 HRS DT = 3600 SECS TIME STEP = 329

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.83	1205.99	1539.0	7.63	16591	4.83	0.00227	11.02	0.54	0.57	0.276E+07
29.02	1207.63	595.7	9.27	16591	5.60	0.00129	4.14	0.59	0.49	0.278E+07
29.22	1209.28	649.4	4.11	16591	7.05	0.00353	17.60	0.79	0.65	0.281E+07
29.47	1212.92	1558.3	6.23	16591	4.69	0.00210	5.34	0.61	0.55	0.280E+07
29.52	1213.42	[illegible]	[illegible]	16591	4.67	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

29.62	1214.45	1109.6	12.77	16591	4.70	0.00135	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29.69	1214.77	950.6	12.75	16591	5.00	0.00135	9.42	0.53	0.47	0.2995E+07	
29.75	1215.44	1332.4	5.93	16591	4.99	0.00195	9.33	0.59	0.54	0.3015E+07	
29.83	1215.94	941.0	4.20	16591	5.25	0.00132	9.91	0.57	0.49	0.3039E+07	
29.90	1216.70	1112.9	5.37	16591	5.55	0.00232	16.52	0.64	0.58	0.3145E+07	
29.99	1217.95	1302.0	5.40	16591	5.39	0.00403	22.34	0.57	0.73	0.3125E+07	
30.19	1221.25	2130.7	5.94	16591	3.95	0.00181	8.19	0.49	0.50	0.3115E+07	
30.45	1223.21	1384.2	5.32	16591	4.03	0.00112	1.99	0.44	0.42	0.3324E+07	
30.92	1225.53	1313.9	8.11	16591	4.59	0.00167	2.75	0.70	0.50	0.3405E+07	
31.20	1229.47	939.8	9.45	16591	5.29	0.00145	2.45	0.80	0.49	0.3435E+07	
31.52	1231.55	911.5	7.15	16591	6.12	0.00249	9.02	1.16	0.63	0.3545E+07	

ID
16 SECTION 31.20 TIME = 300.99 HRS WS =1229.47 WIDTH = 939.8

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1245.20	0.00	0.00	7959.2	1245.30	0.00	0.00	7999.0	1242.40	0.00	0.00	8027.1
1242.70	0.00	0.00	8206.3	1240.30	0.00	0.00	8705.9	1235.65	0.00	-0.04	9067.3
1235.62	0.00	-0.09	9104.0	1237.52	0.00	-0.02	9154.9	1235.51	0.00	-0.05	9275.7
1231.72	0.00	0.32	9394.2	1225.49	0.01	0.99	9559.6	1221.21	0.01	1.01	9713.9
1221.03	0.01	0.93	9786.3	1223.35	0.01	0.95	9935.9	1223.39	0.01	0.93	9977.3
1225.75	0.01	0.98	9942.0	1229.75	0.00	0.75	10000.0	1230.22	0.00	0.52	10035.2
1229.19	0.00	0.78	10194.4	1232.32	0.00	0.12	10225.8	1232.72	0.00	0.02	10375.3
1232.35	0.00	0.15	10437.4	1229.02	0.01	1.22	10547.4	1231.80	0.00	0.40	10555.5
1230.25	0.00	0.75	10525.7	1223.49	0.01	1.87	10555.2	1225.92	0.01	5.22	10367.5
1257.23	0.00	-5.71	10911.9	1252.90	0.00	0.00	11065.2	1251.20	0.00	0.00	11034.1
1253.90	0.00	0.00	11423.0	1259.90	0.00	0.00	11596.1	1259.00	0.00	0.00	11511.9
1250.00	0.00	0.00	11547.0	1250.00	0.00	0.00	11635.5	1257.30	0.00	0.00	11702.1
1259.40	0.00	0.00	11720.4	1259.80	0.00	0.00	11752.7	1255.50	0.00	0.00	11755.8
1259.30	0.00	0.00	11815.4	1259.70	0.00	0.00	11935.5	1259.00	0.00	0.00	12047.1
1259.90	0.00	0.00	12119.1								

ID
15 SECTION 30.92 TIME = 300.89 HRS WS =1225.53 WIDTH = 1313.9

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1239.90	0.00	0.00	5271.2	1239.50	0.00	0.00	5796.2	1241.10	0.00	0.00	5955.4
1239.20	0.00	0.00	6357.4	1239.30	0.00	0.00	6383.9	1239.30	0.00	0.00	6409.9
1238.30	0.00	0.00	6442.0	1238.30	0.00	0.00	6533.5	1232.30	0.00	0.00	7017.6
1237.70	0.00	0.00	7520.1	1237.70	0.00	0.00	7892.2	1238.00	0.00	0.00	7912.9
1238.50	0.00	0.00	8404.2	1240.30	0.00	0.00	8449.4	1240.30	0.00	0.00	8499.0
1239.30	0.00	0.00	8870.1	1240.10	0.00	0.00	9221.9	1236.10	0.00	0.00	9405.9
1232.90	0.00	0.00	9470.5	1224.47	0.00	-7.43	9502.8	1235.50	0.00	0.00	9563.2
1217.53	0.00	-8.57	9654.4	1224.45	0.00	-2.04	9727.5	1223.02	0.00	4.92	9759.6
1222.99	0.00	5.49	9954.0	1223.91	0.00	3.01	10000.0	1223.91	0.00	2.51	10345.2
1224.19	0.00	1.98	10487.0	1220.93	0.00	4.93	10772.6	1220.94	0.00	-9.46	10990.9
1251.60	0.00	0.00	11135.3	1255.50	0.00	0.00	11229.9	1235.50	0.00	0.00	11511.5
1259.20	0.00	0.00	11740.2	1257.60	0.00	0.00	11773.3	1257.60	0.00	0.00	12053.0

ID
14 SECTION 30.45 TIME = 300.89 HRS WS =1223.21 WIDTH = 1384.2

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1239.00	0.00	0.00	9300.0	1217.90	0.01	-2.10	9403.1	1217.90	0.01	1.90	9540.2
1217.90	0.01	1.90	9650.0	1217.90	0.01	8.90	9750.0	1221.24	0.00	12.24	9850.2
1221.24	0.00	5.23	9999.8	1221.24	0.00	1.24	10050.0	1221.23	0.00	1.23	10200.0
1221.24	0.00	1.24	10300.0	1221.24	0.00	1.24	10400.0	1221.24	0.00	1.24	10550.2
1221.24	0.00	-2.75	10643.9	1221.24	0.00	-5.75	10752.8	1232.00	0.00	0.00	10900.0

ID
13 SECTION 30.19 TIME = 300.89 HRS WS =1221.25 WIDTH = 2130.7

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y

1219.99	0.00	5.99	9744.1	1214.31	0.00	7.31	9921.9	1214.31	0.00	7.31	10099.4
1215.93	0.00	3.93	10117.2	1219.71	0.00	5.71	10153.2	1219.91	0.00	1.81	10312.7
1220.09	0.00	-1.92	10543.5	1220.17	0.00	-1.93	10721.2	1220.25	0.00	-1.75	10899.9
1220.33	0.00	-1.67	11076.5	1220.35	-0.01	-1.64	11254.1	1220.35	-0.01	-1.64	11431.9
1220.37	-0.01	-1.53	11609.5	1221.82	0.00	-0.12	11785.3	1224.95	0.00	2.96	11956.1
1234.00	0.00	0.00	12099.1								

ID
12 SECTION 29.98 TIME = 300.99 HRS WS =1217.95 WIDTH = 1002.0

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1225.90	0.00	0.00	9300.0	1217.70	0.01	-3.05	9550.7	1214.99	-0.01	2.14	9517.9
1214.73	-0.01	3.93	9744.1	1212.54	-0.02	7.54	9921.9	1212.54	-0.02	7.54	10099.4
1215.92	0.00	3.17	10117.2	1215.95	0.00	4.20	10153.1	1217.07	0.00	0.32	10314.1
1217.14	0.00	-3.51	10543.5	1217.30	0.00	-3.50	10721.2	1217.43	0.00	-3.33	10899.9
1217.44	0.00	-3.31	11076.5	1217.73	0.01	-3.00	11254.0	1213.14	0.00	-2.51	11431.5
1219.59	0.00	-1.21	11608.2	1220.59	0.00	-0.15	11781.8	1232.75	0.00	0.00	11911.4

ID
11 SECTION 29.90 TIME = 300.99 HRS WS =1216.70 WIDTH = 1112.9

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1225.70	0.00	0.00	9300.0	1219.59	0.00	-0.01	9502.1	1217.52	0.00	5.93	9549.3
1210.34	0.01	0.64	9540.3	1210.34	0.01	5.64	9775.5	1210.33	0.01	5.62	9912.5
1210.39	0.01	2.70	9926.2	1210.54	0.01	-1.15	9953.2	1215.41	0.00	-0.29	10076.4
1215.06	0.00	-3.64	10253.0	1216.33	0.00	-3.41	10399.1	1216.52	0.00	-3.19	10525.2
1215.57	0.00	-3.03	10651.4	1215.95	0.00	-2.75	10737.5	1217.46	0.00	-2.24	10933.5
1219.18	0.00	-1.52	11059.3	1219.41	0.00	-0.29	11204.7	1219.53	0.00	-0.07	11340.6
1219.72	0.00	0.02	11476.7	1219.85	0.00	0.15	11512.5	1220.90	0.00	1.10	11639.1
1231.70	0.00	0.00	11981.9								

ID
10 SECTION 29.23 TIME = 300.99 HRS WS =1215.04 WIDTH = 841.0

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1225.40	0.00	0.00	9300.0	1222.19	0.00	0.75	9550.0	1211.99	0.01	0.49	9591.0
1211.85	0.01	2.44	9720.7	1211.99	0.01	7.49	9903.0	1212.09	0.01	7.69	10075.0
1212.09	0.01	4.69	10092.5	1212.05	0.01	0.65	10125.3	1212.09	0.01	-0.32	10201.4
1218.95	0.00	-0.45	10506.5	1219.02	0.00	-0.19	10678.9	1219.00	0.00	-0.40	10850.3
1219.29	0.00	-0.11	11022.8	1219.23	0.00	-0.13	11195.0	1219.35	0.00	-0.15	11367.3
1219.35	0.00	-0.05	11539.6	1219.65	0.00	0.35	11711.7	1220.13	0.00	0.73	11883.5
1220.44	0.00	1.04	12055.5	1220.71	0.00	1.30	12229.2	1224.57	0.00	5.17	12570.5
1231.40	0.00	0.00	12593.9								

ID
9 SECTION 29.75 TIME = 300.99 HRS WS =1215.44 WIDTH = 1332.4

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1225.10	0.00	0.00	9300.0	1223.10	0.00	4.00	9514.9	1213.87	0.03	-0.23	9649.9
1209.64	-0.02	0.54	9821.0	1209.58	-0.03	5.49	10029.5	1214.45	0.00	10.36	10237.9
1214.47	0.00	7.37	10259.7	1214.49	0.00	3.39	10300.7	1214.53	0.00	-0.51	10439.5
1214.62	0.03	-4.49	10774.7	1215.47	0.00	-3.63	10976.0	1219.56	0.00	0.46	11176.0
1219.79	0.00	0.69	11394.2	1219.93	0.00	0.73	11592.6	1219.97	0.00	0.77	11901.0
1219.92	0.00	0.91	12009.4	1220.04	0.00	0.94	12217.8	1220.12	0.00	1.02	12425.1
1220.40	0.00	1.30	12534.4	1221.79	0.00	2.59	12841.9	1223.43	0.00	4.39	13257.5
1231.10	0.00	0.00	13405.9								

ID
8 SECTION 29.69 TIME = 300.99 HRS WS =1214.77 WIDTH = 950.5

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1229.00	0.00	0.00	9300.0	1202.10	0.05	-1.90	8926.1	1202.07	0.05	-1.73	8900.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1215.31	0.00	0.31	9931.0	12[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1215.45	0.00	-0.54	10200.3	1215.12	0.00	0.12	10300.0	1215.29	0.00	0.29	10400.0
1215.45	0.00	0.45	10500.0	1215.74	0.00	0.74	10599.9	1216.67	0.00	0.87	10699.9
1217.10	0.00	1.10	10799.3	1217.75	0.00	1.75	10899.1	1217.95	0.00	1.95	10999.3
1219.02	0.00	3.02	11398.4	1219.26	0.00	3.26	11792.3	1220.00	0.00	0.00	11680.0

ID
7 SECTION 29.62 TIME = 300.89 HRS WS =1214.45 WIDTH = 1139.6

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1227.70	0.00	0.00	9300.0	1201.73	0.00	-1.99	8817.3	1201.75	0.00	-1.72	8955.0
1210.05	0.04	6.58	8990.4	1211.81	0.04	8.14	9199.5	1211.92	0.04	4.12	9247.4
1213.53	0.02	1.93	9513.9	1213.50	-0.05	1.93	9509.1	1213.52	-0.05	1.95	9751.9
1213.57	-0.05	2.00	9877.0	1214.90	0.00	-0.80	9942.3	1215.02	0.00	-0.55	10037.5
1215.22	0.00	-0.45	10132.5	1215.07	0.00	-0.50	10227.7	1215.19	0.00	-0.49	10323.0
1215.19	0.00	-0.52	10418.8	1216.40	0.00	0.73	10513.3	1215.46	0.00	-0.21	10609.0
1216.42	0.00	0.75	10703.7	1215.39	0.00	0.72	10799.2	1215.99	0.00	1.03	10893.0
1217.47	0.00	1.80	11270.5	1218.17	0.00	2.50	11651.4	1227.67	0.00	0.00	11791.7

ID
6 SECTION 29.57 TIME = 300.89 HRS WS =1214.02 WIDTH = 1650.9

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1227.30	0.00	0.00	8800.0	1204.74	0.00	1.39	8915.8	1202.77	0.00	-0.39	8990.4
1209.99	-0.02	5.84	8990.7	1211.70	-0.01	8.35	9179.6	1212.03	-0.01	4.73	9224.7
1212.05	-0.01	0.71	9477.9	1212.93	0.00	1.49	9553.2	1212.95	0.00	1.51	9703.7
1212.75	0.00	1.41	9821.1	1213.17	0.00	-2.13	9994.5	1213.05	0.00	-2.29	9974.9
1213.04	0.00	-2.31	10065.2	1213.43	0.00	-1.92	10155.5	1213.51	0.00	-1.84	10245.9
1213.45	0.00	-1.95	10336.3	1213.95	0.04	-1.39	10426.5	1214.14	0.00	-1.21	10516.9
1214.31	0.00	-1.03	10607.3	1214.72	0.00	-0.53	10696.8	1215.49	0.00	0.19	10795.8
1215.49	0.00	1.13	11146.9	1216.55	0.00	1.50	11511.7	1227.35	0.00	0.00	11593.4

ID
5 SECTION 29.52 TIME = 300.89 HRS WS =1213.42 WIDTH = 1697.3

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1206.66	-0.02	6.03	8693.9	1206.05	-0.01	6.34	8753.5	1205.04	-0.01	3.19	8885.9
1211.79	0.00	0.77	9441.7	1212.03	0.00	1.01	9527.2	1212.10	0.00	1.09	9555.9
1212.20	0.00	1.19	9765.9	1212.25	0.00	-2.74	9925.7	1212.29	0.00	-2.74	9913.3
1212.37	0.00	-2.65	9997.8	1212.39	0.00	-2.53	10083.3	1212.34	0.00	-2.18	10159.9
1212.72	0.00	-2.29	10254.5	1212.69	0.00	-2.34	10340.0	1212.00	0.04	-2.02	10425.5
1213.47	0.00	-1.55	10510.7	1213.39	0.00	-1.13	10595.1	1214.77	0.00	-0.23	10679.9
1215.84	0.00	0.92	11021.9	1216.25	0.00	1.23	11375.5	1227.02	0.00	0.00	11435.1

ID
4 SECTION 29.47 TIME = 300.89 HRS WS =1212.82 WIDTH = 1558.3

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1230.00	0.00	0.00	9100.0	1205.50	0.01	-1.40	9133.4	1205.50	0.01	0.50	9190.0
1205.60	0.01	2.60	9270.0	1205.60	0.01	2.60	9430.0	1211.77	0.00	9.27	9540.0
1211.77	0.00	7.77	9570.0	1211.77	0.00	3.77	9800.0	1211.77	0.00	3.77	9900.0
1211.77	0.00	3.77	10000.0	1211.77	0.00	-0.23	10096.2	1211.77	0.00	-4.23	10100.0
1211.77	0.00	-4.23	10605.3	1216.85	0.00	0.85	10999.5	1217.01	0.00	1.01	11559.6
1224.00	0.00	0.00	11730.0								

ID
3 SECTION 29.22 TIME = 300.89 HRS WS =1209.28 WIDTH = 949.4

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1224.00	0.00	0.00	9150.0	1220.00	0.00	0.00	9210.0	1210.55	0.00	10.55	9235.8
1205.55	0.02	-2.35	9391.1	1205.33	-0.01	-2.69	9500.0	1205.27	-0.02	-2.73	9600.0
1205.21	-0.02	-2.79	9700.0	1205.15	-0.02	-2.84	9800.0	1205.15	-0.02	1.15	9920.0
1209.43	0.00	8.43	10000.0	1209.43	0.00	5.43	10030.0	1209.44	0.00	1.44	10000.0

1209.43	0.00	-2.54	10700.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1214.03	0.00	2.03	10999.0	1219.75	0.00	0.75	11149.4	1224.00	0.00	0.00	11320.0

ID
2 SECTION 29.02 TIME = 300.99 HRS WS =1207.52 WIDTH = 595.7

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1206.00	0.00	0.00	8740.0	1220.00	0.00	0.00	8970.0	1219.07	0.00	0.07	9300.0
1212.85	0.00	0.36	8920.0	1209.55	0.00	0.65	9150.0	1209.51	0.00	0.61	9250.0
1209.55	0.00	0.55	9400.0	1208.52	0.00	0.52	9500.0	1208.49	0.00	0.49	9500.0
1208.44	0.00	0.44	9700.0	1208.40	0.00	0.40	9900.0	1208.35	0.00	0.35	9900.0
1204.17	0.01	0.17	9970.0	1200.12	0.02	0.12	10010.0	1199.39	0.02	0.53	10000.0
1200.11	0.02	0.11	10130.0	1204.17	0.01	0.17	10190.0	1204.26	0.01	0.26	10300.0
1204.35	0.01	0.35	10400.0	1204.43	0.01	0.43	10500.0	1204.52	0.01	0.52	10500.0
1205.50	0.00	0.50	10510.0	1209.52	0.00	0.52	10920.0	1220.00	0.00	0.00	11000.0

ID
1 SECTION 28.83 TIME = 300.99 HRS WS =1205.98 WIDTH = 1539.0

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1220.00	0.00	0.00	8910.0	1209.45	0.00	0.44	9300.0	1204.52	0.00	0.52	9990.0
1204.61	0.00	0.51	9010.0	1204.59	0.00	0.59	9100.0	1204.55	0.00	0.55	9200.0
1204.52	0.00	0.52	9300.0	1204.49	0.00	0.49	9400.0	1204.45	0.00	0.45	9500.0
1204.43	0.00	0.43	9600.0	1204.40	0.00	0.40	9700.0	1204.37	0.00	0.37	9900.0
1204.34	0.00	0.34	9900.0	1204.30	0.00	0.30	10000.0	1204.27	0.00	0.27	10100.0
1204.25	0.00	0.25	10170.0	1199.92	0.00	-0.09	10250.0	1199.36	0.00	-0.24	10300.0
1199.33	0.00	-0.07	10400.0	1204.24	0.00	0.24	10450.0	1209.33	0.00	0.33	10500.0
1212.03	0.00	0.03	10550.0	1215.00	0.00	0.00	10990.0	1220.00	0.00	0.00	10940.0

TIME = 301.99 HRS DT = 3600 SECS TIME STEP = 330

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1205.98	1539.3	7.83	16449	4.82	0.00227	11.09	0.53	0.57	0.2755E+07
29.02	1207.52	595.4	9.24	16449	5.58	0.00129	4.15	0.59	0.48	0.2785E+07
29.22	1209.27	648.9	4.11	16448	7.00	0.00249	17.74	0.79	0.65	0.2835E+07
29.47	1212.80	1555.5	5.20	16449	4.71	0.00214	5.47	0.51	0.55	0.2871E+07
29.52	1213.40	1693.5	9.39	16449	4.67	0.00232	14.32	0.57	0.57	0.2945E+07
29.57	1214.01	1640.5	11.24	16448	4.51	0.00214	13.55	0.54	0.55	0.2956E+07
29.62	1214.44	1109.9	12.59	16448	4.70	0.00136	2.94	0.52	0.47	0.2985E+07
29.63	1214.75	949.4	12.59	16448	4.99	0.00135	3.44	0.54	0.47	0.2995E+07
29.75	1215.42	1329.4	5.94	16449	4.98	0.00195	8.34	0.59	0.54	0.3015E+07
29.83	1215.92	940.4	4.17	16448	5.24	0.00134	3.91	0.55	0.48	0.3095E+07
29.90	1216.68	1104.4	6.34	16449	5.54	0.00233	16.78	0.63	0.60	0.3145E+07
29.93	1217.95	1790.9	5.41	16449	5.39	0.00403	24.39	0.67	0.73	0.3195E+07
30.19	1221.24	2129.3	6.93	16449	3.95	0.00181	3.19	0.49	0.50	0.3115E+07
30.45	1223.20	1384.1	5.30	16449	4.07	0.00112	1.88	0.44	0.42	0.3245E+07
30.82	1225.62	1313.6	8.10	16448	4.69	0.00157	2.74	0.59	0.50	0.3405E+07
31.30	1229.45	934.0	8.42	16449	5.37	0.00144	2.44	0.80	0.49	0.3465E+07
31.52	1231.53	903.9	7.13	16449	6.11	0.00249	9.02	1.16	0.63	0.3545E+07

TIME = 311.99 HRS DT = 3600 SECS TIME STEP = 340

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1205.86	1531.9	7.55	15115	4.66	0.00226	11.71	0.59	0.55	0.2765E+07
29.02	1207.49	592.7	8.00	15115	5.23	0.00127	4.18	0.54	0.47	0.2795E+07
29.22	1209.14	642.9	4.14	15115	6.55	0.00221	17.99	0.65	0.61	0.2825E+07
29.47	1212.55	1536.2	5.05	15115	4.77	0.00249	7.51	0.54	0.59	0.2915E+07
29.52	1213.23	1699.6	8.22	15115	4.61	0.00234	15.10	0.54	0.57	0.2985E+07
29.57	1213.83	1528.5	11.06	15115	4.55	0.00209	12.73	0.51	0.54	0.2995E+07
29.62	1214.28	1109.0	12.34	15115	4.57	0.00139	2.98	0.51	0.47	0.2995E+07
29.63	1214.50	940.4	12.14	15115	4.85	0.00135	3.59	0.51	0.47	0.2995E+07
29.75	1215.25	1257.9	5.92	15115	4.76	0.00198	9.43	0.54	0.53	0.3025E+07
29.83	1215.86	934.3	3.93	15115	5.13	0.00139	4.94	0.53	0.48	0.3095E+07
29.90	1216.52	1039.6	6.19	15115	5.47	0.00230	19.11	0.59	0.59	0.3155E+07

30.45	1223.11	1383.0	5.15	15115	2.91	0.00110	1.70	0.42	0.41	0.326E+07
30.82	1225.50	1310.7	7.96	15115	4.52	0.00166	2.57	0.58	0.50	0.341E+07
31.30	1229.27	776.6	9.12	15115	5.29	0.00140	2.31	0.79	0.49	0.347E+07
31.52	1231.34	990.6	6.94	15115	6.00	0.00251	9.02	1.13	0.63	0.355E+07

TIME = 321.99 HRS DT = 3600 SECS TIME STEP = 360

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.93	1205.82	1509.9	7.55	14791	4.53	0.00227	10.15	0.59	0.56	0.277E+07
29.02	1207.47	592.1	7.91	14791	5.36	0.00128	4.07	0.55	0.47	0.279E+07
29.22	1209.12	641.0	4.17	14791	6.44	0.00214	17.95	0.64	0.60	0.283E+07
29.47	1212.49	1525.9	5.13	14791	4.79	0.00252	10.60	0.53	0.56	0.286E+07
29.52	1213.15	1532.7	9.14	14791	4.64	0.00230	15.53	0.54	0.57	0.288E+07
29.57	1213.75	1431.4	10.99	14791	4.51	0.00205	11.72	0.52	0.54	0.287E+07
29.62	1214.21	1111.2	12.07	14791	4.59	0.00145	8.00	0.52	0.47	0.289E+07
29.69	1214.55	944.4	11.90	14791	4.95	0.00140	3.37	0.52	0.47	0.294E+07
29.75	1215.20	1180.6	6.07	14791	4.75	0.00177	7.76	0.52	0.52	0.300E+07
29.83	1215.79	931.5	3.91	14791	5.19	0.00149	5.97	0.55	0.49	0.310E+07
29.90	1216.50	1029.0	6.12	14791	5.45	0.00230	19.59	0.59	0.59	0.316E+07
29.99	1217.72	1502.4	5.59	14791	5.29	0.00375	28.97	0.61	0.70	0.315E+07
30.19	1221.04	2109.2	5.65	14791	3.93	0.00202	3.49	0.51	0.52	0.312E+07
30.45	1223.11	1392.9	5.03	14791	3.93	0.00110	1.70	0.43	0.41	0.305E+07
30.82	1225.49	1310.2	7.92	14791	4.45	0.00152	2.43	0.57	0.49	0.342E+07
31.30	1229.25	768.7	9.01	14791	5.29	0.00141	2.26	0.80	0.49	0.343E+07
31.52	1231.33	873.4	6.93	14791	5.90	0.00244	9.02	1.07	0.62	0.357E+07

TIME = 331.99 HRS DT = 3600 SECS TIME STEP = 360

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.93	1205.79	1528.0	7.55	14479	4.50	0.00229	10.53	0.56	0.55	0.278E+07
29.02	1207.44	591.4	7.84	14479	5.22	0.00129	4.34	0.53	0.47	0.280E+07
29.22	1209.09	640.1	4.15	14479	6.34	0.00209	17.98	0.54	0.59	0.284E+07
29.47	1212.42	1517.5	5.20	14479	4.77	0.00255	10.49	0.52	0.59	0.287E+07
29.52	1213.08	1476.1	9.07	14479	4.57	0.00230	15.56	0.45	0.57	0.289E+07
29.57	1213.67	1370.7	10.90	14479	4.55	0.00205	11.93	0.49	0.54	0.288E+07
29.62	1214.15	1112.0	11.72	14479	4.59	0.00150	8.37	0.43	0.49	0.290E+07
29.69	1214.51	945.8	11.52	14479	4.82	0.00142	4.51	0.42	0.49	0.295E+07
29.75	1215.14	1117.6	6.11	14479	4.73	0.00165	10.52	0.43	0.50	0.300E+07
29.83	1215.71	929.0	3.69	14479	5.39	0.00155	5.02	0.41	0.50	0.311E+07
29.90	1216.45	1007.9	6.05	14479	5.42	0.00226	28.97	0.41	0.59	0.317E+07
29.99	1217.55	1500.2	5.69	14479	5.26	0.00349	32.91	0.43	0.68	0.315E+07
30.19	1221.31	2145.3	6.94	14479	3.37	0.00127	2.54	0.30	0.42	0.310E+07
30.46	1222.99	1391.5	4.92	14479	4.00	0.00125	1.69	0.52	0.44	0.326E+07
30.82	1225.50	1310.2	7.91	14479	4.37	0.00157	2.27	0.55	0.48	0.343E+07
31.30	1229.22	752.6	7.39	14479	5.30	0.00143	2.27	0.91	0.49	0.349E+07
31.52	1231.30	874.2	6.90	14479	5.94	0.00241	9.02	1.03	0.61	0.359E+07

UPON THE EXPRESS UNDERSTANDING THAT THE DEVELOPER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY, COMPLETENESS, RELIABILITY, USABILITY, OR SUITABILITY FOR ANY PARTICULAR PURPOSE OF THE INFORMATION AND DATA CONTAINED IN THIS PROGRAM OR FURNISHED IN CONNECTION THEREWITH, AND THE DEVELOPER SHALL BE UNDER NO LIABILITY WHATSOEVER TO ANY PERSON BY REASON OF ANY USE MADE THEREOF.

WITH PIT SEDIMENT TRANSPORT

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T1 SALT RIVER FLOOD INSURANCE STUDY, COUNTRY CLUB TO GRANITE REEF
T2 INPUT FILE:88052P8W.FLI  (INCLUDING THE PIT)
T3 BY CMG DRAINAGE ENGINEERING,JOB# 88052
G1      0.00    336.00   3600.00      3.00      0.50      0.00      0.03     72.00    300.00     10.00
G2     21.00     15.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
G2   9350.00      0.00  88780.00     24.00137720.00     48.00225000.00     72.00  72250.00     96.00
G2  53740.00    120.00  55430.00    144.00  82420.00    168.00  89540.00    192.00  54730.00    216.00
G2  52590.00    240.00  49000.00    264.00  18300.00    288.00  15100.00    312.00  14350.00    336.00
G3      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
GB     15.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
GB   1205.20      0.00   1210.39     24.00   1212.53     48.00   1215.77     72.00   1209.60     96.00
GB   1209.50    120.00   1208.72    144.00   1210.11    168.00   1210.43    192.00   1208.68    216.00
GB   1208.50    240.00   1208.36    264.00   1206.15    288.00   1205.86    312.00   1205.77    336.00
GS      1.00      0.01      3.16      0.42     13.42      0.17     31.18      0.24     64.06      0.17
GS      1.00      0.01      3.16      0.42     13.42      0.19     31.18      0.19     64.06      0.15
J1      0.00      2.00      0.00      0.00      0.00      0.00      0.00      0.00   1217.31      0.00
J2     -1.00      0.00     -1.00      0.00      0.00      0.00      0.00      0.00      0.00     15.00
J3     38.00     43.00      1.00      9.00     25.00     42.00     55.00     26.00     56.00      4.00
J3     53.00     54.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
NC      0.03      0.03      0.03      0.30      0.50      0.00      0.00      0.00      0.00      0.00
QT      1.00225000.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
X1     28.83     24.00   8810.00  10940.00      0.00      0.00      0.00      0.00      0.00      0.00
GR   1220.00   8810.00   1208.00   8830.00   1204.00   8990.00   1204.00   9010.00   1204.00   9100.00
GR   1204.00   9200.00   1204.00   9300.00   1204.00   9400.00   1204.00   9500.00   1204.00   9600.00
GR   1204.00   9700.00   1204.00   9800.00   1204.00   9900.00   1204.00  10000.00   1204.00  10100.00
GR   1204.00  10170.00   1200.00  10250.00   1198.60  10320.00   1200.00  10400.00   1204.00  10450.00
GR   1209.00  10500.00   1212.00  10550.00   1216.00  10990.00   1220.00  10940.00
X1     29.02     24.00   8740.00  11000.00   1000.00   1020.00   1020.00      0.00      0.00      0.00
GR   1226.00   8740.00   1220.00   8870.00   1216.00   8900.00   1212.00   8920.00   1209.00   9150.00
GR   1208.00   9250.00   1208.00   9400.00   1208.00   9500.00   1208.00   9600.00   1209.00   9700.00
GR   1208.00   9800.00   1208.00   9900.00   1204.00   9970.00   1200.00  10010.00   1198.80  10080.00
GR   1200.00  10130.00   1204.00  10190.00   1204.00  10300.00   1204.00  10400.00   1204.00  10500.00
GR   1204.00  10690.00   1208.00  10610.00   1208.00  10920.00   1220.00  11000.00
X1     29.22     21.00   9150.00  11220.00    950.00    970.00   1020.00      0.00      0.00      0.00
GR   1224.00   9150.00   1220.00   9210.00   1208.00   9230.00   1208.00   9400.00   1208.00   9500.00
GR   1208.00   9600.00   1208.00   9700.00   1208.00   9800.00   1204.00   9920.00   1201.00  10000.00
GR   1204.00  10080.00   1208.00  10200.00   1212.00  10280.00   1212.00  10400.00   1212.00  10570.00
GR   1212.00  10700.00   1212.00  10800.00   1212.00  10900.00   1212.00  11000.00   1216.00  11150.00
GR   1224.00  11220.00
X1     29.47     19.00   9100.00  11730.00   1030.00    970.00   1300.00      0.00      0.00      0.00
GR   1230.00   9100.00   1208.00   9150.00   1204.00   9190.00   1203.00   9230.00   1164.00   9243.00
GR   1164.00   9300.00   1164.00   9400.00   1164.00   9500.00   1164.00   9556.70   1204.00   9570.00
GR   1208.00   9800.00   1208.00   9900.00   1208.00  10020.00   1212.00  10080.00   1216.00  10100.00
GR   1216.00  10500.00   1216.00  11000.00   1216.00  11650.00   1224.00  11730.00
X1     29.52     30.00   8800.00  11084.29    230.00    255.00    265.00      0.00      0.00      0.00
GR   1228.00   8800.00   1204.00   8822.25   1203.80   8874.17   1203.00   8899.00   1164.00   8898.42
GR   1164.00   8948.33   1164.00   9022.50   1164.00   9096.66   1164.00   9170.83   1164.00   9244.99
GR   1164.00   9319.16   1164.00   9354.98   1212.00   9363.55   1212.00   9430.40   1212.00   9541.65
GR   1212.00   9638.07   1216.00   9689.98   1216.00   9764.15   1216.00   9838.31   1216.00   9912.48
GR   1216.00   9986.64   1216.00  10060.81   1216.00  10134.97   1216.00  10209.14   1216.00  10283.30
GR   1216.00  10357.47   1216.00  10431.63   1216.00  10728.29   1216.00  11017.54   1228.00  11084.29
X1     29.57     30.00   8800.00  11349.52    230.00    255.00    265.00      0.00      0.00      0.00
GR   1228.00   8800.00   1204.00   8824.83   1203.80   8892.78   1203.00   8899.33   1164.00   8909.84
GR   1164.00   8965.55   1164.00   9048.33   1164.00   9131.11   1164.00   9213.88   1164.00   9296.66
GR   1164.00   9379.44   1164.00   9419.42   1212.00   9429.10   1212.00   9503.60   1212.00   9627.77
GR   1212.00   9735.38   1216.00   9793.32   1216.00   9876.10   1216.00   9958.87   1216.00  10041.65
GR   1216.00  10124.43   1216.00  10207.21   1216.00  10289.98   1216.00  10372.76   1216.00  10455.54
GR   1216.00  10538.31   1216.00  10621.09   1216.00  10952.20   1216.00  11275.02   1228.00  11349.52
X1     29.52     30.00   8800.00  11614.76    230.00    255.00    265.00      0.00      0.00      0.00
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GR	1164.00	9439.72	1164.00	9483.86	1212.00	9494.55	1212.00	9576.80	1212.00	9713.88
GR	1212.00	9832.69	1216.00	9896.66	1216.00	9988.05	1216.00	10079.44	1216.00	10170.83
GR	1216.00	10262.21	1216.00	10353.60	1216.00	10444.99	1216.00	10536.38	1216.00	10627.77
GR	1216.00	10719.16	1216.00	10810.54	1216.00	11176.10	1216.00	11532.51	1228.00	11614.76
X1	29.68	30.00	8800.00	11890.00	230.00	255.00	255.00	0.00	0.00	0.00
GR	1228.00	8800.00	1204.00	8830.00	1203.80	8900.00	1203.00	8920.00	1164.00	8932.70
GR	1164.00	9000.00	1164.00	9100.00	1164.00	9200.00	1164.00	9300.00	1164.00	9400.00
GR	1164.00	9500.00	1164.00	9549.30	1212.00	9560.00	1212.00	9650.00	1212.00	9800.00
GR	1212.00	9930.00	1216.00	10000.00	1216.00	10100.00	1216.00	10200.00	1216.00	10300.00
GR	1216.00	10400.00	1216.00	10500.00	1216.00	10600.00	1216.00	10700.00	1216.00	10900.00
GR	1216.00	10900.00	1216.00	11000.00	1216.00	11400.00	1216.00	11790.00	1228.00	11880.00
X1	29.70	28.00	8940.00	10346.65	102.50	79.00	107.00	0.00	0.00	0.00
GR	1195.00	8940.00	1187.00	8964.76	1187.00	9100.00	1187.00	9202.51	1164.00	9249.56
GR	1164.00	9316.43	1164.00	9368.43	1178.90	9415.49	1183.00	9465.02	1187.00	9489.78
GR	1187.00	9524.45	1186.60	9564.08	1186.00	9613.61	1185.50	9663.14	1184.90	9712.67
GR	1184.40	9762.20	1183.90	9811.73	1183.30	9861.26	1183.00	9890.99	1183.00	9910.79
GR	1183.00	9992.51	1183.90	10059.38	1184.50	10108.91	1185.20	10158.44	1185.90	10207.97
GR	1186.50	10257.50	1187.00	10292.17	1211.00	10346.65				
X1	29.72	29.00	8940.00	10824.43	102.50	79.00	107.00	0.00	0.00	0.00
GR	1206.00	8940.00	1198.00	8973.18	1198.00	9100.00	1199.00	9200.00	1198.00	9291.67
GR	1164.00	9354.71	1164.00	9444.29	1164.00	9513.96	1189.90	9575.99	1194.00	9643.34
GR	1199.00	9676.52	1198.00	9722.97	1197.60	9775.05	1197.00	9842.40	1196.50	9908.76
GR	1195.90	9975.11	1195.40	10041.47	1194.90	10107.82	1194.30	10174.17	1194.00	10213.99
GR	1194.00	10240.53	1194.00	10350.01	1194.90	10439.59	1195.50	10505.94	1196.20	10572.29
GR	1195.90	10638.65	1197.50	10705.00	1198.00	10751.45	1222.00	10924.43		
X1	29.74	30.00	8940.00	11302.22	102.50	79.00	107.00	0.00	0.00	0.00
GR	1217.00	8940.00	1209.00	8981.59	1209.00	9100.00	1209.00	9200.00	1209.00	9300.00
GR	1209.00	9380.84	1164.00	9459.85	1164.00	9572.14	1164.00	9659.48	1200.90	9738.50
GR	1205.00	9821.67	1209.00	9863.26	1209.00	9921.49	1208.50	9989.03	1208.00	10071.20
GR	1207.50	10154.38	1206.90	10237.56	1206.40	10320.73	1205.90	10403.91	1205.30	10487.09
GR	1205.00	10536.99	1205.00	10570.26	1205.00	10707.50	1205.90	10819.79	1206.50	10902.97
GR	1207.20	10985.15	1207.90	11059.32	1208.50	11152.50	1209.00	11210.72	1233.00	11302.22
X1	29.75	31.00	8940.00	11780.00	102.50	79.00	107.00	0.00	0.00	0.00
GR	1228.00	8940.00	1220.00	8990.00	1220.00	9100.00	1220.00	9200.00	1220.00	9300.00
GR	1220.00	9400.00	1220.00	9470.00	1204.20	9565.00	1204.20	9700.00	1204.20	9805.00
GR	1211.90	9900.00	1216.00	10000.00	1220.00	10050.00	1220.00	10120.00	1219.60	10200.00
GR	1219.00	10300.00	1218.50	10400.00	1217.90	10500.00	1217.40	10600.00	1216.90	10700.00
GR	1216.30	10900.00	1216.00	10960.00	1216.00	10900.00	1216.00	11055.00	1216.90	11200.00
GR	1217.50	11300.00	1218.20	11400.00	1218.90	11500.00	1219.50	11600.00	1220.00	11670.00
GR	1244.00	11780.00								
X1	29.81	22.00	9300.00	15859.01	280.00	216.00	293.00	0.00	0.00	0.00
GR	1228.30	9300.00	1222.25	9799.42	1214.25	9899.30	1212.25	10132.35	1204.34	10465.31
GR	1204.30	10798.25	1210.25	10931.55	1214.25	10998.13	1219.25	11197.79	1222.25	11630.61
GR	1222.30	11963.56	1222.25	12296.50	1222.25	12629.45	1222.25	12962.39	1222.25	13295.34
GR	1222.30	13628.28	1222.25	13961.23	1222.25	14294.17	1222.25	14627.12	1222.25	14960.06
GR	1222.30	15625.95	1234.25	15859.01						
X1	29.87	22.00	9300.00	14329.34	280.00	216.00	293.00	0.00	0.00	0.00
GR	1227.50	9300.00	1221.50	9692.94	1213.50	9759.53	1211.50	9938.24	1204.56	10193.54
GR	1204.50	10448.83	1209.50	10474.36	1213.50	10525.42	1217.50	10755.19	1221.50	11087.09
GR	1221.50	11342.37	1221.50	11597.67	1221.50	11852.96	1221.50	12108.26	1221.50	12363.56
GR	1221.50	12618.85	1221.50	12874.15	1221.50	13129.45	1221.50	13384.74	1221.50	13640.04
GR	1221.50	14150.63	1233.50	14329.34						
X1	29.92	22.00	9300.00	12799.67	280.00	216.00	293.00	0.00	0.00	0.00
GR	1226.80	9300.00	1220.75	9566.47	1212.75	9619.77	1210.75	9744.12	1204.78	9921.77
GR	1204.80	10099.42	1208.75	10117.18	1212.75	10152.71	1216.75	10312.60	1220.75	10543.54
GR	1220.80	10721.19	1220.75	10898.83	1220.75	11076.48	1220.75	11254.13	1220.75	11431.78
GR	1220.80	11609.43	1220.75	11787.08	1220.75	11964.72	1220.75	12142.37	1220.75	12320.02
GR	1220.80	12675.32	1232.75	12799.67						
X1	29.99	18.00	9300.00	11911.43	280.00	216.00	293.00	0.00	0.00	0.00
GR	1226.80	9300.00	1220.75	9566.47	1212.75	9619.77	1210.75	9744.12	1205.00	9921.77
GR	1205.00	10099.42	1208.75	10117.18	1212.75	10152.71	1216.75	10312.60	1220.75	10543.54
GR	1220.80	10721.19	1220.75	10898.83	1220.75	11076.48	1220.75	11254.13	1220.75	11431.78
GR	1220.80	11609.43	1220.75	11787.08	1232.75	11911.43				
X1	30.19	19.00	9300.00	12089.07	1125.00	1175.00	1125.00	0.00	0.00	0.00

GR	1222.00	10721.19	1222.00	10898.83	1222.00	11075.48	1222.00	11254.13	1222.00	11431.78
GR	1222.00	11609.43	1222.00	11787.08	1222.00	11964.72	1234.00	12099.07		
X1	30.46	15.00	9300.00	10800.00	1285.00	1035.00	1375.00	0.00	0.00	0.00
GR	1239.00	9300.00	1220.00	9420.00	1216.00	9540.00	1216.00	9660.00	1209.00	9750.00
GR	1209.00	9850.00	1216.00	10000.00	1220.00	10050.00	1220.00	10200.00	1220.00	10300.00
GR	1220.00	10400.00	1220.00	10550.00	1224.00	10640.00	1229.00	10740.00	1232.00	10800.00
X1	30.82	35.00	9568.20	11136.30	1350.00	1390.00	1930.00	0.00	0.00	0.00
GR	1238.90	5271.20	1239.50	5795.20	1241.10	5855.40	1238.20	6357.40	1239.30	6393.90
GR	1239.30	6408.90	1238.30	6442.00	1239.30	6633.60	1238.30	7017.60	1237.70	7520.10
GR	1237.70	7892.20	1239.00	7912.90	1238.50	8404.20	1240.30	8448.40	1240.30	8499.00
GR	1239.30	8870.10	1240.10	9221.80	1236.10	9405.90	1232.90	9470.50	1231.90	9514.00
GR	1236.50	9569.20	1226.20	9665.10	1226.50	9727.50	1219.10	9769.70	1217.50	9954.00
GR	1220.90	10000.00	1221.30	10346.20	1222.30	10487.00	1216.00	10770.60	1230.30	10871.50
GR	1251.60	11136.30	1255.50	11229.90	1256.50	11511.60	1259.20	11740.20	1257.50	11773.30
GR	1257.50	12053.00								
X1	31.30	43.00	9589.50	10857.50	2255.00	2485.00	2545.00	0.00	0.00	0.00
GR	1245.20	7959.20	1245.30	7989.00	1242.40	8027.10	1242.70	8305.30	1240.30	8705.80
GR	1236.70	8867.30	1235.70	9104.00	1237.60	9154.80	1235.70	9275.70	1231.40	9384.20
GR	1225.60	9689.60	1220.20	9713.80	1220.10	9786.30	1222.40	9835.90	1222.40	9877.30
GR	1224.80	9942.00	1228.00	10000.00	1229.70	10035.20	1228.40	10184.40	1232.20	10225.80
GR	1232.70	10375.20	1232.20	10437.40	1226.80	10547.40	1231.40	10585.60	1229.50	10526.70
GR	1221.50	10595.20	1220.70	10967.50	1252.00	10911.90	1252.90	11055.20	1251.20	11234.10
GR	1253.90	11423.00	1259.80	11595.10	1258.00	11611.90	1260.00	11647.00	1260.00	11685.50
GR	1257.30	11702.10	1258.40	11720.40	1258.80	11752.70	1255.60	11755.80	1258.30	11815.40
GR	1259.70	11935.50	1259.00	12047.10	1259.80	12118.10				
X1	31.52	58.00	9428.60	11538.90	1120.00	1650.00	1150.00	0.00	0.00	0.00
GR	1247.00	7461.10	1244.40	7497.30	1244.80	7703.30	1245.20	8039.00	1235.10	8081.40
GR	1234.80	8179.10	1229.20	8272.70	1229.50	8334.70	1234.30	8401.80	1236.70	8483.90
GR	1240.00	8603.00	1237.20	8654.00	1236.70	8775.20	1242.20	8808.80	1242.90	8880.80
GR	1241.50	8924.60	1241.50	9026.10	1242.30	9052.80	1240.40	9162.30	1240.40	9235.30
GR	1244.50	9428.60	1233.40	9442.10	1229.60	9469.80	1228.60	9533.10	1229.10	9585.40
GR	1227.20	9685.40	1234.40	9740.40	1235.80	9872.40	1233.10	9957.40	1232.20	10000.00
GR	1233.10	10066.60	1234.90	10099.00	1238.00	10207.40	1239.40	10311.30	1235.80	10652.90
GR	1231.20	10706.70	1234.20	10790.50	1233.10	10902.80	1229.20	11141.20	1226.10	11291.20
GR	1224.40	11413.70	1230.00	11446.20	1230.60	11501.50	1264.30	11538.90	1264.40	11590.60
GR	1255.80	11671.00	1257.20	11759.90	1259.50	11785.70	1266.20	11831.40	1268.00	11873.60
GR	1270.50	12030.30	1264.40	12065.00	1265.70	12074.80	1265.70	12101.50	1264.50	12113.30
GR	1271.50	12160.80	1272.70	12335.10	1272.70	12497.90				
EJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1

TI INITIAL BED MATERIAL COMPOSITION

SECTION	SIZE MM	FRACTION	SIZE MM	FRACTION	SIZE MM	FRACTION	SIZE MM	FRACTION	SIZE MM	FRACTION
28.93	1.00	0.010	3.16	0.416	13.42	0.168	31.18	0.238	64.06	0.158
29.02	1.00	0.010	3.16	0.417	13.42	0.170	31.18	0.235	64.06	0.158
29.22	1.00	0.010	3.16	0.418	13.42	0.172	31.18	0.232	64.06	0.168
29.47	1.00	0.010	3.16	0.420	13.42	0.175	31.18	0.228	64.06	0.168
29.52	1.00	0.010	3.16	0.420	13.42	0.175	31.18	0.227	64.06	0.167
29.57	1.00	0.010	3.16	0.421	13.42	0.176	31.18	0.226	64.06	0.167
29.62	1.00	0.010	3.16	0.421	13.42	0.176	31.18	0.225	64.06	0.167
29.68	1.00	0.010	3.16	0.421	13.42	0.177	31.18	0.225	64.06	0.167
29.70	1.00	0.010	3.16	0.421	13.42	0.177	31.18	0.224	64.06	0.167
29.72	1.00	0.010	3.16	0.421	13.42	0.177	31.18	0.224	64.06	0.167
29.74	1.00	0.010	3.16	0.422	13.42	0.178	31.18	0.224	64.06	0.167
29.75	1.00	0.010	3.16	0.422	13.42	0.178	31.18	0.223	64.06	0.167
29.81	1.00	0.010	3.16	0.422	13.42	0.179	31.18	0.222	64.06	0.167
29.87	1.00	0.010	3.16	0.422	13.42	0.179	31.18	0.222	64.06	0.167
29.92	1.00	0.010	3.16	0.423	13.42	0.179	31.18	0.221	64.06	0.167
29.98	1.00	0.010	3.16	0.423	13.42	0.180	31.18	0.220	64.06	0.167
30.19	1.00	0.010	3.16	0.425	13.42	0.182	31.18	0.217	64.06	0.167
30.46	1.00	0.010	3.16	0.426	13.42	0.185	31.18	0.212	64.06	0.166
30.82	1.00	0.010	3.16	0.428	13.42	0.189	31.18	0.207	64.06	0.166

THE ENGELUND-HANSEN SEDIMENT FORMULA IS USED

1

TIME = 0.00 HRS DT = 100 SECS TIME STEP = 0

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1205.20	1523.0	6.60	9350	3.39	0.00148	12.78	0.10	0.44	0.215E+01
29.02	1206.34	576.7	7.54	9350	4.10	0.00095	12.64	0.09	0.39	0.199E+01
29.22	1207.99	399.2	6.99	9350	6.90	0.00265	12.51	0.34	0.66	0.725E+01
29.47	1209.32	892.8	45.32	9350	0.57	0.00000	12.34	0.00	0.02	0.311E-04
29.52	1209.32	545.9	45.32	9350	0.43	0.00000	12.30	0.00	0.01	0.426E-05
29.57	1209.32	609.2	45.32	9350	0.39	0.00000	12.27	0.00	0.01	0.299E-05
29.62	1209.32	672.6	45.32	9350	0.35	0.00000	12.24	0.00	0.01	0.223E-05
29.69	1209.32	736.0	45.32	9350	0.32	0.00000	12.20	0.00	0.01	0.177E-05
29.70	1209.32	1402.6	45.32	9350	0.26	0.00000	12.19	0.00	0.01	0.143E-05
29.72	1209.32	1845.3	45.32	9350	0.30	0.00000	12.12	0.00	0.01	0.520E-05
29.74	1209.32	2232.0	45.32	9350	0.55	0.00001	12.14	0.00	0.03	0.187E-03
29.75	1208.91	326.4	4.71	9350	7.01	0.00214	12.16	0.30	0.61	0.634E+01
29.81	1209.97	601.8	5.67	9350	3.54	0.00050	12.11	0.04	0.30	0.750E+00
29.87	1210.06	490.2	5.56	9350	4.57	0.00088	12.07	0.11	0.39	0.223E+01
29.92	1210.13	368.8	5.40	9350	6.40	0.00185	12.04	0.34	0.57	0.723E+01
29.98	1210.81	395.4	5.81	9350	5.69	0.00137	12.00	0.26	0.49	0.542E+01
30.19	1212.47	424.6	5.47	9350	5.82	0.00163	11.87	0.33	0.53	0.688E+01
30.46	1215.01	305.0	6.01	9350	7.67	0.00254	11.71	0.91	0.63	0.192E+02
30.92	1220.49	472.0	4.49	9350	8.51	0.00566	11.51	1.48	0.98	0.312E+02
31.30	1226.72	579.5	6.62	9350	3.75	0.00057	11.21	0.05	0.32	0.995E+00
31.52	1229.65	637.1	5.25	9350	7.61	0.00683	11.10	2.56	0.97	0.561E+02

1

TIME = 1.18 HRS DT = 1373 SECS TIME STEP = 10

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1205.46	1536.4	6.86	13268	4.22	0.00193	12.79	0.19	0.52	0.229E+03
29.02	1206.89	687.9	8.09	13269	4.99	0.00117	12.63	0.17	0.45	0.203E+03
29.22	1209.09	993.7	8.12	13269	5.44	0.00253	12.51	0.21	0.61	0.316E+03
29.47	1210.54	913.8	46.54	13269	0.76	0.00000	12.34	0.00	0.03	0.410E-02
29.52	1210.54	608.0	46.54	13268	0.60	0.00000	12.30	0.00	0.02	0.706E-03
29.57	1210.54	678.4	46.54	13268	0.54	0.00000	12.27	0.00	0.02	0.493E-03
29.62	1210.54	748.8	46.54	13269	0.49	0.00000	12.24	0.00	0.01	0.368E-03
29.68	1210.54	819.2	46.54	13268	0.45	0.00000	12.20	0.00	0.01	0.291E-03
29.70	1210.55	1405.4	46.55	13268	0.35	0.00000	12.19	0.00	0.01	0.214E-03
29.72	1210.54	1849.1	46.54	13268	0.40	0.00000	12.18	0.00	0.02	0.598E-03
29.74	1210.54	2243.2	46.26	13268	0.67	0.00001	11.02	0.00	0.04	0.183E-01
29.75	1210.06	348.0	5.95	13268	7.59	0.00190	12.75	0.30	0.60	0.377E+03
29.81	1211.22	672.2	6.91	13269	3.87	0.00049	11.93	0.04	0.30	0.525E+02
29.87	1211.29	551.1	6.70	13268	4.99	0.00085	11.55	0.12	0.40	0.157E+03
29.92	1211.37	434.5	6.63	13268	6.83	0.00180	12.17	0.39	0.57	0.512E+03
29.98	1212.02	481.8	7.00	13268	5.11	0.00142	11.95	0.30	0.51	0.408E+03
30.19	1213.70	511.4	6.64	13268	6.14	0.00156	11.51	0.35	0.53	0.491E+03
30.46	1216.49	482.4	7.45	13268	7.52	0.00284	11.70	0.95	0.69	0.145E+04
30.92	1221.43	895.8	5.53	13269	7.71	0.00706	11.79	1.34	0.98	0.206E+04
31.30	1229.37	747.2	8.19	13269	4.31	0.00080	10.48	0.09	0.37	0.118E+03
31.52	1230.36	747.5	5.96	13269	7.74	0.00562	11.10	2.20	0.90	0.359E+04

1

TIME = 9.55 HRS DT = 3600 SECS TIME STEP = 20

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1207.27	1631.5	8.72	40966	6.79	0.00229	13.13	0.53	0.62	0.883E+04
29.02	1209.65	1876.3	10.90	40966	6.32	0.00215	14.16	0.48	0.60	0.780E+04
29.22	1211.58	1047.7	10.94	40966	8.07	0.00225	14.08	0.35	0.65	0.599E+04

29.52	1213.35	842.2	49.36	40966	1.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29.57	1213.38	940.2	49.38	40966	1.52	0.00001	12.27	0.00	0.05	0.376E+00
29.62	1213.39	1038.2	49.39	40966	1.38	0.00001	12.24	0.00	0.05	0.271E+00
29.68	1213.40	1136.2	49.40	40966	1.25	0.00001	12.20	0.00	0.04	0.206E+00
29.70	1213.41	1406.1	49.41	40966	0.97	0.00000	12.19	0.00	0.03	0.109E+00
29.72	1213.41	1857.9	49.40	40966	1.06	0.00001	12.15	0.00	0.04	0.278E+00
29.74	1213.39	2271.2	43.65	40966	1.70	0.00004	6.21	0.00	0.09	0.665E+01
29.75	1213.39	435.7	11.95	40966	10.71	0.00180	20.24	0.52	0.64	0.102E+05
29.81	1215.35	1103.9	10.34	40966	6.15	0.00098	7.82	0.25	0.44	0.303E+04
29.87	1215.43	899.9	9.93	40966	7.67	0.00155	8.69	0.58	0.55	0.805E+04
29.92	1215.59	652.2	11.22	40966	9.22	0.00186	13.49	0.72	0.62	0.128E+05
29.99	1216.28	699.6	11.10	40966	8.71	0.00170	11.76	0.65	0.59	0.112E+05
30.19	1218.23	735.1	10.81	40966	8.37	0.00159	10.65	0.63	0.57	0.113E+05
30.46	1221.12	1162.0	12.26	40966	8.10	0.00262	12.60	0.72	0.69	0.170E+05
30.82	1225.19	1102.2	9.50	40966	7.22	0.00156	10.77	0.50	0.56	0.144E+05
31.30	1230.39	1135.6	10.09	40966	8.28	0.00274	9.62	1.09	0.70	0.174E+05
31.52	1233.83	1415.9	9.43	40966	7.70	0.00288	11.10	1.03	0.70	0.260E+05

1

TIME = 19.55 HRS DT = 3600 SECS TIME STEP = 30

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.43	1690.2	10.89	74062	7.68	0.00164	13.45	0.48	0.57	0.342E+05
29.02	1211.29	1931.0	12.61	74062	7.63	0.00199	17.71	0.51	0.61	0.337E+05
29.22	1213.42	1833.3	13.61	74062	8.60	0.00267	19.29	0.40	0.70	0.293E+05
29.47	1215.27	952.9	51.27	74062	3.39	0.00005	12.34	0.00	0.13	0.353E+02
29.52	1215.34	859.7	51.34	74062	2.87	0.00003	12.31	0.00	0.09	0.129E+02
29.57	1215.38	971.3	51.38	74062	2.57	0.00002	12.27	0.00	0.08	0.869E+01
29.62	1215.41	1072.8	51.41	74062	2.32	0.00002	12.24	0.00	0.08	0.624E+01
29.68	1215.43	1174.3	51.43	74062	2.12	0.00001	12.21	0.00	0.07	0.473E+01
29.70	1215.47	1406.1	51.47	74062	1.65	0.00001	12.19	0.00	0.05	0.241E+01
29.72	1215.46	1954.2	51.12	74062	1.75	0.00001	10.56	0.00	0.06	0.543E+01
29.74	1215.36	2284.7	32.53	74062	3.71	0.00022	3.93	0.03	0.22	0.444E+03
29.75	1215.35	419.6	21.03	74062	12.88	0.00145	17.80	0.88	0.61	0.482E+05
29.81	1217.63	1284.7	11.78	74062	8.68	0.00171	6.71	0.91	0.59	0.353E+05
29.87	1217.88	1067.0	12.01	74062	9.91	0.00208	10.89	1.04	0.66	0.499E+05
29.92	1218.13	753.1	13.77	74062	11.08	0.00190	14.00	1.02	0.66	0.569E+05
29.99	1218.81	850.4	14.09	74062	10.85	0.00207	11.42	1.23	0.57	0.534E+05
30.19	1218.92	796.9	11.12	74062	13.93	0.00438	12.87	2.46	0.95	0.565E+05
30.46	1224.72	1267.9	15.63	74062	7.96	0.00125	10.19	0.45	0.52	0.489E+05
30.82	1227.29	1195.7	11.43	74062	9.32	0.00197	9.79	1.01	0.64	0.575E+05
31.30	1232.96	1533.1	12.68	74062	8.94	0.00239	9.88	1.05	0.68	0.693E+05
31.52	1236.01	1928.5	11.61	74062	8.26	0.00249	11.10	0.99	0.67	0.770E+05

1

TIME = 25.29 HRS DT = 2823 SECS TIME STEP = 40

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1210.50	1705.4	11.94	91407	7.99	0.00143	13.76	0.39	0.54	0.501E+05
29.02	1212.14	2028.4	13.54	91407	7.96	0.00178	20.02	0.42	0.59	0.510E+05
29.22	1214.02	1857.2	14.70	91407	9.10	0.00247	20.35	0.38	0.69	0.442E+05
29.47	1215.43	2532.9	52.43	91407	3.86	0.00022	12.38	0.01	0.22	0.198E+03
29.52	1216.54	2209.9	52.54	91407	3.31	0.00011	12.33	0.00	0.17	0.717E+02
29.57	1216.61	2457.1	52.61	91407	2.95	0.00009	12.28	0.00	0.15	0.457E+02
29.62	1216.67	2724.2	52.67	91407	2.66	0.00007	12.24	0.00	0.13	0.323E+02
29.68	1216.71	2981.3	52.71	91407	2.43	0.00006	12.22	0.00	0.12	0.235E+02
29.70	1216.75	1406.1	52.72	91407	1.95	0.00001	12.12	0.00	0.06	0.792E+01
29.72	1216.74	1868.5	38.20	91407	2.20	0.00002	3.89	0.00	0.09	0.269E+02
29.74	1216.38	2282.2	22.83	91407	6.90	0.00129	4.84	0.53	0.50	0.156E+05
29.75	1216.39	569.1	26.51	91407	12.46	0.00182	13.16	1.18	0.66	0.984E+05
29.81	1217.94	1310.0	13.03	91407	10.32	0.00235	9.78	1.54	0.70	0.805E+05
29.87	1218.33	1078.1	13.12	91407	11.43	0.00256	15.25	1.32	0.74	0.936E+05
29.92	1218.84	959.0	14.09	91407	12.02	0.00224	20.91	1.18	0.71	0.100E+06

30.46	1225.57	1299.7	16.04	91407	9.05	0.00151	8.55	0.76	0.57	0.728E+05
30.92	1228.40	1214.2	12.55	91407	9.88	0.00184	9.67	1.03	0.63	0.952E+05
31.30	1233.76	1554.8	13.57	91407	9.54	0.00229	10.23	1.10	0.68	0.111E+06
31.52	1236.80	2020.4	12.40	91407	8.69	0.00237	11.10	1.02	0.67	0.116E+06

1

TIME = 32.89 HRS DT = 1521 SECS TIME STEP = 50

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1211.18	1715.0	12.61	106913	8.50	0.00144	14.77	0.36	0.55	0.720E+05
29.02	1212.83	2036.5	14.27	106913	8.26	0.00164	22.59	0.35	0.58	0.733E+05
29.22	1214.52	1877.6	15.78	106913	9.33	0.00221	22.69	0.32	0.67	0.643E+05
29.47	1216.94	2539.6	52.94	106913	4.28	0.00025	12.47	0.01	0.24	0.733E+03
29.52	1217.07	2213.4	53.06	106913	3.72	0.00013	12.39	0.00	0.18	0.274E+03
29.57	1217.16	2471.0	53.15	106913	3.31	0.00010	12.32	0.00	0.16	0.175E+03
29.62	1217.22	2728.7	53.22	106913	2.98	0.00008	12.27	0.00	0.15	0.119E+03
29.68	1217.27	2986.7	53.27	106913	2.72	0.00007	12.28	0.00	0.13	0.853E+02
29.70	1217.32	1406.1	52.74	106913	2.25	0.00001	10.69	0.00	0.07	0.213E+02
29.72	1217.17	1854.2	20.45	106913	4.38	0.00018	3.13	0.03	0.21	0.475E+03
29.74	1216.51	2183.3	22.43	106913	9.87	0.00327	16.53	2.02	0.78	0.916E+05
29.75	1216.51	924.3	19.55	106913	13.59	0.00302	17.48	1.50	0.82	0.180E+05
29.81	1218.97	1428.8	17.04	106913	9.74	0.00177	15.90	0.71	0.62	0.154E+05
29.87	1219.01	1125.9	14.95	106913	11.70	0.00237	20.09	1.10	0.72	0.162E+05
29.92	1219.48	920.4	14.91	106913	12.25	0.00212	21.28	1.07	0.70	0.155E+05
29.98	1220.27	952.6	16.11	106913	11.84	0.00198	19.04	1.04	0.69	0.150E+05
30.19	1224.02	2505.9	16.70	106913	8.17	0.00208	9.36	0.87	0.63	0.122E+05
30.46	1226.20	1326.5	16.31	106913	9.95	0.00172	9.10	1.06	0.62	0.127E+06
30.82	1229.30	1231.8	13.75	106913	10.39	0.00190	9.59	1.10	0.63	0.158E+06
31.30	1234.50	1574.4	14.39	106913	9.92	0.00215	10.61	1.11	0.67	0.177E+06
31.52	1237.57	2352.5	13.17	106913	8.75	0.00242	11.10	1.06	0.68	0.178E+06

1

TIME = 38.72 HRS DT = 3600 SECS TIME STEP = 60

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1211.70	1722.4	13.15	118787	8.81	0.00141	15.97	0.33	0.55	0.905E+05
29.02	1213.33	2042.3	14.80	118787	8.49	0.00157	24.42	0.31	0.57	0.911E+05
29.22	1214.91	1893.2	16.55	118787	9.45	0.00203	24.32	0.29	0.65	0.806E+05
29.47	1217.31	2542.8	53.31	118787	4.58	0.00027	12.53	0.01	0.25	0.139E+04
29.52	1217.46	2216.0	53.44	118787	4.01	0.00015	12.47	0.01	0.19	0.540E+03
29.57	1217.56	2474.0	53.55	118787	3.57	0.00011	12.36	0.00	0.17	0.348E+03
29.62	1217.63	2731.9	53.63	118787	3.21	0.00009	12.29	0.00	0.15	0.239E+03
29.68	1217.69	2990.4	53.69	118787	2.93	0.00008	12.32	0.00	0.14	0.173E+03
29.70	1217.70	1406.1	30.45	118787	2.85	0.00003	2.81	0.00	0.09	0.652E+02
29.72	1216.92	1847.1	8.70	118787	10.05	0.00241	8.72	2.73	0.70	0.386E+05
29.74	1216.92	2171.6	20.31	118787	11.30	0.00442	18.10	1.84	0.91	0.166E+06
29.75	1217.01	1079.3	21.60	118787	12.03	0.00215	15.63	1.20	0.70	0.259E+06
29.81	1217.23	1282.0	14.88	118787	14.30	0.00480	22.81	2.39	0.99	0.230E+06
29.87	1219.32	1122.3	16.34	118787	12.16	0.00234	21.20	1.01	0.73	0.232E+06
29.92	1219.80	935.8	16.01	118787	12.60	0.00207	20.75	0.99	0.70	0.233E+06
29.98	1221.80	2278.0	17.56	118787	9.68	0.00281	18.63	0.95	0.73	0.213E+06
30.19	1224.84	2548.1	17.43	118787	7.91	0.00166	8.18	0.67	0.57	0.173E+06
30.46	1225.63	1343.8	16.54	118787	10.52	0.00184	9.29	1.17	0.64	0.198E+06
30.82	1229.88	1243.5	14.69	118787	10.78	0.00180	9.97	1.15	0.64	0.220E+06
31.30	1235.03	1588.5	15.00	118787	10.19	0.00207	10.99	1.09	0.66	0.236E+06
31.52	1238.11	2551.3	13.71	118787	8.76	0.00235	11.10	1.03	0.67	0.235E+06

1

TIME = 43.32 HRS DT = 3101 SECS TIME STEP = 70

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1212.11	1736.4	13.60	128185	9.01	0.00139	15.99	0.31	0.56	0.105E+06

29.47	1217.60	2546.1	53.80	128186	4.80	0.00029	12.71	0.02	0.26	0.211E+04
29.52	1217.76	2218.0	53.72	128186	4.23	0.00016	12.56	0.01	0.20	0.882E+03
29.57	1217.87	2476.3	53.84	128185	3.76	0.00012	12.41	0.01	0.18	0.592E+03
29.62	1217.95	2734.5	53.95	128186	3.39	0.00010	12.32	0.00	0.16	0.428E+03
29.68	1218.01	2993.4	53.91	128186	3.09	0.00009	11.35	0.00	0.15	0.332E+03
29.70	1217.86	1405.9	19.40	128186	4.82	0.00013	3.10	0.03	0.20	0.655E+03
29.72	1217.86	1811.3	10.32	128186	10.27	0.00228	9.13	1.23	0.59	0.920E+05
29.74	1218.35	2250.3	19.33	128186	9.67	0.00249	15.56	1.21	0.70	0.229E+06
29.75	1218.01	1426.5	19.84	128186	11.93	0.00267	19.19	1.23	0.76	0.326E+06
29.81	1218.88	1440.2	18.73	128186	11.58	0.00250	20.86	1.14	0.74	0.294E+06
29.87	1219.29	1105.9	17.69	128186	12.41	0.00222	22.31	1.08	0.72	0.297E+06
29.92	1219.65	943.8	14.85	128186	13.25	0.00223	20.37	1.23	0.73	0.293E+06
29.98	1221.86	2277.1	17.69	128185	10.03	0.00285	18.99	1.11	0.75	0.258E+06
30.19	1225.02	2558.4	17.51	128186	8.38	0.00183	7.67	0.85	0.60	0.218E+06
30.46	1225.96	1355.4	16.75	128186	10.92	0.00190	8.59	1.13	0.65	0.241E+06
30.82	1230.30	1251.6	15.41	128186	11.09	0.00180	10.35	1.08	0.64	0.272E+06
31.30	1235.43	1599.0	15.47	128185	10.39	0.00201	11.31	1.08	0.66	0.286E+06
31.52	1238.51	2712.8	14.11	128186	8.77	0.00232	11.10	1.01	0.67	0.291E+06

1

TIME = 47.36 HRS DT = 1336 SECS TIME STEP = 80

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1212.47	1767.7	14.01	136419	9.17	0.00139	17.88	0.30	0.56	0.119E+05
29.02	1214.07	2051.0	15.57	136419	8.77	0.00145	26.70	0.27	0.55	0.116E+06
29.22	1215.51	1916.1	17.58	136419	9.59	0.00180	25.28	0.25	0.52	0.104E+06
29.47	1217.86	2549.0	53.86	136419	4.98	0.00030	12.83	0.02	0.27	0.290E+04
29.52	1218.02	2219.8	53.97	136419	4.42	0.00017	12.65	0.01	0.21	0.128E+04
29.57	1218.14	2478.3	54.09	136419	3.93	0.00013	12.46	0.01	0.18	0.881E+03
29.62	1218.23	2736.8	54.21	136419	3.54	0.00011	12.20	0.01	0.17	0.655E+03
29.68	1218.28	2997.4	51.07	136419	3.35	0.00010	3.89	0.01	0.16	0.505E+03
29.70	1217.50	1403.1	9.66	136419	10.29	0.00150	5.86	1.42	0.59	0.178E+05
29.72	1217.30	1727.8	10.76	136419	11.74	0.00307	20.38	1.57	0.80	0.155E+06
29.74	1218.27	2065.0	18.59	136419	10.15	0.00240	15.87	0.90	0.70	0.289E+06
29.75	1217.87	1332.3	19.52	136419	12.42	0.00264	22.25	1.69	0.76	0.328E+06
29.81	1218.66	1389.1	19.10	136419	12.47	0.00281	22.28	1.47	0.78	0.353E+06
29.87	1219.29	1165.5	17.90	136419	12.88	0.00248	22.99	1.40	0.75	0.355E+06
29.92	1219.80	954.1	14.10	136419	13.31	0.00212	21.13	1.32	0.72	0.346E+06
29.98	1221.96	2258.0	17.79	136419	10.20	0.00277	18.82	1.23	0.74	0.316E+06
30.19	1225.13	2572.0	17.14	136419	8.87	0.00205	7.56	1.08	0.64	0.259E+06
30.46	1227.26	1364.2	16.95	136419	11.22	0.00193	8.91	1.11	0.66	0.289E+06
30.82	1230.65	1263.7	15.71	136419	11.39	0.00184	10.53	1.06	0.65	0.319E+06
31.30	1235.90	1671.4	16.02	136419	10.37	0.00195	11.56	1.00	0.65	0.331E+06
31.52	1238.89	2739.4	14.49	136419	8.71	0.00211	11.10	0.90	0.64	0.322E+06

1

TIME = 54.65 HRS DT = 3600 SECS TIME STEP = 90

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1213.43	1850.9	15.09	161916	9.70	0.00142	19.60	0.30	0.57	0.145E+05
29.02	1215.03	2062.3	16.57	161916	9.20	0.00138	28.42	0.25	0.56	0.139E+06
29.22	1216.37	1937.7	18.72	161916	9.92	0.00163	27.64	0.23	0.60	0.125E+06
29.47	1218.73	2558.7	54.71	161916	5.47	0.00033	13.10	0.03	0.28	0.495E+04
29.52	1218.90	2225.7	54.81	161916	4.93	0.00019	12.89	0.01	0.23	0.238E+04
29.57	1219.05	2485.0	54.91	161916	4.38	0.00015	12.40	0.01	0.20	0.169E+04
29.62	1219.15	2744.1	54.76	161916	3.97	0.00012	9.37	0.01	0.18	0.144E+04
29.68	1219.05	3006.7	33.13	161916	5.27	0.00036	2.50	0.14	0.29	0.483E+04
29.70	1219.05	1369.7	10.80	161916	11.76	0.00181	14.12	1.35	0.65	0.109E+06
29.72	1220.30	1860.5	12.43	161916	9.08	0.00115	10.31	0.53	0.52	0.247E+06
29.74	1220.16	2264.0	16.73	161916	10.20	0.00227	15.65	0.83	0.69	0.382E+06
29.75	1220.74	2686.5	22.07	161916	9.36	0.00208	21.06	0.83	0.65	0.486E+06
29.91	1220.84	1702.2	20.86	161916	11.24	0.00209	22.36	0.97	0.69	0.448E+06

29.98	1223.59	2379.2	18.95	161916	9.65	0.00199	11.02	1.01	0.64	0.404E+06
30.19	1225.93	2617.3	17.47	161916	9.32	0.00197	8.56	1.05	0.64	0.357E+06
30.46	1227.91	1378.2	17.73	161916	12.28	0.00210	9.94	1.19	0.70	0.391E+06
30.82	1231.59	1287.6	16.76	161916	12.20	0.00188	11.55	1.05	0.67	0.412E+06
31.30	1237.25	2011.3	17.59	161916	10.21	0.00189	12.76	0.87	0.64	0.413E+06
31.52	1239.91	2906.6	15.51	161916	8.76	0.00177	11.10	0.75	0.60	0.393E+06

1

TIME = 60.66 HRS DT = 3600 SECS TIME STEP = 100

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1214.24	1921.5	16.04	183757	10.02	0.00141	20.93	0.30	0.57	0.169E+05
29.02	1215.81	2071.3	17.37	183757	9.55	0.00132	29.65	0.25	0.55	0.159E+05
29.22	1217.08	1944.8	19.58	183757	10.17	0.00150	28.50	0.22	0.59	0.143E+05
29.47	1219.43	2566.5	55.35	183757	5.85	0.00035	13.35	0.03	0.29	0.742E+04
29.52	1219.61	2230.5	55.35	183757	5.33	0.00021	12.92	0.02	0.24	0.390E+04
29.57	1219.77	2490.6	55.23	183757	4.75	0.00017	11.10	0.02	0.21	0.302E+04
29.62	1219.84	2749.3	51.88	183757	4.59	0.00017	3.00	0.04	0.21	0.355E+04
29.68	1219.49	3008.8	22.24	183757	7.93	0.00117	4.00	0.75	0.50	0.337E+05
29.70	1219.49	1374.3	12.67	183757	11.76	0.00153	14.31	0.99	0.61	0.191E+05
29.72	1219.06	1834.4	10.16	183757	13.78	0.00392	15.53	2.12	0.90	0.332E+05
29.74	1221.35	2274.6	16.75	183757	9.36	0.00140	19.56	0.50	0.56	0.470E+05
29.75	1221.45	2683.5	22.38	183757	9.66	0.00195	15.13	0.95	0.64	0.571E+05
29.81	1221.56	1782.7	20.14	183757	11.26	0.00188	18.13	1.01	0.66	0.534E+05
29.87	1223.36	4538.1	22.41	183757	8.13	0.00220	10.51	0.91	0.64	0.527E+06
29.92	1223.76	3284.1	17.66	183757	9.15	0.00212	10.23	1.01	0.65	0.513E+06
29.98	1224.08	2424.0	18.23	183757	10.24	0.00206	11.23	1.13	0.66	0.491E+06
30.19	1226.54	2652.1	17.61	183757	9.81	0.00201	9.15	1.12	0.65	0.442E+06
30.46	1228.47	1393.0	18.62	183757	12.97	0.00214	11.26	1.23	0.71	0.487E+05
30.82	1232.27	1322.3	17.82	183757	12.79	0.00193	13.03	1.09	0.68	0.496E+06
31.30	1238.06	2079.4	18.58	183757	10.41	0.00178	13.59	0.85	0.63	0.480E+06
31.52	1240.62	2915.3	16.22	183757	8.97	0.00170	11.10	0.74	0.60	0.452E+06

1

TIME = 64.79 HRS DT = 3042 SECS TIME STEP = 110

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1214.80	1970.0	16.70	198784	10.19	0.00138	21.97	0.29	0.57	0.188E+06
29.02	1216.32	2078.1	17.91	198784	9.75	0.00129	30.54	0.24	0.55	0.175E+06
29.22	1217.55	1949.6	20.05	198784	10.32	0.00142	29.09	0.21	0.59	0.158E+05
29.47	1219.89	2571.7	55.74	198784	6.09	0.00036	13.52	0.04	0.30	0.999E+04
29.52	1220.07	2233.8	55.54	198784	5.60	0.00023	12.40	0.03	0.25	0.553E+04
29.57	1220.25	2494.5	54.78	198784	5.01	0.00019	9.09	0.03	0.22	0.485E+04
29.62	1220.22	2750.4	44.95	198784	5.64	0.00030	2.96	0.11	0.28	0.832E+04
29.68	1219.78	2997.1	20.94	198784	9.26	0.00175	5.21	1.01	0.61	0.101E+06
29.70	1219.79	1361.6	13.55	198784	12.03	0.00147	12.05	0.94	0.61	0.276E+06
29.72	1219.55	1804.1	11.53	198784	13.39	0.00306	16.06	1.54	0.82	0.417E+06
29.74	1221.16	2264.7	15.18	198784	10.49	0.00183	14.11	1.00	0.64	0.552E+06
29.75	1221.31	2681.4	21.63	198784	10.77	0.00252	19.51	1.45	0.72	0.555E+05
29.81	1222.92	5891.2	20.94	198784	8.94	0.00384	18.41	1.07	0.81	0.618E+05
29.87	1224.05	4589.2	23.45	198784	7.81	0.00175	9.36	0.63	0.59	0.600E+06
29.92	1224.28	3308.7	18.16	198784	9.18	0.00195	9.27	0.99	0.63	0.591E+06
29.98	1224.54	2445.3	18.58	198784	10.37	0.00195	10.94	1.12	0.65	0.572E+06
30.19	1226.88	2668.0	17.85	198784	10.20	0.00209	10.12	1.18	0.66	0.521E+06
30.46	1228.82	1394.0	19.18	198784	13.42	0.00216	12.61	1.26	0.72	0.572E+05
30.82	1232.73	1356.7	18.63	198784	13.10	0.00194	14.31	1.10	0.69	0.572E+06
31.30	1238.55	2101.8	19.18	198784	10.60	0.00173	14.08	0.84	0.63	0.539E+06
31.52	1241.07	2965.7	16.67	198784	9.11	0.00165	11.10	0.74	0.59	0.503E+06

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TIME = 69.40 HRS DT = 2340 SECS TIME STEP = 120

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.

29.02	1215.89	2086.1	18.51	215551	9.99	0.00125	31.47	0.24	0.55	0.195E+06
29.22	1219.08	1954.9	20.58	215551	10.46	0.00134	29.62	0.22	0.57	0.176E+06
29.47	1220.39	2577.5	56.02	215551	6.34	0.00037	13.48	0.05	0.31	0.137E+05
29.52	1220.58	2237.6	55.44	215551	5.89	0.00024	11.11	0.05	0.26	0.886E+04
29.57	1220.74	2499.6	51.17	215551	5.44	0.00021	3.35	0.05	0.24	0.883E+04
29.62	1220.50	2749.1	36.58	215551	7.51	0.00070	3.23	0.53	0.41	0.295E+05
29.63	1220.39	2973.0	22.91	215551	9.28	0.00159	9.51	0.77	0.59	0.191E+06
29.70	1220.40	1403.9	14.13	215551	12.29	0.00148	12.53	0.97	0.61	0.370E+06
29.72	1220.82	1866.0	13.54	215551	11.76	0.00185	14.58	1.08	0.66	0.507E+06
29.74	1221.17	2242.1	14.59	215551	11.45	0.00218	12.74	1.10	0.70	0.642E+06
29.75	1221.67	2684.0	21.72	215551	10.85	0.00232	13.67	1.28	0.70	0.745E+06
29.81	1223.28	5810.1	22.15	215551	8.65	0.00304	11.63	1.29	0.74	0.707E+06
29.87	1224.04	4634.8	22.75	215551	8.84	0.00241	9.74	1.17	0.69	0.687E+06
29.92	1224.46	3331.6	16.79	215551	9.82	0.00221	10.51	1.18	0.67	0.686E+06
29.99	1224.79	2462.0	19.61	215551	10.90	0.00209	11.55	1.20	0.69	0.669E+06
30.19	1227.30	2699.7	19.19	215551	10.52	0.00209	11.55	1.19	0.67	0.617E+06
30.46	1229.19	1385.2	19.83	215551	13.87	0.00217	14.22	1.28	0.73	0.675E+06
30.82	1233.18	1385.2	19.53	215551	13.43	0.00195	15.63	1.12	0.70	0.653E+06
31.30	1239.04	2124.5	19.80	215551	10.84	0.00169	14.52	0.95	0.62	0.607E+06
31.52	1241.61	3135.3	17.21	215551	9.20	0.00165	11.10	0.75	0.59	0.563E+06

1

TIME = 72.14 HRS DT = 1977 SECS TIME STEP = 125

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1215.73	2050.6	17.82	224081	10.40	0.00133	23.62	0.29	0.57	0.226E+06
29.02	1217.17	2090.1	18.82	224081	10.09	0.00124	31.83	0.25	0.55	0.208E+06
29.22	1219.34	1957.5	20.84	224081	10.52	0.00130	29.87	0.21	0.55	0.185E+06
29.47	1220.64	2590.3	56.00	224081	6.48	0.00039	13.19	0.05	0.31	0.152E+05
29.52	1220.82	2239.6	54.83	224081	6.06	0.00025	9.00	0.07	0.26	0.116E+05
29.57	1220.92	2500.8	47.70	224081	5.93	0.00027	2.95	0.12	0.27	0.133E+05
29.62	1220.62	2750.0	33.49	224081	8.35	0.00095	4.11	0.64	0.47	0.562E+05
29.69	1220.65	2962.8	23.16	224081	9.51	0.00157	9.39	0.82	0.60	0.238E+06
29.70	1220.66	1405.5	17.04	224081	12.96	0.00169	16.17	1.28	0.65	0.424E+06
29.72	1221.53	1878.4	14.17	224081	11.26	0.00154	12.43	0.92	0.61	0.559E+06
29.74	1222.02	2274.0	15.32	224081	10.76	0.00171	15.64	0.96	0.63	0.694E+06
29.75	1222.44	2699.5	22.43	224081	10.16	0.00178	11.74	0.89	0.63	0.794E+06
29.81	1223.78	5896.3	22.88	224081	8.08	0.00234	9.59	0.94	0.66	0.755E+06
29.87	1224.29	4653.4	22.69	224081	9.86	0.00233	9.30	1.18	0.67	0.740E+06
29.92	1224.65	3342.7	16.51	224081	9.96	0.00221	11.30	1.20	0.68	0.742E+06
29.99	1224.99	2475.0	18.24	224081	11.05	0.00209	12.09	1.20	0.69	0.726E+06
30.19	1227.50	2699.6	18.33	224081	10.72	0.00212	12.43	1.19	0.68	0.673E+06
30.46	1229.38	1386.5	20.18	224081	14.05	0.00216	15.00	1.27	0.73	0.736E+06
30.82	1233.37	1395.8	20.00	224081	13.50	0.00195	16.30	1.12	0.70	0.716E+06
31.30	1239.25	2134.5	20.10	224081	10.97	0.00169	14.70	0.85	0.63	0.647E+06
31.52	1241.85	3180.7	17.45	224081	9.27	0.00163	11.10	0.75	0.59	0.599E+06

ID
20 SECTION 31.30 TIME = 72.14 HRS WS =1239.25 WIDTH = 2134.5

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1245.20	0.00	0.00	7959.2	1245.30	0.00	0.00	7989.0	1242.40	0.00	0.00	8027.1
1242.70	0.00	0.00	8306.3	1240.30	0.00	0.00	8705.8	1236.67	0.00	-0.03	8867.3
1235.64	0.00	-0.06	9104.0	1237.58	0.00	-0.02	9154.8	1235.63	0.00	-0.07	9275.7
1231.10	-0.01	-0.30	9384.2	1224.94	-0.01	-0.66	9689.6	1219.27	-0.02	-0.93	9713.8
1219.13	-0.02	-0.97	9785.3	1221.53	-0.02	-0.87	9835.9	1221.56	-0.02	-0.84	9877.3
1224.13	-0.01	-0.67	9942.0	1227.48	-0.01	-0.52	10000.0	1229.26	-0.01	-0.44	10036.2
1227.96	-0.01	-0.44	10184.4	1231.95	-0.01	-0.25	10225.8	1232.50	0.00	-0.20	10375.2
1231.99	0.00	-0.21	10437.4	1226.47	-0.01	-0.33	10547.4	1231.18	0.00	-0.22	10585.6
1229.21	-0.01	-0.29	10625.7	1221.24	-0.01	-0.35	10665.2	1225.07	0.00	4.37	10857.5
1257.30	0.00	-5.70	10911.9	1262.80	0.00	0.00	11055.2	1261.20	0.00	0.00	11234.1
1263.90	0.00	0.00	11423.0	1259.80	0.00	0.00	11595.1	1252.00	0.00	0.00	11611.9

1259.30	0.00	0.00	11815.4	1259.70	0.00	0.00	11936.5	1259.00	0.00	0.00	12047.1
1259.80	0.00	0.00	12118.1								

ID
19 SECTION 30.82 TIME = 72.14 HRS WS =1233.37 WIDTH = 1395.8

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1238.90	0.00	0.00	5271.2	1239.50	0.00	0.00	5796.2	1241.10	0.00	0.00	5956.4
1238.20	0.00	0.00	6357.4	1239.30	0.00	0.00	6383.9	1239.30	0.00	0.00	6408.9
1238.30	0.00	0.00	6442.0	1238.30	0.00	0.00	6533.6	1239.30	0.00	0.00	7017.6
1237.70	0.00	0.00	7620.1	1237.70	0.00	0.00	7692.2	1239.00	0.00	0.00	7912.9
1238.50	0.00	0.00	8404.2	1240.30	0.00	0.00	8448.4	1240.30	0.00	0.00	8499.0
1239.30	0.00	0.00	8970.1	1240.10	0.00	0.00	9221.8	1235.10	0.00	0.00	9406.9
1232.90	0.00	0.00	9470.5	1231.93	0.00	0.03	9514.0	1235.50	0.00	0.00	9559.2
1224.23	-0.01	-1.97	9663.8	1224.49	-0.01	-2.01	9727.5	1218.52	-0.02	0.42	9769.5
1218.09	-0.02	0.59	9954.0	1220.98	-0.02	0.18	10000.0	1221.22	-0.03	-0.08	10345.2
1222.15	-0.03	-0.16	10487.0	1213.31	-0.06	-2.69	10771.7	1229.47	-0.01	-0.83	10872.0
1251.60	0.00	0.00	11136.3	1255.50	0.00	0.00	11229.9	1255.50	0.00	0.00	11511.5
1259.20	0.00	0.00	11740.2	1257.60	0.00	0.00	11773.3	1257.60	0.00	0.00	12053.0

ID
18 SECTION 30.46 TIME = 72.14 HRS WS =1229.38 WIDTH = 1386.5

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1239.00	0.00	0.00	9300.0	1217.89	-0.02	-2.11	9418.7	1216.22	-0.02	0.22	9540.0
1216.07	-0.02	0.07	9660.0	1209.18	-0.02	0.18	9750.0	1209.18	-0.02	0.19	9850.0
1215.19	-0.02	0.19	10000.0	1219.96	-0.02	-0.04	10060.0	1220.01	-0.02	0.01	10200.0
1220.04	-0.02	0.04	10300.0	1220.07	-0.02	0.07	10400.0	1220.16	-0.01	0.16	10550.1
1220.87	-0.01	-3.13	10641.8	1229.32	0.00	1.32	10739.2	1232.00	0.00	0.00	10800.0

ID
17 SECTION 30.19 TIME = 72.14 HRS WS =1227.50 WIDTH = 2699.6

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	9300.0	1221.78	0.01	-0.22	9555.7	1214.99	0.01	0.93	9619.2
1214.00	0.01	2.00	9744.1	1209.17	0.01	2.17	9921.8	1209.17	0.01	2.17	10099.4
1212.03	0.01	2.03	10117.2	1215.48	0.01	1.48	10152.9	1218.93	0.01	0.93	10313.0
1222.01	0.01	0.01	10543.5	1222.01	0.01	0.01	10721.2	1222.02	0.01	0.02	10899.9
1222.02	0.01	0.02	11076.5	1221.99	0.01	-0.01	11254.1	1222.00	0.01	0.00	11431.8
1222.00	0.01	0.00	11609.4	1222.00	0.01	0.00	11787.1	1222.19	0.01	0.19	11965.3
1234.00	0.00	0.00	12089.1								

ID
16 SECTION 29.98 TIME = 72.14 HRS WS =1224.98 WIDTH = 2475.0

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1226.80	0.00	0.00	9300.0	1219.04	0.00	-1.71	9564.7	1210.03	0.00	-2.72	9618.1
1209.71	0.00	-1.04	9744.1	1206.74	0.00	1.74	9921.8	1206.74	0.00	1.74	10099.4
1207.75	0.00	-1.00	10117.2	1211.57	0.00	-1.18	10152.9	1214.79	0.00	-1.97	10314.1
1219.89	0.00	-0.86	10543.5	1219.96	0.00	-0.94	10721.2	1219.99	0.00	-0.86	10898.9
1219.86	0.00	-0.89	11076.5	1219.88	0.00	-0.87	11254.1	1219.87	0.00	-0.88	11431.8
1219.89	0.00	-0.91	11609.4	1219.90	0.00	-0.85	11788.4	1232.75	0.00	0.00	11911.4

ID
15 SECTION 29.92 TIME = 72.14 HRS WS =1224.66 WIDTH = 3342.7

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1226.80	0.00	0.00	9300.0	1219.33	0.00	-1.42	9564.2	1210.23	0.00	-2.52	9616.1
1209.72	0.00	-2.03	9744.2	1209.16	0.00	3.38	9921.9	1209.50	0.00	3.90	10099.4

1220.56	0.00	-0.19	11076.5	1220.56	0.00	-0.19	11254.1	1220.57	0.00	-0.19	11431.3
1220.54	0.00	-0.26	11609.4	1220.46	0.00	-0.29	11787.1	1220.51	0.00	-0.24	11964.7
1220.51	0.00	-0.24	12142.4	1220.52	0.00	-0.23	12320.0	1220.57	0.00	-0.23	12676.9
1232.75	0.00	0.00	12799.7								

ID
14 SECTION 29.87 TIME = 72.14 HRS WS =1224.28 WIDTH = 4653.4

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1227.50	0.00	0.00	9300.0	1221.95	0.00	0.45	9583.0	1216.12	0.00	2.62	9759.7
1211.64	0.01	0.14	9938.0	1202.70	0.01	-1.86	10193.5	1201.39	0.01	-3.11	10448.9
1205.88	0.01	-2.62	10474.6	1212.31	0.00	-1.19	10525.5	1214.85	0.00	-2.65	10757.6
1221.87	0.00	0.37	11087.1	1221.88	0.00	0.38	11342.4	1221.88	0.00	0.38	11597.7
1221.89	0.00	0.39	11853.0	1221.89	0.00	0.40	12108.3	1221.90	0.00	0.40	12363.6
1221.91	0.00	0.41	12618.8	1221.91	0.00	0.41	12874.2	1221.92	0.00	0.42	13129.5
1221.92	0.00	0.42	13384.7	1221.93	0.00	0.43	13640.0	1222.74	0.00	1.24	14150.1
1233.50	0.00	0.00	14329.3								

ID
13 SECTION 29.81 TIME = 72.14 HRS WS =1223.78 WIDTH = 5886.3

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.30	0.00	0.00	9300.0	1223.27	0.10	1.02	9800.0	1213.69	0.05	-0.56	9996.8
1213.65	0.05	1.40	10133.4	1204.82	0.05	0.48	10465.3	1200.96	0.05	-3.34	10798.2
1210.95	0.05	0.71	10831.7	1212.71	0.05	-1.54	10999.4	1212.79	0.05	-5.46	11202.6
1222.20	0.02	-0.05	11630.6	1222.26	0.02	-0.04	11963.6	1222.21	0.02	-0.04	12296.5
1222.22	0.02	-0.03	12529.5	1222.23	0.02	-0.02	12962.4	1222.24	0.02	-0.01	13295.3
1222.30	0.02	0.00	13628.3	1222.25	0.02	0.00	13961.2	1222.26	0.02	0.01	14294.2
1222.27	0.02	0.02	14627.1	1222.53	0.02	0.38	14959.9	1223.78	0.06	1.48	15625.1
1234.25	0.00	0.00	15859.0								

ID
12 SECTION 29.75 TIME = 72.14 HRS WS =1222.44 WIDTH = 2699.5

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	8940.0	1220.67	0.01	0.67	8990.4	1220.21	0.01	0.21	9100.3
1219.62	0.01	-0.38	9200.0	1219.60	0.01	-0.40	9300.0	1219.59	0.01	-0.41	9400.0
1219.57	0.01	-0.43	9470.0	1200.70	0.04	-3.50	9557.9	1200.05	0.04	-4.15	9700.0
1201.48	0.04	-2.72	9805.3	1205.54	0.04	-6.36	9897.7	1201.52	0.04	-14.48	10005.2
1219.58	0.01	-0.42	10050.0	1219.59	0.01	-0.41	10120.0	1219.41	0.01	-0.19	10200.0
1217.81	0.02	-1.19	10299.6	1218.11	0.02	-0.39	10400.0	1215.39	0.02	-2.51	10499.6
1214.81	0.02	-2.59	10599.6	1212.03	0.03	-4.87	10698.3	1209.92	0.03	-7.38	10797.4
1212.70	0.03	-3.30	10859.5	1212.75	0.03	-3.25	10999.9	1213.23	0.03	-2.77	11066.6
1217.97	0.02	1.07	11199.4	1218.21	0.02	0.71	11299.5	1218.11	0.02	-0.09	11399.7
1218.87	0.02	-0.03	11500.1	1220.31	0.01	0.81	11599.3	1220.76	0.01	0.76	11669.6
1244.00	0.00	0.00	11780.0								

ID
11 SECTION 29.74 TIME = 72.14 HRS WS =1222.02 WIDTH = 2274.0

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1222.39	0.00	0.00	8940.0	1220.56	-0.02	11.56	8990.1	1218.56	-0.05	9.56	9102.2
1210.18	-0.20	1.18	9200.2	1205.70	0.00	-2.30	9300.0	1207.22	0.00	-1.77	9380.9
1207.22	0.00	43.22	9459.8	1207.20	0.00	43.21	9572.1	1207.20	0.00	43.21	9659.5
1207.25	0.00	6.35	9738.5	1207.58	-0.27	2.58	9921.7	1206.71	0.00	-2.29	9963.3
1207.53	-0.11	-1.47	9921.5	1208.43	-0.23	-0.17	9988.0	1209.86	-0.20	1.86	10071.2
1210.92	-0.17	3.42	10154.4	1212.02	-0.15	5.12	10237.6	1212.99	-0.13	6.49	10320.7
1213.74	-0.11	7.84	10403.9	1214.49	-0.09	9.19	10487.1	1215.72	-0.09	10.73	10537.0
1215.94	-0.07	10.94	10570.3	1216.75	-0.06	11.75	10707.5	1216.80	-0.05	10.90	10819.8
1217.25	-0.04	10.76	10903.0	1218.74	-0.03	11.54	10984.6	1218.27	-0.03	10.37	11067.4

ID
10 SECTION 29.72 TIME = 72.14 HRS WS =1221.83 WIDTH = 1878.4

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1222.13	0.00	0.00	8940.0	1210.61	-0.78	12.61	8963.8	1210.44	-0.78	12.44	9100.2
1209.20	0.37	11.20	9200.0	1208.17	0.38	10.17	9291.7	1209.64	0.37	44.64	9354.7
1208.43	0.38	44.43	9444.3	1208.43	0.39	44.43	9514.0	1208.07	0.38	18.17	9577.0
1207.84	0.38	13.85	9643.3	1208.29	0.38	10.29	9676.5	1208.81	0.37	10.81	9723.0
1209.29	0.37	11.69	9776.0	1209.39	0.37	12.39	9842.4	1209.95	0.36	13.45	9908.8
1210.52	0.35	14.62	9975.1	1211.38	0.34	15.98	10041.5	1211.97	0.34	17.07	10107.8
1212.49	0.33	18.19	10174.2	1212.87	0.33	18.87	10214.0	1213.08	0.32	19.08	10240.5
1213.88	0.31	19.88	10350.0	1213.35	-0.82	18.45	10439.6	1213.56	-0.82	19.06	10505.9
1212.82	0.33	16.62	10572.3	1213.19	0.32	16.29	10638.7	1213.85	-0.83	16.35	10701.1
1214.41	-0.83	16.41	10759.2	1222.13	0.00	0.00	10824.4				

ID
9 SECTION 29.70 TIME = 72.14 HRS WS =1220.66 WIDTH = 1405.5

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1220.85	0.00	0.00	8940.0	1204.40	-0.23	17.40	8950.2	1202.70	-0.92	15.70	9100.0
1203.59	-0.92	16.59	9202.5	1203.45	-0.94	39.45	9249.6	1203.26	-0.96	39.26	9316.4
1207.57	-0.84	43.57	9368.4	1207.70	-0.82	28.80	9415.5	1207.84	-0.81	24.84	9455.0
1207.91	-0.80	20.91	9489.8	1208.01	-0.79	21.01	9524.5	1208.12	-0.79	21.53	9564.1
1208.27	-0.76	22.27	9613.6	1208.42	-0.75	22.92	9663.1	1208.56	-0.73	23.66	9712.7
1208.71	-0.72	24.31	9762.2	1208.86	-0.70	24.96	9811.7	1209.02	-0.69	25.72	9861.3
1209.11	-0.68	26.11	9891.0	1209.17	-0.67	26.17	9910.8	1209.43	-0.64	26.43	9992.5
1209.65	-0.62	25.75	10059.4	1209.82	-0.61	25.32	10108.9	1209.98	-0.59	24.78	10158.4
1210.15	-0.57	24.25	10208.0	1210.33	-0.55	23.83	10257.5	1213.18	1.18	26.18	10300.1
1220.86	0.00	0.00	10346.7								

ID
8 SECTION 29.58 TIME = 72.14 HRS WS =1220.55 WIDTH = 2952.8

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	8800.0	1220.55	0.00	16.55	8829.9	1211.89	0.27	8.09	8900.0
1209.42	0.30	6.42	8920.0	1204.86	0.35	40.86	8932.7	1198.52	0.40	34.52	9000.0
1198.39	0.40	34.39	9100.0	1198.27	0.40	34.27	9200.0	1198.15	0.40	34.15	9300.0
1198.02	0.40	34.02	9400.0	1197.90	0.41	33.90	9500.0	1210.85	0.28	45.94	9549.3
1214.67	0.23	2.67	9560.0	1216.21	0.20	4.21	9650.0	1216.24	0.20	4.24	9800.0
1216.27	0.20	4.27	9930.0	1216.35	0.20	0.35	10000.0	1216.37	0.20	0.37	10100.0
1216.39	0.20	0.40	10200.0	1216.42	0.20	0.42	10300.0	1216.44	0.20	0.44	10400.0
1216.46	0.19	0.46	10500.0	1216.48	0.19	0.48	10600.0	1216.50	0.19	0.50	10700.0
1216.52	0.19	0.53	10800.0	1216.55	0.19	0.55	10900.0	1216.57	0.19	0.57	11000.0
1216.65	0.19	0.65	11400.0	1220.55	0.00	4.55	11792.6	1228.00	0.00	0.00	11890.0

ID
7 SECTION 29.52 TIME = 72.14 HRS WS =1220.52 WIDTH = 2750.0

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	8900.0	1210.85	0.04	6.85	8824.4	1210.91	0.05	7.01	8891.4
1202.93	0.39	-0.07	8909.7	1197.05	0.44	33.05	8921.3	1187.64	0.51	23.64	8992.9
1187.64	0.51	23.64	9074.2	1187.64	0.51	23.64	9165.5	1187.64	0.51	23.64	9256.9
1187.64	0.51	23.64	9348.3	1187.64	0.51	23.64	9439.7	1205.59	0.37	41.58	9483.9
1210.61	0.31	-1.39	9494.5	1217.07	-0.06	5.07	9576.8	1217.07	-0.06	5.07	9713.9
1217.07	-0.06	5.07	9832.7	1217.14	-0.06	1.14	9995.7	1217.14	-0.06	1.14	9998.0
1217.14	-0.06	1.14	10079.4	1217.14	-0.06	1.14	10170.8	1217.14	-0.06	1.14	10262.2
1217.14	-0.06	1.14	10353.6	1217.14	-0.06	1.14	10445.0	1217.14	-0.06	1.14	10536.4
1217.14	-0.06	1.14	10627.8	1217.14	-0.06	1.14	10719.2	1217.14	-0.06	1.14	10810.5
1217.14	-0.06	1.14	11176.1	1217.14	-0.06	1.14	11535.5	1228.00	0.00	0.00	11614.8

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	8800.0	1204.19	0.22	0.19	8824.0	1199.42	0.42	-4.38	8882.8
1187.86	0.53	-15.14	8899.3	1180.48	0.59	15.48	8909.8	1173.86	0.64	9.86	8965.5
1173.86	0.64	9.86	9048.3	1173.86	0.64	9.86	9131.1	1173.86	0.64	9.86	9213.9
1173.86	0.64	9.86	9296.7	1173.86	0.64	9.86	9379.4	1191.84	0.49	27.84	9449.4
1198.60	0.43	-13.40	9429.1	1213.04	0.25	1.04	9503.6	1213.04	0.25	1.04	9527.8
1213.04	0.25	1.04	9735.4	1215.49	0.06	-0.51	9793.3	1215.49	0.06	-0.51	9876.1
1215.49	0.06	-0.51	9958.9	1215.49	0.06	-0.51	10041.7	1215.49	0.06	-0.51	10124.4
1215.49	0.06	-0.51	10207.2	1215.49	0.06	-0.51	10290.0	1215.49	0.06	-0.51	10372.8
1215.49	0.06	-0.51	10455.5	1215.49	0.06	-0.51	10538.3	1215.49	0.06	-0.51	10621.1
1215.49	0.06	-0.51	10952.2	1215.49	0.06	-0.51	11275.8	1228.00	0.00	0.00	11349.5

ID
5 SECTION 29.52 TIME = 72.14 HRS WS =1220.82 WIDTH = 2239.6

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	8800.0	1203.48	-0.04	-0.52	8821.9	1196.67	0.00	-7.13	8874.2
1195.91	0.00	-17.09	8889.0	1179.07	0.00	15.07	8898.4	1166.25	0.26	2.25	8948.3
1166.25	0.26	2.25	9022.5	1166.25	0.26	2.25	9096.7	1166.25	0.26	2.25	9170.8
1166.25	0.26	2.25	9245.0	1166.25	0.26	2.25	9319.2	1190.14	0.00	26.15	9355.0
1196.44	0.00	-15.56	9363.7	1212.01	0.00	0.01	9430.4	1212.01	0.00	0.01	9541.7
1212.01	0.00	0.01	9638.1	1215.47	-0.04	-0.53	9690.0	1215.47	-0.04	-0.53	9764.2
1215.47	-0.04	-0.53	9838.3	1215.47	-0.04	-0.53	9912.5	1215.47	-0.04	-0.53	9986.6
1215.47	-0.04	-0.53	10060.8	1215.47	-0.04	-0.53	10135.0	1215.47	-0.04	-0.53	10209.1
1215.47	-0.04	-0.53	10283.3	1215.47	-0.04	-0.53	10357.5	1215.47	-0.04	-0.53	10431.6
1215.47	-0.04	-0.53	10728.3	1215.47	-0.04	-0.53	11017.9	1228.00	0.00	0.00	11094.3

ID
4 SECTION 29.47 TIME = 72.14 HRS WS =1220.64 WIDTH = 2590.3

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1230.00	0.00	0.00	9100.0	1207.79	-0.01	-0.21	9149.8	1203.99	0.00	-0.01	9190.0
1195.18	0.00	-16.82	9230.0	1176.74	0.00	12.74	9243.0	1164.70	0.07	0.70	9300.0
1164.70	0.07	0.70	9400.0	1164.70	0.07	0.70	9500.0	1187.56	0.00	23.56	9556.7
1197.22	0.00	-6.78	9570.0	1207.99	0.00	-0.01	9900.0	1207.99	0.00	-0.01	9900.0
1207.99	0.00	-0.01	10020.0	1211.99	0.00	-0.01	10080.1	1215.80	-0.01	-0.20	10100.0
1215.80	-0.01	-0.20	10600.0	1215.80	-0.01	-0.20	11000.0	1215.80	-0.01	-0.20	11560.1
1224.00	0.00	0.00	11730.0								

ID
3 SECTION 29.22 TIME = 72.14 HRS WS =1219.34 WIDTH = 1957.5

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1224.00	0.00	0.00	9150.0	1220.00	0.00	0.00	9210.0	1206.19	-0.01	-1.82	9230.1
1205.69	-0.02	-2.31	9400.0	1205.51	-0.02	-2.49	9500.0	1205.33	-0.03	-2.67	9600.0
1205.14	-0.03	-2.86	9700.0	1204.95	-0.03	-3.04	9800.0	1199.00	-0.04	-5.00	9920.0
1197.50	0.00	-3.50	10000.0	1199.00	-0.04	-5.00	10080.0	1204.95	-0.03	-3.04	10200.0
1210.83	-0.02	-1.17	10280.0	1210.91	-0.02	-1.09	10400.0	1211.03	-0.01	-0.97	10570.0
1211.11	-0.01	-0.89	10700.0	1211.18	-0.01	-0.82	10800.0	1211.25	-0.01	-0.75	10900.0
1211.35	-0.01	-0.64	11000.0	1215.08	0.00	0.08	11149.9	1224.00	0.00	0.00	11220.0

ID
2 SECTION 29.02 TIME = 72.14 HRS WS =1217.17 WIDTH = 2090.1

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1226.00	0.00	0.00	8740.0	1220.00	0.00	0.00	8870.0	1216.00	0.00	0.00	8900.0
1211.97	0.00	-0.03	8920.0	1207.88	0.00	-0.12	9150.0	1207.86	0.00	-0.14	9250.0
1207.83	0.00	-0.17	9400.0	1207.82	0.00	-0.18	9500.0	1207.80	0.00	-0.20	9600.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1199.30	-0.01	-0.70	10130.0	1203.46	-0.01	-0.54	10190.0	1203.50	-0.01	-0.50	10300.0
1203.54	-0.01	-0.46	10400.0	1203.59	-0.01	-0.42	10500.0	1203.61	-0.01	-0.39	10600.0
1207.81	0.00	-0.19	10610.0	1207.86	0.00	-0.14	10920.0	1220.00	0.00	0.00	11000.0

ID
1 SECTION 28.83 TIME = 72.14 HRS WS =1215.73 WIDTH = 2050.6

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1220.00	0.00	0.00	8810.0	1207.97	0.00	-0.03	8830.0	1203.91	0.00	-0.09	8990.0
1203.90	0.00	-0.10	9010.0	1203.88	0.00	-0.12	9100.0	1203.86	0.00	-0.14	9200.0
1203.83	0.00	-0.17	9300.0	1203.81	0.00	-0.19	9400.0	1203.78	-0.01	-0.22	9500.0
1203.75	-0.01	-0.24	9600.0	1203.73	-0.01	-0.26	9700.0	1203.71	-0.01	-0.29	9800.0
1203.69	-0.01	-0.31	9900.0	1203.66	-0.01	-0.34	10000.0	1203.64	-0.01	-0.36	10100.0
1203.62	-0.01	-0.38	10170.0	1199.40	-0.01	-0.60	10250.0	1197.90	-0.01	-0.70	10320.0
1199.40	-0.01	-0.60	10400.0	1203.51	-0.01	-0.39	10450.0	1207.80	-0.01	-0.20	10500.0
1211.93	0.00	-0.07	10550.0	1216.00	0.00	0.00	10890.0	1220.00	0.00	0.00	10940.0

1

TIME = 74.90 HRS DT = 3500 SECS TIME STEP = 130

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1215.02	1990.4	17.17	206527	10.24	0.00136	24.18	0.29	0.57	0.239E+06
29.02	1216.51	2080.8	18.19	206527	9.89	0.00128	32.22	0.25	0.55	0.219E+06
29.22	1217.74	1951.2	20.24	206527	10.17	0.00129	30.09	0.20	0.56	0.196E+06
29.47	1219.94	2573.0	54.94	206527	6.30	0.00038	12.68	0.06	0.31	0.189E+05
29.52	1220.12	2235.1	52.72	206527	5.88	0.00025	6.70	0.07	0.26	0.149E+05
29.57	1220.13	2494.2	43.31	206527	6.29	0.00036	3.09	0.16	0.31	0.197E+05
29.62	1219.81	2742.3	30.47	206527	8.98	0.00134	4.41	0.85	0.55	0.929E+05
29.68	1219.92	2348.6	22.32	206527	10.34	0.00226	10.61	1.39	0.69	0.293E+06
29.70	1219.45	1399.7	18.29	206527	12.61	0.00171	11.11	1.22	0.65	0.492E+06
29.72	1219.58	1858.2	11.84	206527	12.87	0.00265	8.79	1.73	0.77	0.621E+06
29.74	1219.74	2156.7	12.42	206527	13.35	0.00355	7.29	1.95	0.88	0.758E+06
29.75	1220.92	2643.3	20.49	206527	11.65	0.00306	16.45	2.18	0.79	0.831E+06
29.81	1221.71	1794.6	19.58	206527	11.37	0.00167	11.03	1.23	0.63	0.816E+06
29.87	1221.71	1394.6	20.27	206527	14.21	0.00251	15.50	1.49	0.78	0.808E+06
29.92	1224.87	3355.5	17.92	206527	8.62	0.00153	10.58	0.60	0.57	0.800E+06
29.98	1224.96	2475.0	17.86	206527	10.20	0.00179	12.02	0.91	0.63	0.779E+06
30.19	1227.10	2678.6	17.91	206527	10.44	0.00214	13.42	1.11	0.68	0.728E+06
30.46	1229.06	1380.4	19.93	206527	13.26	0.00197	15.45	1.14	0.70	0.792E+06
30.82	1232.62	1350.7	19.49	206527	13.26	0.00191	16.81	1.10	0.69	0.768E+06
31.30	1238.47	2099.7	19.41	206527	10.97	0.00183	14.91	0.92	0.55	0.689E+06
31.52	1241.17	2976.3	16.77	206527	9.35	0.00172	11.10	0.81	0.60	0.635E+06

1

TIME = 77.84 HRS DT = 1550 SECS TIME STEP = 140

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1214.27	1926.5	16.47	187846	10.03	0.00138	24.75	0.28	0.57	0.252E+06
29.02	1215.79	2071.3	17.52	187846	9.65	0.00133	32.54	0.25	0.55	0.231E+06
29.22	1217.10	1944.3	19.60	187846	9.78	0.00128	30.25	0.21	0.55	0.205E+06
29.47	1219.19	2565.3	53.80	187846	6.09	0.00039	12.23	0.08	0.31	0.220E+05
29.52	1219.35	2232.9	48.84	187846	5.77	0.00027	3.93	0.09	0.27	0.186E+05
29.57	1219.21	2485.7	36.87	187846	7.24	0.00056	2.87	0.39	0.39	0.325E+05
29.62	1219.01	2675.9	29.53	187846	9.52	0.00180	5.60	1.51	0.62	0.152E+06
29.68	1219.26	2500.8	22.49	187846	10.57	0.00232	10.28	1.35	0.70	0.358E+06
29.70	1219.01	1400.0	16.32	187846	12.09	0.00170	10.06	1.12	0.64	0.551E+06
29.72	1219.12	1842.0	11.94	187846	12.46	0.00267	17.48	1.73	0.77	0.691E+06
29.74	1219.81	2107.6	13.43	187846	11.54	0.00247	11.71	1.52	0.73	0.824E+06
29.75	1220.26	2435.3	19.24	187846	11.17	0.00259	11.91	1.63	0.75	0.924E+06
29.81	1220.67	1746.0	15.31	187846	12.17	0.00230	15.54	1.66	0.72	0.881E+06
29.87	1220.57	1341.5	17.30	187846	14.52	0.00299	17.10	1.54	0.83	0.880E+06

30.19	1225.45	2646.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30.46	1228.71	1375.9	19.50	187845	12.43	0.00180	15.93	1.19	0.66	0.943E+06
30.82	1231.90	1298.0	18.89	187845	12.78	0.00182	16.99	1.09	0.67	0.818E+06
31.30	1237.63	2060.4	18.68	187846	10.94	0.00201	15.16	1.02	0.67	0.733E+06
31.52	1240.49	2900.2	16.09	187846	9.35	0.00188	11.10	0.89	0.63	0.674E+06

1

TIME = 82.70 HRS DT = 1170 SECS TIME STEP = 150

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1213.02	1820.8	15.28	156915	9.55	0.00138	25.56	0.27	0.56	0.271E+06
29.02	1214.58	2057.5	16.38	156915	9.20	0.00143	33.00	0.26	0.55	0.248E+06
29.22	1216.00	1928.3	18.50	156915	9.09	0.00126	30.32	0.19	0.54	0.219E+06
29.47	1217.92	2552.6	51.51	156915	5.71	0.00039	10.28	0.09	0.31	0.276E+05
29.52	1217.97	2225.6	40.23	156915	6.05	0.00040	2.39	0.17	0.31	0.271E+05
29.57	1217.75	2471.1	30.69	156915	8.32	0.00131	3.66	0.79	0.53	0.763E+05
29.62	1217.51	749.2	26.81	156915	10.30	0.00055	4.04	0.49	0.40	0.221E+05
29.68	1217.61	2034.1	21.83	156915	11.07	0.00262	5.44	2.62	0.74	0.453E+06
29.70	1217.53	1394.4	15.66	156915	12.14	0.00217	12.30	2.56	0.70	0.647E+06
29.72	1217.68	1800.2	11.73	156915	12.57	0.00339	15.94	2.04	0.84	0.789E+06
29.74	1219.01	2001.3	13.43	156915	10.17	0.00193	13.42	1.12	0.65	0.914E+06
29.75	1218.90	1727.5	17.17	156915	11.34	0.00228	10.10	1.15	0.71	0.101E+07
29.81	1219.50	1704.6	11.66	156915	11.59	0.00240	14.73	1.54	0.72	0.970E+06
29.87	1219.96	1332.8	14.03	156915	12.59	0.00228	14.55	1.30	0.73	0.957E+06
29.92	1221.81	3145.6	17.39	156915	10.07	0.00340	18.19	1.21	0.80	0.963E+06
29.98	1222.63	2382.5	16.34	156915	10.18	0.00244	16.97	1.12	0.71	0.921E+06
30.19	1225.53	2600.8	16.39	156915	10.03	0.00251	13.89	1.09	0.72	0.945E+06
30.46	1228.00	1355.8	18.21	156915	11.15	0.00158	14.87	0.83	0.61	0.909E+06
30.82	1230.83	1284.1	17.68	156915	11.81	0.00176	16.65	1.04	0.65	0.889E+06
31.30	1236.09	1755.9	17.30	156915	10.98	0.00210	15.23	1.14	0.68	0.804E+06
31.52	1239.25	2752.5	14.85	156915	9.43	0.00230	11.10	1.14	0.68	0.738E+06

1

TIME = 86.18 HRS DT = 2016 SECS TIME STEP = 160

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1212.12	1745.0	14.40	134754	9.08	0.00135	26.07	0.26	0.55	0.282E+06
29.02	1213.67	2047.1	15.54	134754	8.83	0.00152	33.38	0.25	0.57	0.259E+06
29.22	1215.16	1901.7	17.67	134754	8.55	0.00123	30.17	0.18	0.52	0.227E+06
29.47	1216.96	2543.0	49.74	134754	5.43	0.00040	7.07	0.10	0.31	0.317E+05
29.52	1216.94	2219.3	35.65	134754	6.33	0.00056	2.55	0.30	0.36	0.381E+05
29.57	1216.83	2021.7	30.35	134754	8.09	0.00112	4.24	0.85	0.50	0.111E+06
29.62	1216.29	740.1	20.76	134754	11.40	0.00092	4.83	0.74	0.50	0.258E+06
29.68	1217.39	1912.4	22.62	134754	9.59	0.00183	7.31	0.93	0.52	0.506E+06
29.70	1217.18	1393.8	14.45	134754	11.09	0.00197	11.95	1.49	0.66	0.702E+06
29.72	1217.58	1800.0	12.61	134754	10.69	0.00242	14.72	1.43	0.71	0.840E+06
29.74	1217.94	1761.4	12.31	134754	10.41	0.00215	12.93	1.23	0.68	0.973E+06
29.75	1218.05	1685.7	15.71	134754	10.89	0.00235	13.77	1.15	0.71	0.107E+07
29.81	1219.71	1668.5	10.12	134754	11.01	0.00240	16.18	1.16	0.72	0.103E+07
29.87	1219.16	1318.9	11.08	134754	11.69	0.00214	15.50	1.09	0.70	0.103E+07
29.92	1219.57	1240.0	13.85	134754	12.46	0.00245	21.09	1.43	0.74	0.102E+07
29.98	1221.25	2331.7	15.71	134754	10.57	0.00328	20.20	1.16	0.80	0.978E+06
30.19	1224.95	2572.4	15.97	134754	9.46	0.00259	14.42	0.97	0.71	0.986E+06
30.46	1227.40	1359.1	17.09	134754	10.27	0.00145	12.74	0.75	0.59	0.945E+06
30.82	1230.06	1273.9	16.69	134754	11.08	0.00172	14.50	0.98	0.63	0.933E+06
31.30	1235.04	1592.3	16.19	134754	10.78	0.00212	13.09	1.23	0.68	0.855E+06
31.52	1238.33	2665.5	13.93	134754	9.55	0.00281	11.10	1.46	0.73	0.796E+06

1

TIME = 90.29 HRS DT = 3474 SECS TIME STEP = 170

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.

29.02	1212.59	2034.8	14.53	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29.22	1214.14	1868.6	16.64	108591	7.81	0.00119	29.95	0.13	0.50	0.233E+06
29.47	1215.33	966.5	47.37	108591	5.25	0.00013	5.35	0.03	0.20	0.355E+05
29.52	1215.25	2209.2	33.28	108591	6.32	0.00074	2.85	0.37	0.40	0.485E+05
29.57	1214.95	676.7	23.19	108591	8.62	0.00043	2.99	0.35	0.35	0.122E+06
29.62	1214.49	732.1	16.79	108591	11.23	0.00115	5.55	1.25	0.54	0.296E+06
29.68	1215.07	1246.4	15.71	108591	10.92	0.00206	7.35	1.37	0.67	0.550E+05
29.70	1214.94	1363.1	13.39	108591	12.17	0.00347	18.95	2.70	0.84	0.751E+06
29.72	1216.07	1680.1	12.26	108591	10.34	0.00263	13.81	1.39	0.73	0.889E+05
29.74	1215.27	1620.7	10.40	108591	10.68	0.00279	15.85	1.53	0.75	0.102E+07
29.75	1216.50	1501.2	14.16	108591	10.91	0.00271	15.87	1.21	0.75	0.112E+07
29.81	1217.48	1616.9	9.20	108591	10.36	0.00251	17.12	1.03	0.72	0.107E+07
29.87	1217.95	1286.1	9.50	108591	11.15	0.00237	18.99	1.24	0.71	0.107E+07
29.92	1218.48	1214.9	11.99	108591	11.81	0.00266	19.67	1.06	0.76	0.107E+07
29.98	1220.09	2206.2	14.85	108591	10.15	0.00355	21.89	1.06	0.81	0.102E+07
30.19	1224.07	2531.5	15.29	108591	8.94	0.00279	15.52	0.86	0.72	0.918E+05
30.45	1226.53	1346.4	15.71	108591	9.12	0.00129	10.44	0.59	0.54	0.970E+05
30.82	1229.06	1259.8	15.42	108591	10.14	0.00168	11.72	0.91	0.61	0.968E+06
31.30	1234.02	1565.8	15.03	108591	10.11	0.00223	10.93	1.27	0.68	0.903E+05
31.52	1237.21	2239.3	12.81	108591	9.53	0.00295	11.10	1.53	0.74	0.852E+06

1

TIME = 94.38 HRS DT = 2993 SECS TIME STEP = 180

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1210.02	1700.7	12.27	82582	7.33	0.00125	26.36	0.18	0.51	0.298E+06
29.02	1211.46	1998.1	13.50	82582	7.54	0.00165	34.41	0.20	0.57	0.276E+06
29.22	1213.02	1832.7	15.52	82582	6.94	0.00113	30.30	0.09	0.48	0.237E+06
29.47	1214.05	956.3	45.46	82582	4.28	0.00010	4.52	0.02	0.17	0.353E+05
29.52	1213.92	614.0	30.11	82582	5.55	0.00013	2.44	0.05	0.20	0.531E+05
29.57	1213.45	668.7	17.25	82582	8.78	0.00065	3.05	0.57	0.41	0.136E+06
29.62	1213.31	732.6	13.58	82582	10.25	0.00123	7.71	0.89	0.55	0.329E+06
29.68	1213.80	1222.4	13.43	82582	10.17	0.00235	12.99	1.02	0.70	0.591E+06
29.70	1214.24	1373.1	15.25	82582	9.69	0.00236	14.64	0.92	0.69	0.790E+06
29.72	1213.85	1275.4	9.88	82582	12.29	0.00457	15.03	2.73	0.94	0.929E+06
29.74	1215.75	1609.5	10.34	82582	8.48	0.00184	15.08	0.51	0.61	0.106E+07
29.75	1215.86	1453.9	13.35	82582	8.84	0.00186	15.43	0.50	0.61	0.116E+07
29.81	1216.35	1563.4	8.44	82582	9.39	0.00249	15.91	0.96	0.70	0.111E+07
29.87	1216.88	1252.7	8.18	82582	10.03	0.00232	16.57	1.07	0.69	0.111E+07
29.92	1217.41	1133.0	11.25	82582	10.59	0.00243	17.98	1.00	0.71	0.111E+07
29.98	1217.91	928.4	11.75	82582	11.20	0.00225	20.10	0.99	0.70	0.106E+07
30.19	1220.40	859.1	13.17	82582	13.00	0.00332	24.65	1.22	0.84	0.965E+06
30.46	1225.31	1325.7	13.93	82582	8.31	0.00134	8.39	0.59	0.54	0.983E+05
30.82	1227.86	1241.6	13.97	82582	9.17	0.00170	9.39	0.86	0.60	0.992E+05
31.30	1232.97	1538.4	13.87	82582	9.17	0.00227	9.70	1.15	0.67	0.941E+05
31.52	1236.04	1931.3	11.64	82582	9.14	0.00303	11.10	1.47	0.74	0.998E+06

1

TIME = 98.70 HRS DT = 3600 SECS TIME STEP = 190

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.49	1693.5	11.80	70164	6.79	0.00117	27.77	0.16	0.48	0.302E+05
29.02	1210.85	1961.0	12.91	70164	7.18	0.00171	34.32	0.09	0.57	0.279E+06
29.22	1212.43	1813.9	14.94	70164	6.45	0.00108	30.60	0.07	0.46	0.239E+05
29.47	1213.37	951.0	44.55	70164	3.77	0.00008	4.24	0.01	0.15	0.357E+05
29.52	1213.22	609.9	25.85	70164	5.32	0.00014	2.43	0.05	0.20	0.544E+05
29.57	1212.74	667.9	14.34	70164	8.78	0.00080	3.79	0.49	0.45	0.151E+05
29.62	1212.68	734.1	11.22	70164	10.15	0.00147	6.80	1.12	0.58	0.354E+05
29.68	1213.54	1215.0	12.99	70164	9.05	0.00197	16.83	1.03	0.63	0.522E+06
29.70	1213.73	1313.7	14.36	70164	9.24	0.00236	9.28	0.68	0.68	0.821E+06
29.72	1214.09	1399.5	11.24	70164	8.96	0.00229	13.68	0.95	0.67	0.960E+06
29.74	1214.10	1239.5	8.74	70164	9.99	0.00280	17.10	1.29	0.74	0.109E+07
29.75	1214.70	1358.1	12.14	70164	9.10	0.00232	15.27	0.78	0.67	0.119E+07

29.92	1216.67	1070.6	10.62	70164	10.13	0.00241	18.80	1.00	0.70	0.113E+07
29.98	1217.19	901.8	10.26	70164	10.68	0.00229	19.89	1.01	0.70	0.109E+07
30.19	1219.63	787.9	13.01	70164	11.80	0.00267	27.34	1.05	0.76	0.997E+05
30.46	1223.96	1305.6	12.28	70164	8.64	0.00185	8.15	0.87	0.61	0.100E+07
30.92	1227.24	1233.4	13.36	70164	8.55	0.00172	8.25	0.83	0.59	0.102E+07
31.30	1232.24	1393.1	13.02	70164	8.99	0.00231	8.55	1.18	0.67	0.975E+05
31.52	1235.43	1833.4	11.03	70164	8.90	0.00321	11.10	1.50	0.75	0.940E+05

1

TIME = 105.94 HRS DT = 1170 SECS TIME STEP = 200

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.19	1689.5	11.58	64580	6.55	0.00115	30.07	0.12	0.49	0.308E+05
29.02	1210.54	1942.1	12.63	64580	7.02	0.00176	33.87	0.10	0.57	0.292E+05
29.22	1212.14	1804.5	14.65	64580	6.21	0.00106	30.97	0.07	0.46	0.242E+05
29.47	1213.03	949.8	43.94	64580	3.55	0.00007	3.59	0.01	0.14	0.371E+05
29.52	1212.77	607.2	21.26	64580	6.19	0.00025	2.49	0.12	0.25	0.575E+05
29.57	1212.31	551.9	12.71	64580	9.35	0.00109	4.94	0.89	0.51	0.179E+05
29.62	1212.52	735.8	10.62	64580	9.83	0.00149	7.28	0.76	0.58	0.388E+05
29.68	1213.41	1220.1	11.46	64580	8.55	0.00193	10.46	0.65	0.61	0.558E+05
29.70	1213.60	1327.5	13.32	64580	8.68	0.00217	10.35	0.97	0.65	0.859E+05
29.72	1213.66	1192.2	11.17	64580	9.45	0.00247	11.28	1.10	0.70	0.997E+05
29.74	1214.05	1334.5	9.57	64580	9.05	0.00249	14.35	0.97	0.69	0.113E+07
29.75	1214.37	1319.6	11.05	64580	8.95	0.00237	13.97	0.94	0.68	0.122E+07
29.81	1215.13	1460.0	8.94	64580	8.90	0.00254	16.93	0.99	0.70	0.118E+07
29.87	1215.75	1218.9	7.01	64580	9.43	0.00252	17.39	0.99	0.70	0.117E+07
29.92	1216.35	1035.5	10.27	64580	9.83	0.00233	18.05	0.98	0.69	0.117E+07
29.98	1216.91	901.3	9.50	64580	10.15	0.00215	18.34	0.98	0.67	0.113E+07
30.19	1219.10	721.4	12.83	64580	11.52	0.00244	25.39	0.97	0.73	0.103E+07
30.46	1223.34	1297.4	11.49	64580	8.75	0.00214	8.64	0.98	0.65	0.104E+07
30.92	1227.01	1231.1	13.15	64580	8.43	0.00176	7.13	0.87	0.60	0.105E+07
31.30	1232.02	1298.5	12.57	64580	8.82	0.00221	7.52	1.17	0.65	0.102E+07
31.52	1235.14	1771.6	10.74	64580	8.78	0.00327	11.10	1.49	0.75	0.998E+05

1

TIME = 113.88 HRS DT = 3600 SECS TIME STEP = 210

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1208.85	1695.0	11.27	58457	6.27	0.00114	31.84	0.10	0.47	0.313E+05
29.02	1210.21	1921.7	12.34	58457	6.81	0.00178	33.31	0.10	0.57	0.287E+05
29.22	1211.81	1793.8	14.31	58457	5.93	0.00103	31.26	0.06	0.45	0.245E+05
29.47	1212.64	946.9	42.48	58457	3.33	0.00007	2.73	0.01	0.14	0.375E+05
29.52	1212.26	604.3	15.71	58457	7.51	0.00053	3.10	0.38	0.37	0.669E+05
29.57	1212.15	655.6	12.82	58457	8.92	0.00105	4.78	0.57	0.50	0.210E+06
29.62	1212.38	736.9	9.87	58457	9.28	0.00141	7.69	0.94	0.56	0.424E+06
29.68	1213.12	1214.2	10.63	58457	8.39	0.00195	10.52	1.01	0.62	0.696E+05
29.70	1213.24	1332.7	11.67	58457	8.94	0.00274	4.42	0.83	0.71	0.897E+05
29.72	1213.67	1239.0	11.42	58457	8.39	0.00200	9.85	0.89	0.62	0.104E+07
29.74	1213.83	1298.3	9.41	58457	8.68	0.00237	14.41	0.99	0.67	0.117E+07
29.75	1214.12	1291.3	10.63	58457	8.60	0.00229	13.36	0.92	0.66	0.126E+07
29.81	1214.84	1414.1	9.41	58457	8.57	0.00255	14.73	0.98	0.69	0.122E+07
29.87	1215.47	1210.7	6.75	58457	8.95	0.00240	15.75	0.95	0.68	0.121E+07
29.92	1216.02	1001.5	9.91	58457	9.41	0.00220	15.58	0.97	0.67	0.121E+07
29.98	1216.57	894.8	9.29	58457	9.72	0.00211	15.72	0.98	0.66	0.117E+07
30.19	1218.69	699.8	12.67	58457	10.99	0.00229	21.89	1.09	0.70	0.108E+07
30.46	1222.78	1288.6	11.10	58457	8.70	0.00237	9.28	1.05	0.67	0.108E+07
30.92	1226.72	1228.1	12.83	58457	8.15	0.00180	6.25	0.89	0.60	0.109E+07
31.30	1231.74	1281.2	12.12	58457	8.55	0.00224	7.18	1.15	0.65	0.107E+07
31.52	1234.82	1616.6	10.42	58457	8.57	0.00306	11.10	1.33	0.74	0.106E+07

1

TIME = 122.88 HRS DT = 3600 SECS TIME STEP = 220

SECTION W.S.ELEV. WIDTH DEPTH Q V SLOPE D50 QS/Q FR SED. YIELD

28.83	1208.61	1681.7	11.03	53942	6.06	0.00113	32.42	0.09	0.46	0.316E+06
29.02	1209.95	1906.6	12.16	53942	6.61	0.00178	32.79	0.10	0.56	0.291E+06
29.22	1211.54	1785.2	14.04	53942	5.73	0.00101	31.42	0.05	0.44	0.247E+06
29.47	1212.33	947.2	39.86	53942	3.23	0.00007	2.55	0.01	0.14	0.378E+05
29.52	1211.87	603.8	12.64	53942	8.42	0.00097	3.71	0.67	0.46	0.946E+05
29.57	1211.94	616.9	11.95	53942	9.29	0.00124	4.91	0.77	0.53	0.238E+06
29.62	1212.50	742.6	11.37	53942	8.61	0.00123	5.58	0.60	0.52	0.456E+06
29.68	1213.13	1218.2	10.43	53942	7.85	0.00174	6.92	1.05	0.58	0.731E+06
29.70	1213.28	1348.9	11.30	53942	8.17	0.00230	10.70	0.97	0.65	0.933E+06
29.72	1213.54	1232.0	11.42	53942	8.04	0.00191	9.23	0.72	0.61	0.107E+07
29.74	1213.71	1302.8	9.64	53942	8.32	0.00231	9.77	0.82	0.66	0.120E+07
29.75	1213.96	1275.1	10.51	53942	8.34	0.00225	11.02	0.92	0.65	0.130E+07
29.81	1214.67	1365.0	10.05	53942	8.22	0.00236	11.21	0.87	0.66	0.126E+07
29.87	1215.25	1203.2	6.47	53942	8.70	0.00241	13.32	0.99	0.69	0.125E+07
29.92	1215.82	1003.8	9.75	53942	9.15	0.00223	14.05	0.96	0.66	0.125E+07
29.98	1216.39	889.4	8.97	53942	9.45	0.00212	13.90	0.98	0.66	0.121E+07
30.19	1218.49	689.9	12.45	53942	10.43	0.00210	17.42	1.05	0.67	0.112E+07
30.46	1222.33	1277.6	11.05	53942	8.59	0.00250	10.46	1.06	0.68	0.113E+07
30.82	1226.47	1225.5	12.53	53942	8.00	0.00187	5.89	0.93	0.60	0.112E+07
31.30	1231.59	1270.5	11.82	53942	8.29	0.00221	7.04	1.09	0.65	0.111E+07
31.52	1234.58	1559.4	10.18	53942	8.39	0.00302	11.10	1.26	0.73	0.111E+07

1

TIME = 131.87 HRS DT = 3600 SECS TIME STEP = 230

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1208.66	1682.2	11.06	54576	6.09	0.00113	32.56	0.09	0.46	0.320E+06
29.02	1210.00	1909.2	12.26	54576	6.59	0.00174	32.40	0.10	0.56	0.295E+06
29.22	1211.55	1785.6	14.05	54576	5.76	0.00102	31.55	0.05	0.44	0.249E+06
29.47	1212.35	950.7	36.15	54576	3.45	0.00009	2.64	0.01	0.15	0.383E+05
29.52	1211.82	595.4	12.40	54576	9.09	0.00107	3.95	0.64	0.50	0.111E+06
29.57	1212.06	618.3	12.20	54576	9.31	0.00123	4.25	0.72	0.53	0.269E+06
29.62	1212.49	745.6	12.22	54576	9.14	0.00149	5.25	1.17	0.57	0.490E+06
29.68	1213.29	1233.3	9.13	54576	8.09	0.00192	6.75	1.24	0.61	0.765E+06
29.70	1213.51	1325.2	10.95	54576	8.12	0.00216	9.25	0.97	0.64	0.969E+06
29.72	1213.89	1341.6	11.79	54576	7.52	0.00159	6.37	0.62	0.57	0.111E+07
29.74	1213.98	1343.1	9.60	54576	9.07	0.00214	8.13	0.88	0.63	0.124E+07
29.75	1214.17	1285.9	10.57	54576	8.24	0.00217	9.75	0.91	0.64	0.134E+07
29.81	1214.84	1381.4	10.09	54576	8.24	0.00238	9.17	0.90	0.66	0.129E+07
29.87	1215.44	1208.1	6.62	54576	8.57	0.00226	10.52	0.91	0.66	0.129E+07
29.92	1215.95	1014.9	9.80	54576	9.14	0.00223	11.84	1.03	0.66	0.129E+07
29.98	1216.50	893.9	9.02	54576	9.50	0.00214	12.79	1.05	0.66	0.125E+07
30.19	1218.63	701.8	12.36	54576	10.33	0.00205	15.33	1.08	0.66	0.116E+07
30.46	1222.35	1272.7	11.35	54576	8.55	0.00241	10.35	1.04	0.67	0.117E+07
30.82	1226.47	1226.0	12.41	54576	8.17	0.00197	5.89	1.01	0.62	0.116E+07
31.30	1231.71	1277.1	11.93	54576	8.29	0.00220	7.07	1.07	0.64	0.116E+07
31.52	1234.68	1579.3	10.28	54576	8.29	0.00291	11.10	1.18	0.72	0.116E+07

1

TIME = 141.87 HRS DT = 3600 SECS TIME STEP = 240

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1208.71	1682.9	11.09	55280	6.12	0.00113	32.51	0.09	0.47	0.324E+06
29.02	1210.04	1912.0	12.37	55280	6.57	0.00170	32.09	0.11	0.55	0.299E+06
29.22	1211.56	1786.0	14.06	55280	5.79	0.00102	31.64	0.06	0.44	0.252E+06
29.47	1212.38	954.8	31.34	55280	3.80	0.00011	2.59	0.02	0.17	0.399E+05
29.52	1211.81	589.4	12.64	55280	9.51	0.00122	4.00	0.71	0.53	0.147E+06
29.57	1212.20	652.3	12.81	55280	9.36	0.00132	5.69	0.68	0.55	0.307E+06
29.62	1212.75	749.5	13.50	55280	8.78	0.00129	5.30	0.65	0.53	0.526E+06
29.68	1213.38	1240.4	8.70	55280	8.12	0.00193	6.54	1.28	0.61	0.801E+06
29.70	1213.57	1316.6	10.49	55280	8.26	0.00223	3.52	0.86	0.65	0.101E+07
29.72	1213.72	1381.4	9.97	55280	8.78	0.00290	8.09	1.25	0.73	0.115E+07

29.75	1214.41	1290.3	10.58	55280	8.20	0.00211	9.05	0.94	0.63	0.138E+07
29.81	1215.09	1414.4	10.38	55280	8.04	0.00222	8.92	1.01	0.64	0.134E+07
29.87	1215.62	1211.9	6.68	55280	8.56	0.00223	9.75	0.98	0.65	0.133E+07
29.92	1216.14	1032.1	9.91	55280	9.05	0.00217	10.99	1.02	0.66	0.134E+07
29.98	1216.66	898.8	9.11	55280	9.47	0.00210	11.93	1.04	0.65	0.130E+07
30.19	1218.76	712.6	12.16	55280	10.24	0.00200	13.59	1.08	0.65	0.121E+07
30.46	1222.37	1265.8	11.60	55280	8.59	0.00238	9.84	1.05	0.67	0.121E+07
30.82	1226.48	1226.9	12.32	55280	8.27	0.00202	6.07	1.02	0.62	0.121E+07
31.30	1231.82	1293.3	11.86	55280	8.30	0.00218	7.26	1.04	0.64	0.120E+07
31.52	1234.77	1597.9	10.37	55280	8.22	0.00282	11.10	1.13	0.71	0.121E+07

1

TIME = 150.87 HRS DT = 3600 SECS TIME STEP = 250

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.12	1689.4	11.49	63154	6.51	0.00117	32.39	0.11	0.48	0.328E+06
29.02	1210.47	1938.3	12.85	63154	6.80	0.00162	31.85	0.13	0.55	0.305E+06
29.22	1211.96	1799.2	14.46	63154	6.13	0.00104	31.59	0.09	0.45	0.255E+06
29.47	1212.84	950.3	26.90	63154	4.64	0.00018	2.61	0.05	0.22	0.404E+05
29.52	1212.13	594.1	13.38	63154	10.44	0.00141	4.56	1.21	0.58	0.192E+06
29.57	1212.61	554.3	13.24	63154	10.19	0.00147	6.31	1.32	0.59	0.251E+06
29.62	1213.21	752.4	13.50	63154	9.65	0.00149	4.52	1.08	0.58	0.570E+06
29.69	1214.04	1255.6	8.21	63154	9.60	0.00199	6.00	1.09	0.63	0.944E+06
29.70	1214.54	1375.6	11.17	63154	7.57	0.00148	5.72	0.74	0.54	0.105E+07
29.72	1214.69	1644.5	11.36	63154	7.73	0.00200	5.03	0.90	0.61	0.119E+07
29.74	1214.81	1526.1	10.72	63154	8.23	0.00222	5.92	1.02	0.65	0.132E+07
29.75	1214.95	1362.3	11.12	63154	8.60	0.00223	7.42	1.11	0.65	0.142E+07
29.81	1215.68	1460.8	10.89	63154	8.38	0.00223	8.27	1.13	0.65	0.138E+07
29.87	1216.19	1227.9	7.15	63154	8.99	0.00223	9.32	1.09	0.66	0.132E+07
29.92	1216.73	1090.1	10.45	63154	9.43	0.00224	11.48	1.12	0.67	0.138E+07
29.98	1217.23	918.2	9.69	63154	9.95	0.00213	12.99	1.12	0.67	0.135E+07
30.19	1219.37	740.2	12.58	63154	10.72	0.00205	13.93	1.11	0.67	0.126E+07
30.46	1222.99	1272.9	12.34	63154	8.71	0.00211	9.10	1.00	0.64	0.126E+07
30.82	1226.85	1232.5	12.65	63154	8.84	0.00213	6.37	1.04	0.65	0.125E+07
31.30	1232.59	1524.0	12.59	63154	8.22	0.00222	7.48	0.97	0.65	0.125E+07
31.52	1235.46	1838.0	11.06	63154	7.97	0.00257	11.10	0.96	0.69	0.126E+07

1

TIME = 159.86 HRS DT = 3600 SECS TIME STEP = 260

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.58	1694.7	11.94	72139	6.89	0.00119	31.74	0.15	0.49	0.334E+06
29.02	1210.94	1967.5	13.37	72139	7.03	0.00155	31.52	0.17	0.54	0.311E+06
29.22	1212.39	1814.4	14.90	72139	6.49	0.00107	30.89	0.14	0.46	0.260E+06
29.47	1213.32	955.6	21.45	72139	5.81	0.00032	2.81	0.13	0.29	0.444E+05
29.52	1212.53	595.5	14.56	72139	11.12	0.00146	6.10	1.08	0.59	0.243E+06
29.57	1213.21	658.0	15.05	72139	10.37	0.00132	4.80	0.89	0.56	0.399E+06
29.62	1213.68	756.0	13.92	72139	10.13	0.00148	6.15	1.30	0.58	0.617E+06
29.68	1214.55	1266.1	8.23	72139	9.99	0.00195	5.39	1.09	0.63	0.999E+06
29.70	1214.90	1378.4	10.42	72139	8.56	0.00187	4.44	1.01	0.61	0.109E+07
29.72	1215.17	1525.6	11.29	72139	8.41	0.00219	5.82	1.14	0.65	0.124E+07
29.74	1215.39	1616.3	11.27	72139	8.53	0.00227	6.51	1.18	0.66	0.137E+07
29.75	1215.54	1429.9	11.67	72139	8.91	0.00224	8.05	1.23	0.66	0.147E+07
29.81	1216.23	1487.1	11.30	72139	8.83	0.00228	8.90	1.21	0.66	0.143E+07
29.87	1216.73	1243.5	7.61	72139	9.49	0.00228	10.78	1.16	0.68	0.143E+07
29.92	1217.30	1148.0	11.02	72139	9.84	0.00232	13.36	1.13	0.69	0.144E+07
29.98	1217.78	937.4	10.28	72139	10.47	0.00218	14.86	1.12	0.69	0.140E+07
30.19	1220.01	801.2	13.41	72139	11.07	0.00212	15.43	1.16	0.68	0.131E+07
30.46	1223.66	1286.3	12.91	72139	8.98	0.00198	8.32	1.01	0.63	0.130E+07
30.82	1227.32	1239.1	13.24	72139	9.27	0.00210	6.79	1.09	0.65	0.130E+07
31.30	1233.04	1536.1	13.02	72139	8.63	0.00221	7.88	1.02	0.65	0.129E+07
31.52	1235.90	1919.5	11.50	72139	8.23	0.00254	11.10	1.00	0.69	0.130E+07

1

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1210.10	1701.7	12.42	82255	7.28	0.00120	28.36	0.23	0.50	0.345E+06
29.02	1211.48	2000.1	13.93	82255	7.25	0.00147	30.28	0.26	0.54	0.324E+06
29.22	1212.87	1829.6	15.35	82255	6.88	0.00110	24.48	0.27	0.47	0.272E+06
29.47	1213.83	968.7	17.48	82255	7.29	0.00057	2.84	0.35	0.38	0.580E+05
29.52	1213.10	553.4	16.33	82255	11.55	0.00126	6.30	1.33	0.57	0.304E+06
29.57	1213.52	665.8	13.64	82255	11.46	0.00157	5.69	1.24	0.62	0.458E+06
29.62	1214.28	760.4	14.78	82255	10.60	0.00146	4.30	1.09	0.59	0.673E+06
29.68	1215.28	1277.2	8.26	82255	9.11	0.00174	5.59	1.32	0.60	0.945E+06
29.70	1215.31	1379.3	10.51	82255	9.85	0.00251	3.79	1.26	0.71	0.115E+07
29.72	1216.16	1580.0	12.70	82255	8.06	0.00166	5.85	0.95	0.59	0.129E+07
29.74	1216.21	1651.2	11.99	82255	8.74	0.00212	6.29	1.26	0.64	0.143E+07
29.75	1216.29	1538.4	12.20	82255	9.41	0.00249	11.09	1.29	0.70	0.153E+07
29.81	1217.14	1533.3	12.04	82255	8.93	0.00199	7.21	0.93	0.63	0.149E+07
29.87	1217.51	1266.3	9.26	82255	9.77	0.00216	11.08	1.29	0.67	0.150E+07
29.92	1218.06	1199.9	11.64	82255	10.11	0.00225	12.45	1.18	0.69	0.150E+07
29.98	1218.45	975.5	10.98	82255	10.89	0.00220	16.04	1.24	0.69	0.145E+07
30.19	1220.75	870.4	14.35	82255	11.27	0.00211	15.90	1.20	0.69	0.137E+07
30.46	1224.31	1305.5	13.33	82255	9.35	0.00194	8.12	1.07	0.63	0.135E+07
30.92	1227.88	1246.6	13.89	82255	9.67	0.00205	7.24	1.11	0.65	0.136E+07
31.30	1233.50	1548.6	13.53	82255	9.05	0.00220	8.43	1.06	0.66	0.135E+07
31.52	1236.36	1958.8	11.96	82255	8.51	0.00245	11.10	1.02	0.68	0.136E+07

1

TIME = 174.36 HRS DT = 3341 SECS TIME STEP = 280

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1210.19	1702.8	12.47	84333	7.39	0.00123	24.93	0.31	0.50	0.357E+06
29.02	1211.59	2007.1	14.03	84333	7.29	0.00146	26.78	0.36	0.54	0.339E+06
29.22	1212.98	1832.1	15.33	84333	7.02	0.00114	12.32	0.41	0.48	0.287E+06
29.47	1214.00	969.9	15.13	84333	9.17	0.00081	2.99	0.54	0.44	0.806E+05
29.52	1213.35	543.7	14.94	84333	11.92	0.00133	5.98	1.15	0.58	0.356E+06
29.57	1214.36	670.9	15.76	84333	10.34	0.00109	4.73	0.75	0.52	0.510E+06
29.62	1214.63	760.1	11.08	84333	10.52	0.00139	5.11	1.29	0.57	0.726E+06
29.68	1215.65	1284.5	10.27	84333	8.84	0.00153	5.02	1.20	0.57	0.996E+06
29.70	1215.70	1392.1	11.20	84333	9.42	0.00210	5.24	1.25	0.65	0.120E+07
29.72	1216.28	1701.0	11.69	84333	8.33	0.00193	5.99	0.82	0.60	0.134E+07
29.74	1216.46	1655.1	12.31	84333	8.42	0.00192	5.41	0.85	0.60	0.149E+07
29.75	1216.49	1531.5	12.82	84333	9.19	0.00220	8.58	1.20	0.66	0.158E+07
29.81	1217.12	1541.3	11.79	84333	9.27	0.00228	10.21	1.26	0.67	0.154E+07
29.87	1217.50	1268.5	9.29	84333	9.97	0.00224	11.37	1.19	0.68	0.155E+07
29.92	1218.18	1211.4	11.65	84333	10.25	0.00231	13.49	1.20	0.69	0.155E+07
29.98	1218.45	970.7	11.10	84333	11.11	0.00225	15.99	1.24	0.70	0.152E+07
30.19	1220.92	878.3	14.53	84333	11.30	0.00209	15.58	1.22	0.68	0.143E+07
30.46	1224.36	1309.9	13.29	84333	9.52	0.00201	8.42	1.13	0.65	0.141E+07
30.92	1227.99	1248.4	14.08	84333	9.72	0.00202	7.54	1.10	0.65	0.141E+07
31.30	1233.57	1550.7	13.55	84333	9.14	0.00220	8.93	1.07	0.65	0.140E+07
31.52	1236.45	1966.2	12.05	84333	8.58	0.00244	11.10	1.03	0.68	0.140E+07

1

TIME = 181.53 HRS DT = 1977 SECS TIME STEP = 290

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1210.29	1703.9	12.50	86490	7.53	0.00125	20.11	0.43	0.51	0.374E+06
29.02	1211.73	2015.3	14.11	86490	7.35	0.00146	19.55	0.50	0.54	0.359E+06
29.22	1213.13	1835.9	15.22	86490	7.22	0.00121	6.93	0.55	0.50	0.311E+06
29.47	1214.23	972.0	13.40	86490	9.72	0.00099	3.37	0.79	0.48	0.116E+06
29.52	1213.88	608.3	15.10	86490	11.21	0.00122	5.93	1.09	0.55	0.409E+06
29.57	1214.28	675.7	13.71	86490	11.07	0.00134	5.14	1.19	0.57	0.552E+06
29.62	1214.84	762.9	11.54	86490	10.60	0.00137	5.33	1.19	0.57	0.776E+06

29.70	1216.00	1377.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29.72	1216.34	1713.7	12.55	86490	8.68	0.00205	5.82	0.98	0.63	0.140E+07
29.74	1216.61	1679.3	13.15	86490	8.49	0.00185	6.64	0.85	0.61	0.153E+07
29.75	1216.61	1429.1	13.43	86490	9.40	0.00209	8.70	1.09	0.65	0.163E+07
29.81	1217.28	1552.3	12.06	86490	9.29	0.00224	10.39	1.14	0.67	0.160E+07
29.87	1217.74	1272.8	8.44	86490	10.03	0.00222	12.09	1.16	0.68	0.160E+07
29.92	1218.33	1218.0	11.75	86490	10.22	0.00223	14.04	1.16	0.68	0.161E+07
29.98	1218.98	1017.7	11.23	86490	10.73	0.00207	14.24	1.14	0.67	0.157E+07
30.19	1221.15	907.7	14.90	86490	11.09	0.00198	15.06	1.13	0.67	0.148E+07
30.46	1224.49	1310.9	13.43	86490	9.58	0.00198	8.65	1.10	0.64	0.146E+07
30.82	1228.08	1249.8	14.20	86490	9.82	0.00202	7.89	1.11	0.65	0.146E+07
31.30	1233.66	1553.1	13.78	86490	9.21	0.00219	9.32	1.07	0.66	0.145E+07
31.52	1236.54	1974.1	12.14	86490	8.64	0.00243	11.10	1.04	0.68	0.145E+07

1

TIME = 187.98 HRS DT = 3341 SECS TIME STEP = 300

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1210.38	1704.9	12.53	88431	7.65	0.00129	16.69	0.48	0.52	0.397E+06
29.02	1211.85	2022.3	14.18	88431	7.41	0.00145	14.04	0.53	0.54	0.394E+06
29.22	1213.26	1838.4	15.14	88431	7.39	0.00127	5.90	0.57	0.51	0.339E+06
29.47	1214.42	973.9	12.17	88431	9.07	0.00109	4.03	0.86	0.50	0.156E+06
29.52	1214.17	611.5	14.58	88431	11.13	0.00116	5.29	0.88	0.54	0.457E+06
29.57	1214.54	680.3	13.69	88431	11.06	0.00131	5.28	1.17	0.57	0.611E+06
29.62	1215.09	765.7	11.93	88431	10.56	0.00133	5.50	1.14	0.56	0.825E+06
29.68	1216.05	1289.9	11.68	88431	9.05	0.00157	5.77	1.04	0.58	0.110E+07
29.70	1215.13	1383.0	12.35	88431	9.49	0.00203	7.12	1.20	0.64	0.130E+07
29.72	1216.74	1705.7	13.24	88431	9.29	0.00170	5.35	0.79	0.58	0.144E+07
29.74	1216.83	1687.7	13.89	88431	8.75	0.00200	7.00	1.04	0.63	0.158E+07
29.75	1216.96	1575.7	13.93	88431	9.13	0.00210	9.01	1.10	0.65	0.168E+07
29.81	1217.55	1564.3	12.19	88431	9.24	0.00216	10.42	1.14	0.66	0.165E+07
29.87	1217.98	1280.1	8.63	88431	9.97	0.00213	11.46	1.12	0.67	0.166E+07
29.92	1218.56	1244.0	11.89	88431	10.13	0.00217	13.85	1.15	0.67	0.167E+07
29.98	1219.21	1066.9	11.26	88431	10.65	0.00209	14.09	1.12	0.67	0.163E+07
30.19	1221.37	932.4	15.15	88431	11.00	0.00194	14.74	1.09	0.66	0.154E+07
30.46	1224.61	1313.0	13.54	88431	9.53	0.00196	8.78	1.09	0.64	0.152E+07
30.82	1228.17	1251.6	14.33	88431	9.89	0.00202	8.28	1.10	0.65	0.152E+07
31.30	1233.74	1555.3	13.89	88431	9.28	0.00218	9.67	1.07	0.66	0.150E+07
31.52	1236.63	1981.4	12.23	88431	8.68	0.00242	11.10	1.04	0.67	0.150E+07

1

TIME = 193.97 HRS DT = 2823 SECS TIME STEP = 310

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1210.29	1703.5	12.39	86773	7.65	0.00133	13.91	0.48	0.52	0.417E+06
29.02	1211.80	2018.6	14.05	86773	7.40	0.00149	9.87	0.57	0.54	0.407E+06
29.22	1213.24	1839.4	14.63	86773	7.58	0.00142	5.38	0.69	0.54	0.365E+06
29.47	1214.44	973.8	12.14	86773	8.98	0.00108	4.35	0.82	0.50	0.203E+06
29.52	1214.16	617.3	13.63	86773	11.19	0.00123	5.70	0.87	0.56	0.506E+06
29.57	1214.81	686.9	15.40	86773	10.36	0.00109	6.18	0.74	0.52	0.559E+06
29.62	1215.14	767.1	11.93	86773	10.37	0.00129	6.33	0.83	0.55	0.872E+06
29.68	1216.13	1290.2	12.54	86773	8.65	0.00138	7.33	0.64	0.55	0.114E+07
29.70	1216.27	1376.3	12.97	86773	8.71	0.00155	8.01	0.67	0.57	0.135E+07
29.72	1216.59	1725.4	13.19	86773	8.28	0.00176	7.05	0.71	0.59	0.149E+07
29.74	1216.65	1665.8	13.72	86773	8.90	0.00213	9.42	1.05	0.65	0.163E+07
29.75	1216.80	1530.0	13.78	86773	9.19	0.00212	10.27	1.07	0.65	0.173E+07
29.81	1217.41	1556.1	12.11	86773	9.28	0.00223	13.19	1.13	0.67	0.169E+07
29.87	1217.88	1277.2	8.53	86773	9.94	0.00216	14.03	1.04	0.67	0.170E+07
29.92	1218.47	1262.8	12.13	86773	10.12	0.00225	15.17	1.08	0.68	0.171E+07
29.98	1219.12	1161.0	11.15	86773.	10.38	0.00219	14.95	1.12	0.68	0.167E+07
30.19	1221.28	929.9	14.99	86773	10.99	0.00192	14.11	1.09	0.66	0.158E+07
30.46	1224.49	1311.6	13.26	86773	9.72	0.00208	9.19	1.12	0.66	0.156E+07
30.82	1228.18	1254.1	14.15	86773	9.71	0.00195	8.51	1.07	0.64	0.156E+07

1

TIME = 200.90 HRS DT = 3042 SECS TIME STEP = 320

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.78	1696.1	11.81	76701	7.39	0.00138	10.53	0.49	0.53	0.439E+06
29.02	1211.34	1989.4	13.52	76701	7.16	0.00154	8.23	0.57	0.54	0.433E+06
29.22	1212.82	1816.3	14.28	76701	7.19	0.00138	5.38	0.62	0.52	0.394E+06
29.47	1214.11	974.2	11.78	76701	8.35	0.00100	4.20	0.62	0.48	0.232E+06
29.52	1213.96	619.1	12.98	76701	10.07	0.00103	4.96	0.86	0.51	0.541E+06
29.57	1214.29	686.7	12.99	76701	10.00	0.00115	4.49	1.03	0.53	0.696E+06
29.62	1214.64	765.4	11.25	76701	9.93	0.00131	7.09	1.17	0.55	0.912E+06
29.68	1215.49	1285.7	11.92	76701	8.58	0.00163	5.77	0.75	0.58	0.118E+07
29.70	1215.77	1363.1	12.85	76701	8.34	0.00156	5.39	0.67	0.57	0.139E+07
29.72	1215.94	1682.0	12.99	76701	8.43	0.00213	6.63	1.14	0.64	0.154E+07
29.74	1216.06	1557.5	13.01	76701	8.95	0.00234	8.89	1.12	0.67	0.167E+07
29.75	1216.25	1393.8	13.32	76701	9.14	0.00217	9.24	1.00	0.66	0.177E+07
29.81	1216.97	1525.2	11.79	76701	8.93	0.00225	10.36	0.99	0.66	0.174E+07
29.87	1217.46	1262.5	8.01	76701	9.52	0.00217	11.42	1.04	0.65	0.175E+07
29.92	1218.07	1217.8	11.60	76701	9.58	0.00211	12.30	1.02	0.66	0.176E+07
29.98	1218.50	1025.2	10.24	76701	10.07	0.00199	12.76	1.03	0.65	0.172E+07
30.19	1220.56	889.3	13.90	76701	10.59	0.00194	13.09	1.09	0.65	0.163E+07
30.46	1223.84	1300.0	12.76	76701	9.43	0.00218	8.79	1.10	0.66	0.161E+07
30.82	1227.69	1250.3	13.20	76701	9.28	0.00197	8.67	1.02	0.64	0.161E+07
31.30	1233.17	1540.0	13.35	76701	8.85	0.00223	10.00	1.03	0.66	0.159E+07
31.52	1236.08	1934.7	11.68	76701	8.42	0.00255	11.10	1.05	0.68	0.159E+07

1

TIME = 209.74 HRS DT = 3600 SECS TIME STEP = 330

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1209.14	1686.5	11.09	63842	5.94	0.00142	8.40	0.52	0.52	0.465E+06
29.02	1210.71	1950.2	12.69	63842	5.74	0.00157	7.51	0.57	0.54	0.452E+06
29.22	1212.22	1789.3	13.71	63842	6.67	0.00135	5.19	0.57	0.51	0.424E+06
29.47	1213.51	973.2	11.26	63842	7.58	0.00096	4.19	0.58	0.46	0.263E+06
29.52	1213.41	617.1	11.72	63842	9.26	0.00099	4.42	0.53	0.49	0.577E+06
29.57	1213.78	685.6	12.24	63842	8.99	0.00103	4.50	0.57	0.49	0.739E+06
29.62	1214.05	763.9	10.74	63842	9.10	0.00124	5.44	0.89	0.53	0.955E+06
29.68	1214.71	1279.2	10.86	63842	8.34	0.00181	5.54	0.90	0.60	0.123E+07
29.70	1214.99	1323.9	12.08	63842	8.01	0.00168	5.98	0.89	0.58	0.144E+07
29.72	1215.09	1510.7	12.22	63842	8.49	0.00241	8.93	1.25	0.67	0.158E+07
29.74	1215.39	1433.3	13.44	63842	8.34	0.00211	8.78	1.06	0.64	0.172E+07
29.75	1215.54	1310.9	12.72	63842	8.59	0.00216	9.82	0.98	0.65	0.182E+07
29.81	1216.26	1450.7	11.39	63842	8.45	0.00224	10.61	0.97	0.65	0.179E+07
29.87	1216.80	1241.5	7.39	63842	9.80	0.00208	10.71	0.86	0.64	0.180E+07
29.92	1217.34	1137.7	10.76	63842	9.04	0.00203	10.50	0.93	0.64	0.181E+07
29.98	1217.93	998.0	8.99	63842	9.39	0.00193	11.08	0.94	0.63	0.177E+07
30.19	1219.86	872.5	12.52	63842	9.87	0.00191	11.74	0.98	0.64	0.168E+07
30.46	1223.06	1280.6	12.30	63842	8.86	0.00222	9.52	1.00	0.66	0.166E+07
30.82	1226.98	1242.2	12.15	63842	8.69	0.00200	8.72	0.94	0.63	0.166E+07
31.30	1232.49	1497.2	12.65	63842	8.40	0.00230	9.86	0.97	0.66	0.164E+07
31.52	1235.46	1839.4	11.06	63842	8.04	0.00261	11.10	1.00	0.68	0.165E+07

1

TIME = 219.74 HRS DT = 3600 SECS TIME STEP = 340

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1208.67	1679.6	10.59	54412	6.50	0.00141	7.72	0.48	0.51	0.488E+06
29.02	1210.22	1919.3	12.41	54412	6.37	0.00157	7.55	0.52	0.53	0.487E+06
29.22	1211.72	1744.0	13.22	54412	6.27	0.00131	5.38	0.51	0.49	0.448E+06
29.47	1213.01	972.3	10.77	54412	7.18	0.00095	3.60	0.37	0.45	0.285E+06

29.52	1213.56	762.1	9.55	54412	8.66	0.00130	4.63	0.64	0.53	0.990E+05
29.68	1214.27	1276.4	10.54	54412	7.65	0.00168	5.32	0.75	0.57	0.127E+07
29.70	1214.41	1333.5	10.91	54412	7.91	0.00200	6.83	0.74	0.61	0.148E+07
29.72	1214.70	1440.1	11.92	54412	7.63	0.00195	6.94	0.63	0.60	0.152E+07
29.74	1214.87	1414.0	12.33	54412	7.82	0.00207	10.04	0.79	0.62	0.175E+07
29.75	1215.02	1257.8	12.42	54412	8.18	0.00207	9.88	0.75	0.63	0.185E+07
29.81	1215.68	1331.9	11.45	54412	8.02	0.00207	9.60	0.76	0.63	0.193E+07
29.87	1216.21	1222.4	6.81	54412	8.34	0.00211	10.28	0.86	0.64	0.194E+07
29.92	1216.74	1071.4	10.08	54412	8.59	0.00195	9.69	0.86	0.62	0.185E+07
29.98	1217.23	958.6	8.18	54412	8.89	0.00191	10.13	0.88	0.62	0.181E+07
30.19	1219.27	860.7	11.59	54412	9.32	0.00192	11.11	0.91	0.63	0.172E+07
30.46	1222.44	1262.9	11.97	54412	8.37	0.00224	10.02	0.93	0.65	0.171E+07
30.82	1226.42	1234.1	11.39	54412	8.24	0.00206	9.26	0.90	0.63	0.170E+07
31.30	1231.77	1279.2	11.81	54412	8.33	0.00224	9.77	0.99	0.65	0.169E+07
31.52	1234.75	1595.8	10.36	54412	8.11	0.00275	11.10	1.07	0.70	0.170E+07

1

TIME = 229.74 HRS DT = 3600 SECS TIME STEP = 350

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1208.63	1679.1	10.54	53562	6.47	0.00141	7.57	0.48	0.51	0.509E+05
29.02	1210.18	1917.0	12.39	53562	6.31	0.00155	7.64	0.48	0.53	0.509E+05
29.22	1211.64	1730.7	13.13	53562	6.28	0.00133	5.45	0.48	0.50	0.469E+05
29.47	1212.99	972.7	10.54	53562	7.35	0.00105	3.43	0.48	0.47	0.309E+05
29.52	1212.98	617.6	10.48	53562	8.66	0.00100	4.13	0.59	0.48	0.537E+05
29.57	1213.26	684.2	10.92	53562	8.70	0.00116	5.22	0.80	0.51	0.800E+05
29.62	1213.61	762.4	9.25	53562	8.68	0.00133	5.03	0.69	0.54	0.102E+07
29.68	1214.39	1277.1	10.44	53562	7.42	0.00155	5.95	0.61	0.55	0.130E+07
29.70	1214.49	1335.6	11.20	53562	7.82	0.00199	6.74	0.80	0.61	0.151E+07
29.72	1214.72	1404.1	11.45	53562	7.79	0.00207	5.89	0.68	0.62	0.166E+07
29.74	1214.97	1413.9	12.24	53562	7.69	0.00199	8.89	0.78	0.61	0.180E+07
29.75	1215.11	1265.8	12.41	53562	7.99	0.00197	8.51	0.79	0.61	0.190E+07
29.81	1215.73	1335.9	11.42	53562	7.92	0.00204	8.89	0.81	0.62	0.187E+07
29.87	1216.26	1223.5	6.82	53562	8.19	0.00202	9.33	0.84	0.62	0.199E+07
29.92	1216.76	1070.8	10.02	53562	8.51	0.00194	9.51	0.86	0.62	0.189E+07
29.98	1217.24	959.0	8.12	53562	8.81	0.00189	9.70	0.87	0.62	0.185E+07
30.19	1219.28	868.3	11.49	53562	9.22	0.00191	10.55	0.91	0.63	0.176E+07
30.46	1222.39	1253.8	12.10	53562	8.29	0.00218	9.43	0.92	0.64	0.175E+07
30.82	1226.34	1233.2	11.15	53562	8.26	0.00211	9.01	0.95	0.63	0.174E+07
31.30	1231.76	1278.6	11.75	53562	8.25	0.00223	9.64	0.97	0.65	0.173E+07
31.52	1234.72	1588.4	10.32	53562	8.05	0.00272	11.10	1.04	0.69	0.174E+07

1

TIME = 239.74 HRS DT = 3600 SECS TIME STEP = 360

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1208.60	1678.6	10.50	52712	6.42	0.00140	7.41	0.46	0.51	0.529E+05
29.02	1210.14	1914.4	12.34	52712	6.28	0.00155	7.25	0.48	0.53	0.529E+05
29.22	1211.59	1720.8	12.99	52712	6.31	0.00137	5.32	0.50	0.50	0.490E+05
29.47	1212.99	973.2	10.65	52712	7.41	0.00110	3.70	0.50	0.48	0.333E+05
29.52	1213.00	619.1	10.26	52712	8.66	0.00103	4.07	0.58	0.49	0.555E+05
29.57	1213.28	685.0	10.50	52712	8.75	0.00121	5.20	0.87	0.52	0.830E+05
29.62	1213.68	762.9	9.11	52712	8.58	0.00131	4.75	0.64	0.53	0.105E+07
29.68	1214.43	1278.4	10.39	52712	7.38	0.00156	5.11	0.64	0.55	0.133E+07
29.70	1214.53	1324.4	10.88	52712	7.80	0.00198	6.74	0.94	0.61	0.155E+07
29.72	1214.81	1473.7	11.62	52712	7.58	0.00205	7.24	0.92	0.61	0.169E+07
29.74	1215.02	1413.8	12.03	52712	7.63	0.00199	7.44	0.92	0.61	0.183E+07
29.75	1215.17	1269.8	12.34	52712	7.89	0.00193	8.04	0.84	0.61	0.193E+07
29.81	1215.77	1339.8	11.40	52712	7.92	0.00201	8.81	0.86	0.61	0.190E+07
29.87	1216.30	1223.7	6.79	52712	8.09	0.00199	8.55	0.92	0.62	0.191E+07
29.92	1216.79	1071.3	9.96	52712	8.43	0.00192	8.77	0.94	0.61	0.192E+07
29.93	1217.27	968.0	8.07	52712	8.72	0.00187	9.19	0.85	0.62	0.189E+07

30.45	1222.35	1249.3	12.23	52712	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30.82	1226.29	1232.4	11.09	52712	8.22	0.00213	9.00	0.95	0.64	0.178E+07
31.30	1231.75	1277.3	11.69	52712	8.21	0.00222	8.58	0.96	0.64	0.177E+07
31.52	1234.68	1580.6	10.28	52712	7.99	0.00270	11.10	1.02	0.69	0.179E+07

1

TIME = 249.74 HRS DT = 3600 SECS TIME STEP = 370

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1208.50	1677.1	10.39	51193	6.37	0.00142	7.19	0.45	0.51	0.548E+06
29.02	1210.06	1909.0	12.24	51193	6.23	0.00157	6.86	0.48	0.53	0.549E+06
29.22	1211.49	1703.3	12.81	51193	6.31	0.00141	5.13	0.51	0.51	0.511E+06
29.47	1212.94	973.0	10.51	51193	7.37	0.00113	3.77	0.60	0.49	0.358E+06
29.52	1212.94	620.1	9.83	51193	8.75	0.00111	4.14	0.75	0.50	0.694E+06
29.57	1213.30	685.6	10.42	51193	8.59	0.00119	5.07	0.77	0.51	0.859E+06
29.62	1213.66	763.1	8.79	51193	8.53	0.00134	4.75	0.88	0.54	0.108E+07
29.68	1214.41	1278.4	10.01	51193	7.36	0.00160	4.85	0.63	0.56	0.137E+07
29.70	1214.55	1306.2	10.56	51193	7.52	0.00187	6.96	0.92	0.59	0.158E+07
29.72	1214.75	1284.0	11.22	51193	7.61	0.00180	5.80	0.85	0.59	0.172E+07
29.74	1214.95	1388.0	11.77	51193	7.59	0.00198	7.66	0.89	0.61	0.186E+07
29.75	1215.11	1259.5	12.14	51193	7.86	0.00195	7.59	0.81	0.61	0.197E+07
29.81	1215.72	1326.7	11.29	51193	7.75	0.00200	8.23	0.81	0.61	0.194E+07
29.87	1216.25	1221.6	6.70	51193	7.99	0.00199	8.42	0.82	0.61	0.195E+07
29.92	1216.74	1064.0	9.83	51193	8.33	0.00190	8.34	0.82	0.61	0.196E+07
29.98	1217.22	964.2	7.95	51193	8.62	0.00197	8.73	0.86	0.61	0.193E+07
30.19	1219.23	874.1	11.25	51193	8.98	0.00187	9.38	0.90	0.62	0.184E+07
30.45	1222.26	1242.7	12.30	51193	8.13	0.00215	8.54	0.92	0.64	0.182E+07
30.82	1226.20	1230.9	10.99	51193	8.14	0.00214	8.03	0.94	0.64	0.182E+07
31.30	1231.69	1273.2	11.58	51193	8.11	0.00221	8.54	0.94	0.64	0.181E+07
31.52	1234.60	1562.9	10.20	51193	7.93	0.00269	11.10	1.00	0.69	0.183E+07

1

TIME = 259.74 HRS DT = 3600 SECS TIME STEP = 380

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1208.40	1675.5	10.26	49655	6.33	0.00145	6.81	0.47	0.52	0.567E+06
29.02	1209.99	1903.8	12.14	49655	6.17	0.00158	6.57	0.49	0.53	0.569E+06
29.22	1211.38	1649.1	12.53	49655	6.32	0.00142	5.08	0.50	0.51	0.532E+06
29.47	1212.85	972.7	10.30	49655	7.38	0.00118	3.89	0.55	0.49	0.382E+06
29.52	1212.89	621.4	9.54	49655	8.70	0.00114	4.16	0.51	0.51	0.721E+06
29.57	1213.29	686.2	10.24	49655	8.41	0.00115	4.06	0.61	0.51	0.887E+06
29.62	1213.62	763.2	8.56	49655	8.44	0.00135	5.70	0.92	0.54	0.111E+07
29.68	1214.33	1276.8	9.64	49655	7.44	0.00173	4.48	0.68	0.57	0.140E+07
29.70	1214.54	1264.1	10.00	49655	7.37	0.00167	4.31	0.72	0.56	0.161E+07
29.72	1214.67	1276.1	10.45	49655	7.62	0.00187	6.93	0.90	0.59	0.176E+07
29.74	1214.86	1270.4	11.35	49655	7.69	0.00191	6.83	0.73	0.60	0.189E+07
29.75	1215.09	1269.3	11.92	49655	7.58	0.00191	7.39	0.72	0.60	0.200E+07
29.81	1215.64	1309.0	11.11	49655	7.74	0.00204	7.53	0.92	0.62	0.197E+07
29.87	1216.19	1218.6	6.59	49655	7.92	0.00200	7.85	0.83	0.62	0.198E+07
29.92	1216.68	1055.5	9.69	49655	8.25	0.00199	8.06	0.84	0.61	0.199E+07
29.98	1217.16	950.4	7.84	49655	8.51	0.00185	8.40	0.85	0.61	0.196E+07
30.19	1219.17	875.6	11.09	49655	8.85	0.00186	9.00	0.89	0.62	0.189E+07
30.45	1222.17	1232.8	12.34	49655	8.04	0.00213	8.34	0.90	0.63	0.186E+07
30.82	1226.10	1229.5	10.89	49655	8.06	0.00215	8.08	0.92	0.63	0.186E+07
31.30	1231.52	1268.6	11.46	49655	8.02	0.00221	8.52	0.92	0.64	0.185E+07
31.52	1234.51	1544.9	10.11	49655	7.85	0.00267	11.10	0.98	0.68	0.187E+07

1

TIME = 269.74 HRS DT = 3600 SECS TIME STEP = 390

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1207.83	1652.2	9.73	41663	6.04	0.00153	7.16	0.44	0.52	0.585E+06
29.02	1209.49	1872.3	11.67	41663	5.84	0.00152	7.15	0.38	0.53	0.586E+06

29.47	1211.93	969.3	9.39	41663	7.19	0.00135	4.05	0.70	0.52	0.409E+05
29.52	1212.05	619.5	8.49	41663	8.22	0.00118	4.09	0.58	0.51	0.749E+05
29.57	1212.43	683.5	9.25	41663	8.07	0.00126	4.15	0.65	0.52	0.915E+05
29.62	1212.78	760.9	7.76	41663	8.14	0.00150	4.52	0.93	0.55	0.114E+07
29.68	1213.45	1175.1	8.74	41663	7.40	0.00192	5.66	1.02	0.60	0.143E+07
29.70	1213.65	1204.7	9.49	41663	7.50	0.00210	6.61	1.02	0.62	0.164E+07
29.72	1213.88	1217.3	8.45	41663	7.52	0.00213	6.83	0.79	0.62	0.179E+07
29.74	1214.12	1221.9	10.12	41663	7.48	0.00210	8.66	0.73	0.62	0.192E+07
29.75	1214.32	1059.6	11.05	41663	7.54	0.00179	7.41	0.64	0.58	0.203E+07
29.81	1214.86	1157.2	10.30	41663	7.69	0.00214	7.84	0.83	0.63	0.200E+07
29.87	1215.50	1195.3	5.92	41663	7.65	0.00220	8.51	0.82	0.63	0.201E+07
29.92	1216.05	1001.7	9.08	41663	7.89	0.00192	8.18	0.78	0.60	0.202E+07
29.99	1216.57	930.0	7.10	41663	8.00	0.00182	9.09	0.75	0.60	0.199E+07
30.19	1218.55	845.9	10.25	41663	8.31	0.00183	8.62	0.79	0.60	0.191E+07
30.46	1221.48	1155.4	11.80	41663	7.78	0.00222	8.35	0.95	0.64	0.190E+07
30.82	1225.56	1221.8	10.35	41663	7.56	0.00218	8.12	0.83	0.63	0.189E+07
31.30	1231.10	1211.8	10.89	41663	7.57	0.00217	8.28	0.83	0.63	0.189E+07
31.52	1233.94	1441.6	9.54	41663	7.61	0.00277	11.10	0.96	0.69	0.191E+07

1

TIME = 279.74 HRS DT = 3600 SECS TIME STEP = 400

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1206.91	1503.7	8.91	28872	5.30	0.00155	9.37	0.33	0.51	0.596E+05
29.02	1208.60	1816.6	10.85	28872	5.19	0.00172	8.35	0.28	0.52	0.595E+05
29.22	1209.80	1039.0	10.34	28872	5.13	0.00078	5.03	0.19	0.39	0.554E+05
29.47	1210.92	964.9	8.49	28872	5.98	0.00119	3.99	0.43	0.47	0.423E+06
29.52	1211.08	616.1	7.17	28872	6.75	0.00099	4.11	0.44	0.45	0.764E+05
29.57	1211.36	679.1	7.79	28872	6.78	0.00114	4.29	0.47	0.48	0.932E+05
29.62	1211.68	757.7	6.75	28872	6.85	0.00135	5.12	0.60	0.51	0.116E+07
29.68	1211.99	712.5	6.52	28872	7.18	0.00145	4.96	0.55	0.53	0.145E+07
29.70	1212.22	670.4	7.73	28872	6.99	0.00119	5.44	0.40	0.49	0.166E+07
29.72	1212.21	810.0	5.90	28872	7.76	0.00224	7.10	0.92	0.64	0.181E+07
29.74	1212.57	809.2	7.97	28872	7.30	0.00182	5.79	0.61	0.58	0.195E+07
29.75	1212.74	848.4	8.72	28872	7.49	0.00212	9.75	0.82	0.62	0.205E+07
29.81	1213.44	975.7	9.25	28872	7.30	0.00234	9.29	0.72	0.64	0.202E+07
29.87	1214.22	1142.8	5.33	28872	7.03	0.00254	10.95	0.71	0.65	0.203E+07
29.92	1214.86	933.9	8.12	28872	7.17	0.00207	9.28	0.65	0.61	0.204E+07
29.99	1215.48	892.5	5.41	28872	7.01	0.00181	8.11	0.60	0.59	0.201E+07
30.19	1217.43	791.6	8.76	28872	7.27	0.00174	7.96	0.62	0.57	0.193E+07
30.46	1220.25	1021.3	10.78	28872	7.13	0.00229	8.62	0.73	0.63	0.192E+07
30.82	1224.58	1207.5	9.38	28872	6.69	0.00232	8.17	0.70	0.62	0.191E+07
31.30	1230.11	1084.4	9.79	28872	6.72	0.00205	7.52	0.66	0.60	0.190E+07
31.52	1232.93	1173.1	8.43	28872	7.19	0.00285	11.10	0.90	0.69	0.193E+07

1

TIME = 289.74 HRS DT = 3600 SECS TIME STEP = 410

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1206.13	1562.5	8.17	18068	4.27	0.00137	9.08	0.17	0.46	0.600E+05
29.02	1207.12	702.4	9.38	18068	5.05	0.00082	8.41	0.15	0.39	0.599E+06
29.22	1208.13	1014.8	8.55	18068	4.70	0.00106	5.00	0.23	0.43	0.557E+06
29.47	1209.59	959.8	7.23	18068	5.07	0.00127	3.98	0.32	0.46	0.429E+06
29.52	1209.82	611.0	5.71	18068	5.37	0.00095	3.79	0.26	0.40	0.769E+05
29.57	1210.05	573.5	5.25	18068	5.56	0.00103	4.45	0.32	0.45	0.939E+05
29.62	1210.35	752.9	5.46	18068	5.72	0.00138	4.50	0.35	0.49	0.117E+07
29.68	1210.66	653.6	5.11	18068	6.05	0.00136	5.41	0.35	0.50	0.145E+07
29.70	1210.79	619.7	5.84	18068	6.14	0.00135	4.99	0.38	0.50	0.167E+07
29.72	1210.90	657.4	5.58	18068	6.44	0.00170	5.52	0.51	0.55	0.182E+07
29.74	1211.02	576.9	5.64	18068	6.81	0.00172	7.43	0.65	0.56	0.196E+07
29.75	1211.17	579.3	5.73	18068	7.05	0.00195	9.37	0.57	0.59	0.206E+07
29.81	1211.96	738.2	8.19	18068	6.81	0.00239	13.86	0.60	0.63	0.203E+07
29.87	1212.74	1025.1	4.63	18068	6.66	0.00342	17.24	0.64	0.72	0.204E+07

29.98	1214.31	849.9	4.13	18068	5.35	[illegible]	[illegible]	[illegible]	0.54	[illegible]
30.19	1216.18	728.2	7.25	18069	6.13	0.00165	7.14	0.45	0.54	0.194E+07
30.46	1218.44	598.0	8.95	18068	6.81	0.00184	8.80	0.55	0.57	0.193E+07
30.82	1223.30	1189.0	8.30	18068	6.38	0.00362	9.15	0.70	0.73	0.193E+07
31.30	1229.25	879.4	8.74	18068	5.43	0.00142	5.17	0.33	0.49	0.191E+07
31.52	1231.47	900.1	7.07	18068	6.85	0.00317	11.10	0.93	0.70	0.195E+07

1

TIME = 299.74 HRS DT = 3600 SECS TIME STEP = 420

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.83	1206.01	1556.2	8.07	16735	4.14	0.00135	9.13	0.16	0.45	0.602E+05
29.02	1206.98	700.0	9.19	16735	4.84	0.00079	7.47	0.15	0.38	0.601E+05
29.22	1207.97	1012.2	8.34	16735	4.59	0.00108	5.02	0.22	0.43	0.561E+05
29.47	1209.42	954.2	7.15	16735	4.83	0.00123	4.03	0.31	0.45	0.434E+05
29.52	1209.64	610.1	5.34	16735	5.32	0.00091	3.55	0.28	0.41	0.773E+05
29.57	1209.89	672.8	5.38	16735	5.47	0.00114	4.05	0.34	0.45	0.944E+06
29.62	1210.22	752.1	5.34	16735	5.55	0.00138	4.92	0.42	0.49	0.118E+07
29.68	1210.52	650.4	4.78	16735	5.01	0.00148	5.45	0.28	0.51	0.146E+07
29.70	1210.67	619.5	5.37	16735	6.02	0.00140	5.05	0.39	0.50	0.169E+07
29.72	1210.80	645.6	5.38	16735	6.24	0.00155	6.69	0.52	0.54	0.182E+07
29.74	1210.91	575.2	5.26	16735	6.50	0.00171	8.57	0.54	0.55	0.196E+07
29.75	1211.07	574.2	6.53	16735	6.80	0.00189	10.82	0.51	0.59	0.207E+07
29.81	1211.73	719.0	8.00	16735	6.60	0.00230	15.05	0.54	0.62	0.204E+07
29.87	1212.55	971.4	5.18	16735	6.27	0.00289	18.01	0.55	0.67	0.205E+07
29.92	1213.36	879.1	6.64	16735	6.16	0.00239	12.94	0.51	0.62	0.206E+07
29.98	1214.05	840.2	3.86	16735	5.84	0.00188	7.56	0.47	0.56	0.203E+07
30.19	1216.04	729.4	6.95	16735	5.98	0.00169	6.92	0.45	0.54	0.195E+07
30.46	1218.32	600.7	8.51	16735	5.58	0.00179	8.47	0.52	0.56	0.194E+07
30.82	1223.13	1186.9	8.38	16735	6.22	0.00368	10.71	0.67	0.73	0.194E+07
31.30	1229.11	832.0	8.41	16735	5.39	0.00142	5.38	0.36	0.49	0.192E+07
31.52	1231.34	880.2	6.94	16735	6.65	0.00309	11.10	0.86	0.69	0.196E+07

1

TIME = 300.74 HRS DT = 3600 SECS TIME STEP = 421

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.83	1206.00	1555.5	8.06	16601	4.12	0.00135	9.14	0.16	0.45	0.603E+05
29.02	1206.97	699.8	9.17	16601	4.82	0.00079	7.40	0.15	0.38	0.601E+06
29.22	1207.95	1012.0	8.32	16601	4.58	0.00109	5.03	0.22	0.43	0.561E+05
29.47	1209.41	953.2	7.15	16601	4.85	0.00122	4.03	0.30	0.45	0.434E+06
29.52	1209.62	610.1	5.31	16601	5.31	0.00092	3.61	0.28	0.41	0.773E+05
29.57	1209.87	672.7	5.83	16601	5.47	0.00115	4.16	0.35	0.45	0.945E+05
29.62	1210.20	752.1	5.35	16601	5.51	0.00136	4.63	0.37	0.49	0.118E+07
29.68	1210.50	650.2	4.77	16601	5.99	0.00147	5.27	0.49	0.51	0.145E+07
29.70	1210.64	619.0	5.30	16601	6.12	0.00149	5.14	0.40	0.52	0.169E+07
29.72	1210.79	644.7	5.36	16601	6.22	0.00154	6.79	0.43	0.54	0.182E+07
29.74	1210.91	575.2	5.29	16601	6.53	0.00166	8.02	0.44	0.55	0.196E+07
29.75	1211.06	573.5	6.51	16601	6.78	0.00189	10.87	0.51	0.58	0.207E+07
29.81	1211.72	716.7	7.98	16601	6.58	0.00229	15.04	0.53	0.62	0.204E+07
29.87	1212.54	963.2	5.23	16601	6.25	0.00285	17.96	0.54	0.66	0.205E+07
29.92	1213.33	878.2	6.61	16601	6.15	0.00240	12.90	0.51	0.62	0.206E+07
29.98	1214.03	839.3	3.84	16601	5.84	0.00190	7.58	0.47	0.56	0.203E+07
30.19	1216.03	729.4	6.92	16601	5.96	0.00169	6.91	0.45	0.54	0.195E+07
30.46	1218.30	599.8	8.57	16601	5.55	0.00178	8.45	0.51	0.55	0.194E+07
30.82	1223.11	1185.7	8.39	16601	6.21	0.00359	10.87	0.66	0.73	0.194E+07
31.30	1229.10	827.5	8.37	16601	5.38	0.00142	5.33	0.35	0.49	0.192E+07
31.52	1231.32	878.0	6.92	16601	6.63	0.00309	11.10	0.86	0.69	0.196E+07

ID
20 SECTION 31.30 TIME = 300.74 HRS WS =1229.10 WIDTH = 827.5

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y

1245.20	0.00	0.00	7959.2	1245.30	0.00	0.00	7999.0	1242.40	0.00	0.00	8027.1
1242.70	0.00	0.00	8305.3	1240.30	0.00	0.00	8705.8	1236.66	0.00	-0.04	8867.3
1235.61	0.00	-0.09	9104.0	1237.59	0.00	-0.02	9154.2	1235.60	0.03	-0.10	9275.7
1231.43	0.00	0.03	9394.2	1226.15	0.01	0.56	9699.6	1220.89	0.02	0.59	9713.8
1220.74	0.02	0.64	9786.3	1223.01	0.01	0.61	9835.9	1223.05	0.01	0.65	9977.3
1225.43	0.01	0.63	9942.0	1228.43	0.00	0.43	10000.0	1229.99	0.00	0.19	10036.2
1228.85	0.00	0.45	10184.4	1232.04	0.00	-0.15	10225.8	1232.55	0.00	-0.15	10375.2
1232.08	0.00	-0.12	10437.4	1227.63	0.01	0.83	10547.4	1231.51	0.00	0.11	10585.6
1229.91	0.00	0.41	10626.7	1222.94	0.01	1.34	10665.2	1226.49	0.01	5.79	10967.5
1257.24	0.00	-5.76	10911.9	1262.80	0.00	0.00	11065.2	1261.20	0.00	0.00	11234.1
1263.90	0.00	0.00	11423.0	1259.80	0.00	0.00	11596.1	1258.00	0.00	0.00	11611.9
1260.00	0.00	0.00	11647.0	1260.00	0.00	0.00	11685.5	1257.30	0.00	0.00	11702.1
1258.40	0.00	0.00	11720.4	1258.80	0.00	0.00	11752.7	1255.60	0.00	0.00	11766.8
1258.30	0.00	0.00	11815.4	1259.70	0.00	0.00	11936.5	1259.00	0.00	0.00	12047.1
1259.80	0.00	0.00	12118.1								

ID
19 SECTION 30.82 TIME = 300.74 HRS WS =1223.11 WIDTH = 1186.7

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1239.90	0.00	0.00	5271.2	1239.50	0.00	0.00	5795.2	1241.10	0.00	0.00	5956.4
1238.20	0.00	0.00	6357.4	1239.30	0.00	0.00	6383.9	1239.30	0.00	0.00	6409.9
1238.30	0.00	0.00	6442.0	1238.30	0.00	0.00	6633.6	1238.30	0.00	0.00	7017.6
1237.70	0.00	0.00	7620.1	1237.70	0.00	0.00	7992.2	1239.00	0.00	0.00	7912.9
1238.50	0.00	0.00	8404.2	1240.30	0.00	0.00	8448.4	1240.30	0.00	0.00	8499.0
1239.30	0.00	0.00	8870.1	1240.10	0.00	0.00	9221.8	1236.10	0.00	0.00	9406.9
1232.90	0.00	0.00	9470.5	1231.90	0.00	0.00	9514.0	1235.50	0.00	0.00	9569.2
1222.05	0.01	-4.15	9660.2	1222.10	0.00	-4.40	9727.5	1221.90	0.00	3.80	9769.5
1221.98	0.00	4.39	9954.0	1221.88	0.00	1.08	10000.0	1221.85	0.00	0.55	10346.2
1221.84	0.00	-0.46	10487.0	1214.70	-0.02	-1.30	10773.9	1227.34	0.00	-2.96	10873.4
1251.50	0.00	0.00	11136.3	1255.50	0.00	0.00	11229.9	1256.50	0.00	0.00	11511.6
1259.20	0.00	0.00	11740.2	1257.60	0.00	0.00	11773.3	1257.60	0.00	0.00	12053.0

ID
18 SECTION 30.46 TIME = 300.74 HRS WS =1218.30 WIDTH = 599.8

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1239.00	0.00	0.00	9300.0	1218.47	0.00	-1.53	9418.1	1215.70	0.00	-0.30	9539.9
1215.69	0.00	-0.31	9660.0	1209.75	0.02	0.75	9750.0	1209.75	0.02	0.75	9850.3
1217.54	-0.01	1.54	10000.1	1219.34	0.00	-0.66	10050.0	1219.49	0.00	-0.51	10200.3
1219.59	0.00	-0.41	10300.0	1219.98	0.00	-0.02	10399.8	1221.44	0.00	1.44	10549.1
1222.39	0.00	-1.61	10642.1	1229.32	0.00	1.32	10739.2	1232.00	0.00	0.00	10800.0

ID
17 SECTION 30.19 TIME = 300.74 HRS WS =1216.03 WIDTH = 729.4

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	9300.0	1217.81	0.00	-4.19	9563.1	1214.75	-0.01	0.75	9519.0
1213.64	0.01	1.64	9744.1	1209.13	0.01	2.13	9921.8	1209.13	0.01	2.13	10099.4
1210.95	0.01	0.95	10117.2	1213.38	0.01	-0.62	10154.0	1215.73	-0.02	-2.27	10315.1
1222.02	0.00	0.02	10543.5	1222.03	0.00	0.03	10721.2	1222.05	0.00	0.05	10898.8
1222.06	0.00	0.06	11076.5	1222.05	0.00	0.05	11254.1	1222.06	0.00	0.06	11431.8
1222.08	0.00	0.08	11609.4	1222.09	0.00	0.09	11787.1	1222.18	0.00	0.18	11965.4
1234.00	0.00	0.00	12089.1								

ID
16 SECTION 29.98 TIME = 300.74 HRS WS =1214.03 WIDTH = 933.3

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1226.80	0.00	0.00	9300.0	1215.57	0.00	-5.18	9561.8	1210.21	0.00	-2.54	9514.0
1210.21	0.00	-0.54	9744.1	1210.19	0.00	5.19	9921.8	1210.52	0.00	5.52	10099.4

[illegible]	0.00	-2.04	10543.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1219.34	0.00	-1.41	11075.5	1219.38	0.00	-1.37	11254.1	1219.43	0.00	-1.32	11431.8
1219.50	0.00	-1.20	11609.3	1220.49	0.00	-0.26	11789.3	1232.75	0.00	0.00	11911.4

ID
15 SECTION 29.92 TIME = 300.74 HRS WS =1213.33 WIDTH = 978.2

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1226.80	0.00	0.00	9300.0	1212.95	0.00	-7.79	9558.5	1211.27	-0.01	-1.48	9616.1
1210.87	-0.01	0.12	9744.2	1209.98	-0.01	5.20	9921.8	1210.19	-0.01	5.39	10099.4
1210.23	-0.01	1.47	10117.0	1211.19	-0.01	-1.56	10151.7	1206.72	0.00	-10.03	10323.7
1220.41	0.00	-0.34	10543.5	1220.45	0.00	-0.35	10721.2	1214.36	0.00	-6.39	10892.9
1220.40	0.00	-0.34	11075.5	1220.48	0.00	-0.27	11254.1	1220.55	0.00	-0.20	11431.8
1220.59	0.00	-0.21	11609.4	1220.57	0.00	-0.18	11787.1	1220.58	0.00	-0.07	11964.7
1220.90	0.00	0.15	12142.3	1221.19	0.00	0.44	12319.8	1222.05	0.00	1.25	12575.6
1232.75	0.00	0.00	12799.7								

ID
14 SECTION 29.87 TIME = 300.74 HRS WS =1212.54 WIDTH = 953.2

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1227.50	0.00	0.00	9200.0	1222.13	0.00	0.63	9593.2	1213.55	0.00	0.06	9750.0
1212.03	0.06	0.53	9938.7	1210.43	-0.02	5.87	10193.5	1207.33	-0.05	2.94	10448.8
1207.25	-0.05	-2.25	10474.5	1207.47	-0.05	-6.04	10525.5	1210.16	0.02	-7.34	10757.4
1221.80	0.00	0.30	11087.1	1221.81	0.00	0.31	11342.4	1221.92	0.00	0.32	11597.7
1221.93	0.00	0.33	11853.0	1221.94	0.00	0.34	12108.3	1221.95	0.00	0.35	12363.5
1221.96	0.00	0.37	12618.8	1221.98	0.00	0.38	12874.2	1221.89	0.00	0.39	13129.5
1221.90	0.00	0.40	13384.7	1221.91	0.00	0.41	13640.0	1223.22	0.00	1.72	14149.8
1233.50	0.00	0.00	14329.3								

ID
13 SECTION 29.81 TIME = 300.74 HRS WS =1211.72 WIDTH = 715.7

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.30	0.00	0.00	9300.0	1223.35	0.00	1.11	9900.1	1215.53	0.00	2.28	9994.1
1214.86	0.00	2.61	10135.2	1211.12	0.00	6.78	10455.9	1203.74	0.00	-0.55	10798.2
1205.98	0.00	-4.29	10831.7	1207.28	0.00	-6.97	10898.1	1213.19	0.00	-5.05	11205.5
1222.17	0.00	-0.08	11630.6	1222.24	0.00	-0.06	11963.5	1222.19	0.00	-0.06	12296.5
1222.20	0.00	-0.05	12629.5	1222.21	0.00	-0.04	12962.4	1222.22	0.00	-0.03	13295.3
1222.29	0.00	-0.01	13628.3	1222.24	0.00	-0.01	13961.2	1222.25	0.00	0.00	14294.2
1222.27	0.00	0.02	14627.1	1223.09	0.00	0.84	14959.6	1223.78	0.00	1.48	15625.1
1234.25	0.00	0.00	15859.0								

ID
12 SECTION 29.75 TIME = 300.74 HRS WS =1211.06 WIDTH = 573.5

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	8940.0	1220.57	0.00	0.57	8990.2	1220.56	0.00	0.56	9100.5
1220.04	0.00	0.04	9200.3	1219.52	0.00	-0.48	9300.0	1219.40	0.00	-0.60	9400.0
1219.35	0.00	-0.63	9470.0	1204.97	0.01	0.77	9550.9	1204.90	0.01	0.60	9700.0
1207.92	0.01	3.72	9805.3	1208.30	0.01	-3.60	9897.7	1204.56	0.01	-11.44	10013.1
1219.37	0.00	-0.63	10050.0	1219.41	0.00	-0.59	10120.0	1219.19	0.00	-0.41	10200.0
1208.91	0.01	-10.09	10291.5	1214.49	0.00	-4.01	10400.0	1211.22	0.00	-6.68	10495.8
1214.45	0.00	-2.95	10599.6	1211.45	0.00	-5.46	10697.0	1212.09	0.00	-4.21	10798.4
1214.38	0.00	-1.62	10959.5	1214.47	0.00	-1.53	10900.5	1216.26	0.00	0.25	11065.9
1216.85	0.00	-0.05	11199.8	1217.45	0.00	-0.05	11300.3	1219.25	0.00	1.05	11399.1
1220.09	0.00	1.19	11499.5	1220.56	0.00	1.06	11599.2	1220.97	0.00	0.97	11669.6
1244.00	0.00	0.00	11780.0								

ID
11 SECTION 29.74 TIME = 300.74 HRS WS =1210.91 WIDTH = 575.2

1222.39	0.00	0.00	8940.0	1220.05	0.00	11.05	8979.5	1219.73	0.00	10.73	9102.7
1205.84	0.04	-3.16	9182.0	1205.80	0.04	-3.20	9300.0	1205.71	0.04	-3.29	9380.8
1205.82	0.04	41.82	9459.8	1205.67	0.04	41.67	9572.1	1209.21	0.03	44.21	9550.5
1211.34	0.00	10.44	9738.5	1211.22	0.00	6.22	9823.6	1213.89	0.00	4.89	9963.3
1211.65	0.00	2.66	9919.4	1213.98	0.00	5.39	9998.0	1213.83	0.00	5.83	10071.2
1212.28	0.00	4.78	10152.6	1212.64	0.00	5.74	10237.8	1212.97	0.00	6.57	10327.5
1214.93	0.00	9.03	10403.5	1214.93	0.00	9.53	10486.7	1214.98	0.00	9.98	10537.4
1215.47	0.00	10.48	10550.1	1216.35	0.00	11.36	10710.2	1217.15	0.00	11.25	10920.1
1218.10	0.00	11.60	10902.2	1218.20	0.00	11.00	10984.5	1218.47	0.00	10.57	11059.0
1219.82	0.00	11.32	11148.1	1220.05	0.00	11.05	11212.5	1233.00	0.00	0.00	11302.2

ID
10 SECTION 29.72 TIME = 300.74 HRS WS =1210.79 WIDTH = 644.7

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1222.13	0.00	0.00	8940.0	1214.83	0.00	16.83	8953.9	1209.54	0.01	10.54	9099.4
1205.20	0.01	8.20	9200.0	1205.92	0.01	7.92	9291.7	1205.73	0.01	41.73	9354.7
1205.43	0.01	41.43	9444.3	1205.43	0.01	41.43	9514.0	1205.56	0.01	15.75	9577.0
1207.16	0.01	13.16	9643.7	1211.68	0.00	13.68	9676.5	1210.44	0.00	12.44	9723.2
1212.78	0.00	15.18	9776.0	1212.79	0.00	15.79	9842.4	1212.70	0.00	15.21	9909.8
1212.59	0.00	16.79	9975.1	1211.67	0.00	16.27	10046.8	1213.30	0.00	18.41	10107.5
1213.60	0.00	19.30	10174.6	1214.50	0.00	20.50	10205.1	1214.79	0.00	20.79	10240.9
1214.81	0.00	20.81	10350.9	1214.83	0.00	19.93	10439.9	1215.48	0.00	19.98	10504.9
1215.97	0.00	19.77	10572.4	1216.05	0.00	19.15	10639.0	1217.58	0.00	20.08	10700.0
1217.76	0.00	19.76	10758.0	1222.13	0.00	0.00	10924.4				

ID
9 SECTION 29.70 TIME = 300.74 HRS WS =1210.64 WIDTH = 519.0

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1220.86	0.00	0.00	8940.0	1205.51	0.02	18.51	8940.2	1205.35	0.02	18.36	9100.0
1205.35	0.02	18.35	9202.5	1205.35	0.02	41.35	9249.6	1205.36	0.02	41.36	9316.4
1205.40	0.02	42.40	9358.4	1205.70	0.02	27.80	9415.5	1208.81	0.01	25.81	9465.0
1208.65	0.01	21.65	9489.8	1208.92	0.01	21.82	9525.2	1210.95	0.00	24.36	9565.0
1212.29	0.00	26.29	9613.6	1212.46	0.00	25.95	9653.1	1212.45	0.00	27.55	9712.7
1212.43	0.00	29.03	9762.5	1212.83	0.00	29.93	9811.7	1212.96	0.00	29.56	9961.3
1212.99	0.00	29.99	9991.0	1213.00	0.00	30.00	9910.8	1212.98	0.00	29.99	9992.5
1213.04	0.00	29.14	10059.2	1213.11	0.00	28.61	10108.9	1213.96	0.00	28.76	10158.9
1214.58	0.00	28.68	10206.1	1214.59	0.00	28.09	10263.7	1216.21	0.00	29.21	10315.9
1220.86	0.00	0.00	10346.7								

ID
8 SECTION 29.68 TIME = 300.74 HRS WS =1210.50 WIDTH = 650.2

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	8800.0	1220.55	0.00	16.55	8829.9	1216.21	0.00	12.41	8904.3
1214.00	0.00	11.00	8907.8	1213.69	0.00	49.69	8932.9	1213.47	0.00	49.47	9000.0
1212.89	0.00	48.89	9099.8	1213.44	0.00	49.44	9200.0	1211.99	0.00	47.89	9299.1
1212.94	0.00	49.94	9400.0	1211.22	0.00	47.22	9498.7	1205.69	-0.05	41.69	9547.9
1205.91	-0.04	-6.09	9560.0	1205.91	-0.04	-6.09	9550.0	1205.95	-0.03	-6.04	9800.0
1205.98	-0.02	-6.02	9930.0	1205.99	-0.02	-10.01	10000.0	1206.04	-0.01	-9.96	10123.1
1216.67	0.00	0.67	10200.0	1216.72	0.00	0.72	10300.0	1216.76	0.00	0.76	10400.0
1216.81	0.00	0.81	10500.0	1216.95	0.00	0.95	10600.0	1216.89	0.00	0.89	10700.0
1217.33	0.00	1.34	10799.7	1217.65	0.00	1.65	10899.5	1218.52	0.00	2.52	10999.0
1219.42	0.00	3.43	11398.4	1220.55	0.00	4.55	11792.6	1228.00	0.00	0.00	11880.0

ID
7 SECTION 29.62 TIME = 300.74 HRS WS =1210.20 WIDTH = 752.1

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y

1205.28	0.02	0.28	8909.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.02	42.23	[illegible]
1205.33	0.02	42.32	9074.2	1205.21	0.02	42.21	9165.5	1206.15	0.02	42.14	9256.9
1205.23	0.02	42.23	9348.3	1206.18	0.02	42.18	9439.7	1204.87	0.02	40.88	9483.9
1205.23	0.02	-6.77	9536.9	1217.74	0.00	5.74	9576.8	1217.74	0.00	5.74	9713.9
1217.75	0.00	5.75	9832.7	1217.80	0.00	1.80	9895.7	1217.80	0.00	1.80	9988.0
1217.81	0.00	1.81	10079.4	1217.81	0.00	1.81	10170.8	1217.81	0.00	1.81	10262.2
1217.81	0.00	1.81	10353.6	1217.82	0.00	1.82	10445.0	1217.82	0.00	1.82	10536.4
1217.82	0.00	1.82	10627.8	1217.82	0.00	1.82	10719.2	1217.96	0.00	1.96	10810.4
1218.59	0.00	2.58	11175.5	1219.18	0.00	3.18	11534.8	1228.00	0.00	0.00	11614.8

ID
6 SECTION 29.57 TIME = 300.74 HRS WS =1209.87 WIDTH = 672.7

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	8800.0	1205.44	0.00	1.44	8804.5	1205.44	0.00	1.54	8895.3
1205.44	0.00	2.43	8900.4	1205.39	0.00	41.39	8909.8	1205.42	0.00	41.42	8965.5
1205.43	0.00	41.43	9048.3	1205.42	0.00	41.42	9131.1	1205.39	0.00	41.38	9213.9
1205.42	0.00	41.42	9296.7	1205.41	0.00	41.41	9379.4	1204.04	0.00	40.04	9419.4
1204.05	0.00	-7.95	9452.4	1216.51	0.00	4.51	9503.6	1216.51	0.00	4.51	9627.9
1216.51	0.00	4.51	9735.4	1216.59	0.00	0.59	9793.3	1216.59	0.00	0.59	9876.1
1216.59	0.00	0.59	9958.9	1216.59	0.00	0.59	10041.7	1216.59	0.00	0.59	10124.4
1216.59	0.00	0.59	10207.2	1216.59	0.00	0.59	10290.0	1216.59	0.00	0.59	10372.8
1216.59	0.00	0.59	10455.5	1216.60	0.00	0.59	10538.3	1216.73	0.00	0.73	10621.0
1216.96	0.00	0.96	10952.0	1217.40	0.00	1.40	11277.3	1228.00	0.00	0.00	11349.5

ID
5 SECTION 29.52 TIME = 300.74 HRS WS =1209.62 WIDTH = 610.1

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1228.00	0.00	0.00	8800.0	1204.45	0.02	0.46	8800.2	1204.44	0.02	0.63	8879.4
1204.43	0.02	1.43	8889.5	1204.43	0.02	40.43	8899.4	1204.42	0.02	40.42	8948.3
1204.40	0.02	40.40	9022.5	1204.44	0.02	40.44	9095.7	1204.45	0.02	40.45	9170.8
1204.46	0.02	40.46	9245.0	1204.45	0.02	40.45	9319.2	1204.33	0.02	40.33	9355.0
1204.34	0.02	-7.57	9388.9	1214.65	0.00	2.65	9430.5	1214.76	0.00	2.76	9541.7
1214.76	0.00	2.76	9638.1	1214.90	0.00	-1.10	9690.0	1214.90	0.00	-1.10	9764.2
1214.90	0.00	-1.10	9838.3	1214.90	0.00	-1.10	9912.5	1214.90	0.00	-1.10	9995.6
1214.90	0.00	-1.10	10060.8	1214.90	0.00	-1.10	10135.0	1214.90	0.00	-1.10	10209.1
1214.90	0.00	-1.10	10283.3	1214.90	0.00	-1.10	10357.5	1214.90	0.00	-1.10	10431.6
1214.94	0.00	-1.06	10729.3	1215.08	0.00	-0.92	11019.5	1228.00	0.00	0.00	11084.3

ID
4 SECTION 29.47 TIME = 300.74 HRS WS =1209.41 WIDTH = 953.2

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1230.00	0.00	0.00	9100.0	1203.52	0.01	-4.48	9139.6	1202.38	0.00	-1.62	9190.0
1202.40	-0.01	-0.60	9230.0	1202.39	-0.01	38.39	9243.0	1202.35	-0.01	38.35	9300.0
1202.30	-0.01	38.30	9400.0	1202.25	-0.01	38.25	9500.0	1207.72	0.00	43.72	9556.7
1208.10	0.00	4.10	9570.0	1208.16	0.00	0.16	9800.0	1208.17	0.00	0.17	9900.0
1208.22	0.01	0.22	10020.0	1209.52	0.00	-2.48	10089.8	1214.91	0.00	-1.09	10100.0
1215.47	0.00	-0.53	10600.0	1215.47	0.00	-0.53	11000.0	1215.47	0.00	-0.53	11550.3
1224.00	0.00	0.00	11730.0								

ID
3 SECTION 29.22 TIME = 300.74 HRS WS =1207.95 WIDTH = 1012.0

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1224.00	0.00	0.00	9150.0	1220.00	0.00	0.00	9210.0	1205.84	0.00	-1.16	9230.0
1206.39	0.00	-1.62	9400.0	1206.14	0.00	-1.86	9500.0	1205.90	0.00	-2.10	9600.0
1205.65	0.00	-2.36	9700.0	1205.39	0.00	-2.61	9800.0	1200.40	0.00	-3.60	9920.0
1199.64	0.00	-1.36	10000.0	1200.40	0.00	-3.60	10080.0	1204.90	0.00	-3.10	10200.3
1210.93	0.00	-1.02	10280.0	1211.00	0.00	-1.00	10400.1	1211.22	0.00	-0.78	10570.0
1211.28	0.00	-0.72	10700.0	1211.35	0.00	-0.65	10800.0	1211.38	0.00	-0.61	10900.0

ID
2 SECTION 29.02 TIME = 300.74 HRS WS =1206.97 WIDTH = 599.8

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1226.00	0.00	0.00	8740.0	1220.00	0.00	0.00	8970.0	1215.00	0.00	0.00	8900.0
1211.93	0.00	-0.07	8920.0	1207.86	0.00	-0.14	9150.0	1207.82	0.00	-0.18	9250.0
1207.76	0.00	-0.24	9400.0	1207.72	0.00	-0.29	9500.0	1207.67	0.00	-0.33	9600.0
1207.63	0.00	-0.37	9700.0	1207.59	0.00	-0.41	9800.0	1207.54	0.00	-0.46	9900.0
1202.85	0.00	-1.15	9970.0	1198.47	0.01	-1.53	10010.0	1197.80	0.01	-1.00	10080.0
1198.46	0.01	-1.54	10130.0	1202.95	0.00	-1.15	10190.0	1202.95	0.00	-1.05	10300.0
1203.05	0.00	-0.95	10400.0	1203.15	0.00	-0.85	10500.0	1203.24	0.00	-0.76	10500.0
1207.70	0.00	-0.30	10510.0	1207.82	0.00	-0.17	10920.0	1220.00	0.00	0.00	11000.0

ID
1 SECTION 28.83 TIME = 300.74 HRS WS =1206.00 WIDTH = 1555.5

Z	DZ	TDZ	Y	Z	DZ	TDZ	Y	Z	DZ	TDZ	Y
1220.00	0.00	0.00	8910.0	1208.22	0.00	0.22	8930.0	1204.29	0.00	0.29	8990.0
1204.28	0.00	0.28	9010.0	1204.25	0.00	0.25	9100.0	1204.21	0.00	0.21	9200.0
1204.17	0.00	0.17	9300.0	1204.13	0.00	0.13	9400.0	1204.09	0.00	0.09	9500.0
1204.05	0.00	0.05	9600.0	1204.01	0.00	0.01	9700.0	1203.97	0.00	-0.03	9800.0
1203.93	0.00	-0.07	9900.0	1203.89	0.00	-0.11	10000.0	1203.85	0.00	-0.15	10100.0
1203.82	0.00	-0.18	10170.0	1199.50	0.00	-0.50	10250.0	1197.94	0.00	-0.56	10320.0
1199.51	0.00	-0.49	10400.0	1203.81	0.00	-0.18	10450.0	1208.00	0.00	-0.01	10500.0
1211.91	0.00	-0.09	10550.0	1216.00	0.00	0.00	10990.0	1220.00	0.00	0.00	10940.0

1

TIME = 309.74 HRS DT = 3600 SECS TIME STEP = 430

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1205.89	1549.8	7.96	15401	3.99	0.00133	9.23	0.15	0.44	0.604E+06
29.02	1206.84	597.5	9.99	15401	4.63	0.00076	5.99	0.13	0.37	0.603E+06
29.22	1207.79	1009.5	8.13	15401	4.46	0.00110	5.07	0.21	0.43	0.562E+06
29.47	1209.25	943.6	7.04	15401	4.70	0.00120	4.02	0.27	0.45	0.437E+06
29.52	1209.46	609.3	5.02	15401	5.21	0.00095	3.73	0.27	0.42	0.777E+06
29.57	1209.73	572.0	5.60	15401	5.32	0.00115	4.15	0.31	0.45	0.949E+06
29.62	1210.06	751.4	5.16	15401	5.39	0.00139	4.74	0.39	0.49	0.119E+07
29.68	1210.37	647.5	4.80	15401	5.83	0.00149	5.57	0.42	0.51	0.147E+07
29.70	1210.51	616.9	5.03	15401	5.98	0.00152	5.67	0.39	0.52	0.169E+07
29.72	1210.66	630.4	5.15	15401	6.06	0.00162	5.95	0.41	0.53	0.183E+07
29.74	1210.78	570.3	5.03	15401	6.41	0.00171	8.61	0.45	0.55	0.197E+07
29.75	1210.95	568.5	5.33	15401	6.55	0.00183	11.14	0.47	0.57	0.209E+07
29.81	1211.58	696.3	7.92	15401	6.39	0.00219	14.74	0.49	0.60	0.205E+07
29.87	1212.33	873.8	5.61	15401	6.07	0.00251	16.35	0.50	0.63	0.206E+07
29.92	1213.07	862.5	6.14	15401	6.06	0.00246	13.08	0.50	0.62	0.207E+07
29.99	1213.78	830.4	3.59	15401	5.83	0.00205	7.97	0.48	0.59	0.203E+07
30.19	1215.99	728.8	6.65	15401	5.80	0.00170	6.95	0.44	0.54	0.195E+07
30.46	1218.17	590.9	8.24	15401	6.36	0.00175	8.34	0.48	0.55	0.194E+07
30.92	1222.96	1194.8	8.43	15401	6.06	0.00376	12.35	0.63	0.73	0.195E+07
31.30	1228.97	783.9	8.10	15401	5.29	0.00138	5.00	0.35	0.48	0.192E+07
31.52	1231.17	857.5	6.77	15401	6.48	0.00306	11.10	0.82	0.69	0.197E+07

1

TIME = 319.74 HRS DT = 3600 SECS TIME STEP = 440

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
28.83	1205.83	1546.9	7.92	14858	3.93	0.00133	9.40	0.15	0.44	0.606E+06
29.02	1206.78	696.4	8.89	14858	4.55	0.00075	5.53	0.13	0.37	0.604E+06
29.22	1207.73	1008.3	9.06	14858	4.40	0.00110	5.10	0.20	0.42	0.566E+06

29.57	1209.68	671.7	5.45	14858	5.28	0.00118	4.19	0.31	0.45	0.952E+06
29.62	1210.02	751.1	5.06	14858	5.34	0.00141	5.06	0.39	0.49	0.118E+07
29.63	1210.33	646.3	4.50	14858	5.80	0.00152	6.47	0.37	0.51	0.147E+07
29.70	1210.48	615.3	4.93	14858	5.90	0.00152	6.21	0.40	0.51	0.169E+07
29.72	1210.62	624.0	5.02	14858	6.04	0.00166	7.22	0.43	0.54	0.184E+07
29.74	1210.76	569.0	4.94	14858	6.32	0.00171	9.01	0.44	0.55	0.198E+07
29.75	1210.93	566.6	5.24	14858	6.43	0.00180	10.95	0.45	0.55	0.209E+07
29.81	1211.55	691.5	7.76	14858	6.23	0.00211	13.60	0.47	0.59	0.205E+07
29.87	1212.27	851.2	6.10	14858	5.91	0.00234	13.46	0.49	0.61	0.207E+07
29.92	1212.96	852.7	5.81	14858	5.98	0.00244	13.02	0.49	0.62	0.207E+07
29.98	1213.65	826.7	3.50	14858	5.80	0.00210	9.42	0.48	0.58	0.204E+07
30.19	1215.83	732.2	6.48	14858	5.75	0.00174	6.90	0.44	0.54	0.196E+07
30.45	1219.14	590.4	8.02	14858	5.26	0.00174	8.31	0.46	0.55	0.195E+07
30.82	1222.89	1183.9	8.53	14858	5.96	0.00373	13.91	0.61	0.72	0.195E+07
31.30	1228.92	754.1	7.91	14858	5.30	0.00141	4.81	0.37	0.49	0.193E+07
31.52	1231.13	852.2	6.73	14858	6.35	0.00297	11.10	0.76	0.68	0.198E+07

TIME = 329.74 HRS DT = 3600 SECS TIME STEP = 450

SECTION	W.S.ELEV. FT	WIDTH FT	DEPTH FT	Q CFS	V FPS	SLOPE	D50 MM	QS/Q 1000 PPM	FR	SED. YIELD C. Y.
29.83	1205.79	1544.9	7.90	14545	3.90	0.00133	9.58	0.15	0.44	0.609E+05
29.02	1206.74	695.7	9.80	14545	4.52	0.00075	6.27	0.13	0.37	0.505E+06
29.22	1207.70	1007.7	8.00	14545	4.37	0.00110	5.08	0.20	0.42	0.568E+06
29.47	1209.15	933.7	6.99	14545	4.59	0.00117	4.02	0.25	0.44	0.444E+05
29.52	1209.35	609.8	4.72	14545	5.24	0.00104	3.73	0.30	0.43	0.783E+05
29.57	1209.65	671.4	5.35	14545	5.28	0.00121	4.32	0.33	0.45	0.956E+06
29.62	1210.01	751.0	5.00	14545	5.30	0.00142	5.12	0.34	0.49	0.119E+07
29.53	1210.32	645.8	4.43	14545	5.77	0.00154	6.72	0.41	0.52	0.147E+07
29.70	1210.47	615.9	4.81	14545	5.92	0.00158	6.08	0.39	0.52	0.169E+07
29.72	1210.63	622.9	4.97	14545	5.98	0.00165	7.35	0.40	0.53	0.184E+07
29.74	1210.76	569.7	4.89	14545	6.27	0.00171	9.93	0.44	0.55	0.198E+07
29.75	1210.93	566.0	5.19	14545	6.35	0.00178	10.35	0.45	0.56	0.209E+07
29.81	1211.55	691.0	7.73	14545	6.13	0.00205	12.12	0.47	0.59	0.206E+07
29.87	1212.25	847.8	6.09	14545	5.92	0.00227	12.14	0.48	0.60	0.207E+07
29.92	1212.91	939.2	5.52	14545	5.99	0.00234	12.95	0.49	0.61	0.208E+07
29.99	1213.59	824.7	3.45	14545	5.76	0.00212	8.72	0.48	0.59	0.204E+07
30.19	1215.79	736.6	6.34	14545	5.73	0.00179	7.02	0.45	0.54	0.196E+07
30.45	1218.14	591.9	7.85	14545	6.20	0.00174	8.30	0.46	0.55	0.195E+07
30.82	1222.84	1183.3	8.65	14545	5.99	0.00367	15.06	0.59	0.72	0.196E+07
31.30	1228.90	750.9	7.77	14545	5.33	0.00145	4.73	0.39	0.49	0.193E+07
31.52	1231.12	852.0	6.72	14545	6.24	0.00288	11.10	0.71	0.66	0.199E+07

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*                                                                       *
*                    SUMMARY OUTPUT FOR FLUVIAL-12                      *
*                                                                       *
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APPENDIX F

BANK PROTECTION TOE DOWN AND RIPRAP DESIGN COMPUTATIONS

Calc. CMG 11/3/88
CHKD BY JMW 11-5-88

Safety Factor Method for Rip-Rap Design
(from Simons & Senturk, Sediment Transport Technology, page 433)

Computation of Reference Velocity

$$\frac{V_r}{V} = \frac{3.4}{\ln(12.21\ y_o/K)} \qquad \text{(eq. 7.97)}$$

where V_r = reference velocity (fps) =
V = mean velocity (fps) = 11.60 fps (from HEC II)
y_o = depth of flow (ft) = 19.99 ft
K = mean grain size diameter = 1.00 ft

$$\frac{V_r}{11.60} = \frac{3.4}{\ln\left(12.21\left(\frac{19.99}{1.00}\right)\right)}$$

$$\frac{V_r}{11.60} = 0.6185$$

$$V_r = 7.17 \text{ fps}$$

Calc. CMG 11/3/88
CHKD BY SMW 11-5-88

$$n = \frac{0.30\ U_r^2}{(S_s - 1)\,g\,K}$$ Eq 7.95

where,

n = stability number
U_r = reference velocity (ft/sec) = 7.17 ft/sec
S_s = specific weight of sediment particle = 2.65
g = gravitational acceleration (ft/sec^2) = 32.2 ft/sec^2
K = effective rock size = 1.00 ft

$$n = \frac{0.30 \times (7.17)^2}{(2.65-1)\,32.2 \times 1.00}$$

$n = 0.2903$

Calc. CMG 11/3/88
CHKD BY JMW 11-5-88

$$B = \tan^{-1}\left(\frac{\cos\lambda}{\frac{2\sin\theta}{n\tan\phi} + \sin\lambda}\right)$$ Eq. 7.58

where

B = angle defined on Fig 7.9
λ = angle defined on Fig 7.9 = 48° (impingement)
ϕ = angle of repose of rip-rap (degrees) = 33° (roundstone)
θ = embankment sideslope (degrees) = 14.0° (4:1)

$$B = \tan^{-1}\left(\frac{\cos 48^\circ}{\frac{2\sin 14^\circ}{0.2903\tan 33^\circ} + \sin 48^\circ}\right)$$

$$B = \tan^{-1} 0.2022$$

$$B = 11.43^\circ$$

Calc. CMG 11/3/88
CHKD BY JMW 11-5-88

$$n' = n\left(\frac{1+\sin(\lambda+B)}{2}\right)$$ Eq 7.60

where

n' = stability number for the particles on the embankment sideslope

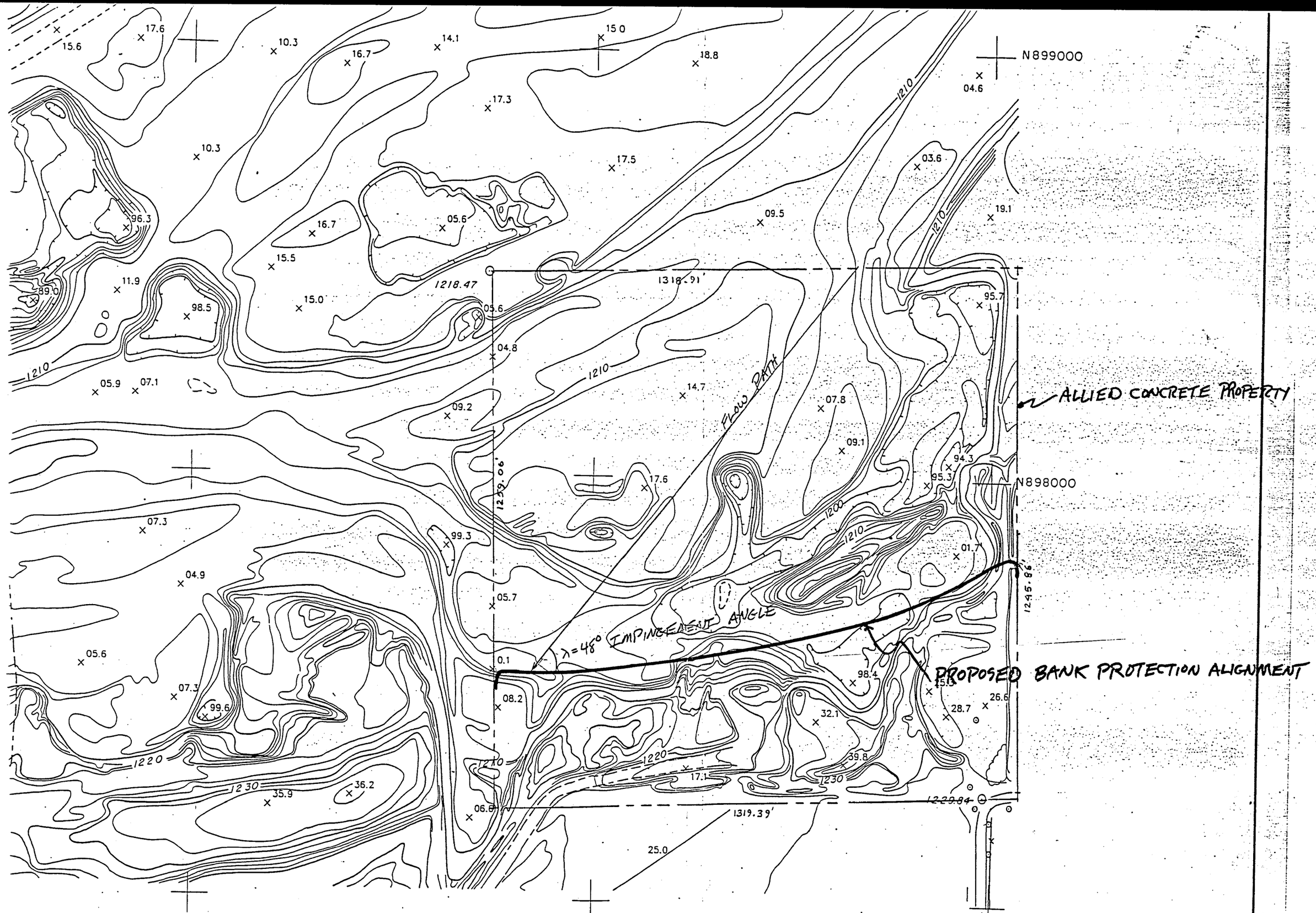
$$n' = 0.2903\left(\frac{1+\sin(48^\circ+11.43^\circ)}{2}\right)$$

$$n' = 0.2701$$

$$SF = \frac{\cos\theta \tan\phi}{n' \tan\phi + \sin\theta \cos B}$$ Eq. 7.57

$$SF = \frac{\cos 14^\circ \tan 33^\circ}{0.2701 \tan 33^\circ + \sin 14^\circ \cos 11.43^\circ}$$

$$SF = 1.53$$


N899000
N898000
ALLIED CONCRETE PROPERTY
PROPOSED BANK PROTECTION ALIGNMENT
λ=48° IMPINGEMENT ANGLE
FLOW PATH
1218.47
1318.91'
1259.06'
1245.86'
1319.39'
1229.84
1210
1200
1220
1230
15.6
17.6
10.3
16.7
14.1
15.0
18.8
17.3
17.5
04.6
03.6
19.1
96.3
05.6
09.5
15.5
11.9
89.0
98.5
15.0
05.6
04.8
95.7
05.9
07.1
09.2
14.7
07.8
09.1
94.3
95.3
17.6
07.3
99.3
04.9
05.7
01.7
05.6
07.3
99.6
0.1
08.2
98.4
15.3
26.6
28.7
32.1
39.8
17.1
35.9
36.2
06.8
25.0

Calc: CMG 11/11/88
CHKD BY JMW 11-22-88

7.4.1.4 Riprap gradation and placement

Riprap gradation should follow a smooth size distribution curve such as that shown in Fig. 7.19. The ratio of maximum size to median size D_{50} should be about 2.0 and the ratio between median size and the 20 percent size should also be about 2.0. This means that the largest stones would be about 6.5 times the weight of the median size and small sizes would range down to gravels.

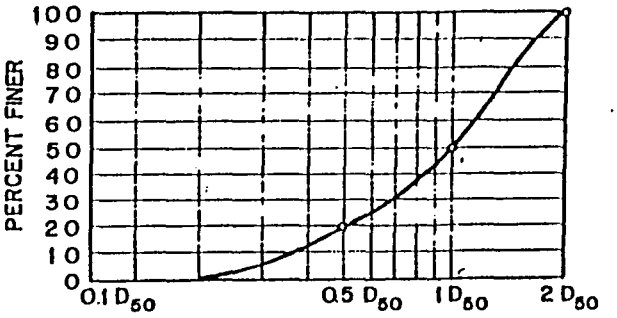


Fig. 7.19 Suggested gradation for riprap.

With distributed size range, the interstices formed by the larger stones are filled with the smaller sizes in an interlocking fashion, preventing formation of open pockets. Riprap consisting of angular stones are more suitable than rounded stones. Control of the gradation of the riprap is almost always made by visual inspection.

Riprap should be hard, dense and durable to withstand long exposure to weathering. Visual inspection is most often adequate, to judge quality, but laboratory tests may be made to aid the judgment of the field inspector.

Riprap placement is usually by dumping directly from trucks. If riprap is placed during construction of the embankment, rocks can be dumped directly from trucks from the top of the embankment. Rock should never be placed by dropping down the slope in a chute or pushed downhill with a bulldozer. These methods result in segregation of sizes. With dumped riprap there is a minimum of expensive hand work. Poorly graded riprap with slab-like rocks require more work to form a compact protective blanket without large holes or pockets. Draglines with orange peel buckets, backhoes and other power equipment can also be used advantageously to place the riprap.

Diameter	Percent Finer	Stone Weight Limit
$2D_{50}$ = 2.0 ft	100%	691. lbs.
D_{50} = 1.0 ft	50%	86. lbs
$0.5D_{50}$ = 0.5 ft	20%	11. lbs
$0.1D_{50}$ = 0.1 ft	0%	0.09 lbs

Calc CMG 11/11/88
CHKD BY JMW 11-22-88

Stone Weight Calculations

$\gamma_s = 165 \text{ lbs}/ft^3 = 2.65 \times 62.4$

Diameter	Volume	Weight
2.0 ft	4.19 ft^3	691. lbs
1.0 ft	0.52 ft^3	86. lbs
0.5 ft	0.07 ft^3	11. lbs
0.1 ft	0.0005 ft^3	0.09 lbs

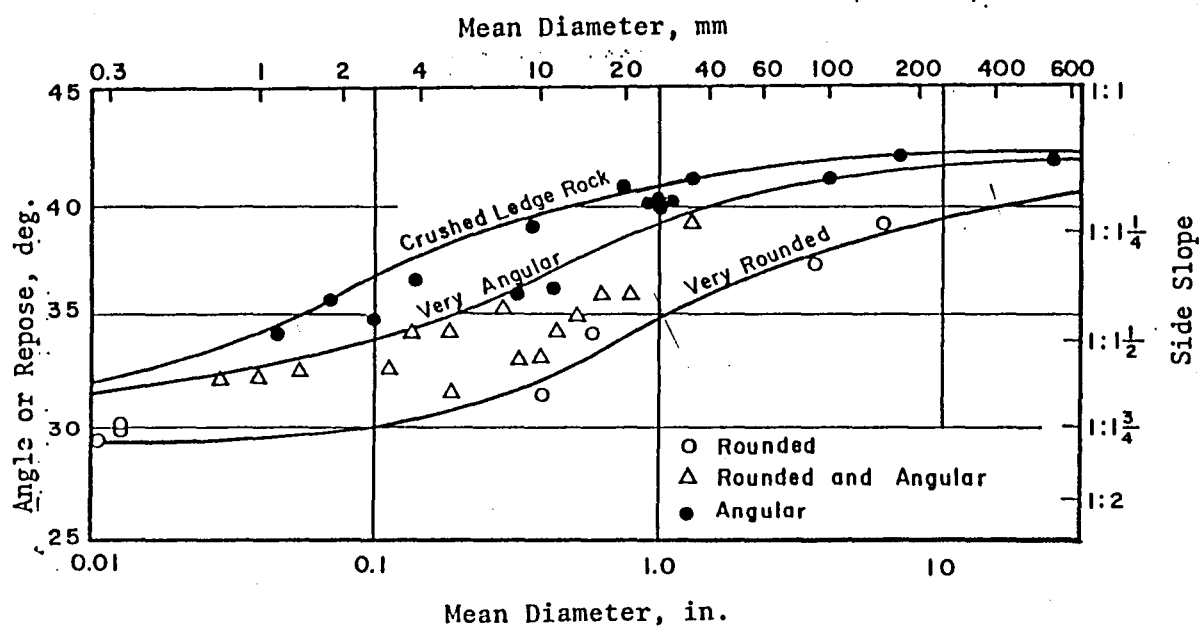


Fig. 3.7.3 Angle of repose.

Table 2-5 Representative values for angle of internal friction ϕ

	Type of test*		
Soil	Unconsolidated-undrained U	Consolidated-undrained CU	Consolidated-drained CD
Gravel			
Medium size	40–55°		40–55°
Sandy	35–50°		35–50°
Sand			
Loose dry	28–34°		
Loose saturated	28–34°		
Dense dry	35–46°		43–50°
Dense saturated	1–2° less than dense dry		43–50°
Silt or silty sand			
Loose	20–22°		27–30°
Dense	25–30°		30–35°
Clay	0° if saturated	3–20°	20–42°

* See a laboratory manual on soil testing for a complete description of these tests, e.g., Bowles (1978).

obtained. In order to secure a more reliable design for stable channels in such material, a study was made of the relation of hydraulic roughness to the particle size of canal material. The first step in this study consisted of a review of all available pertinent literature. The data from the experiments performed by the USBR on the flow in the San Luis Valley canals were also included. These studies showed that the hydraulic roughness of canals, as expressed by the roughness factor, n, in the Manning formula, increases as the size of the material becomes larger. The results of these studies have been reported in detail.[15] Briefly stated, the roughness values can be expressed as[17]

$$n = \frac{K^{1/6}_{50}}{44.4} \qquad (2)$$

in which K_{50} is the median sieve size in inches. It should be noted that the median size of the material on the bed was considerably larger than that of the material through which the canal was constructed because of the washing out of the fine material from between the larger particles. In designing a canal it is therefore necessary to estimate what the bed composition will be after the fine material has been washed out by the flowing water. Because the value of n increases with the one-sixth power of the diameter, a high degree of accuracy in determining the diameter is not necessary. A comparison of the roughness of the test sections with the size of the material through which the canals were constructed shows that the roughness can be expressed as

$$n = \frac{K^{1/6}_{25}}{39} \qquad (3)$$

in which K_{25} is the sieve diameter in inches, of which 25% of the material was larger. The canal sections from which these roughness values were obtained were especially uniform; for design purposes the roughness in the Manning formula indicated by the relation developed from the San Luis Valley tests probably should be increased by approximately 15%. Eq. 3 is applicable only to coarse, noncohesive material, where the shear values are high enough to remove the fine material. If the shear values are low, the roughness will be smaller than Eq. 3 indicates. A study was also made which showed that the roughness is a function of the ratio of the size of the particle to the hydraulic radius. The data, in general, resulted in

$$26\,n = \left(\frac{K_{35}}{R}\right)^{1/6} \qquad (4)$$

in which K_{35} is the sieve size of the material forming the bed of the canals of which 35% of the material is larger and R is the hydraulic radius.

Limiting Tractive Forces from Limiting Velocities

The data for critical tractive forces obtained from laboratory experiments are applicable to the case of coarse, noncohesive material, but experience has shown that canals can resist materially higher values of tractive force than that which would start movement in fine, noncohesive material. For the design of

[17] "Beitrage zur Frage der Geschwindigeckformal und der Rauigkeitszahlen für Strom Kanaele und geschloessene Leitungen," by K. Strickler, *Mitteilungen No. 16*, des Amtes für Wasserwirtahaft, Bern, Switzerland, 1923.

canals in this material, therefore, something more than determinations from laboratory studies is necessary. No laboratory data are available for limiting tractive forces in cohesive material. For both of these cases, it would be desirable if limiting tractive forces could be determined from observations on actual canals. Although studies of this nature are being (as of 1952) conducted by the USBR, sufficient information for this purpose has not yet been accumulated.

Until field studies of canals in fine, noncohesive and cohesive materials can be made using the tractive-force principle, the only method of determining limiting tractive-force values for such canals is from the limiting velocities which these canals will sustain. Much information concerning such velocities has been accumulated. As velocity is not a completely rational parameter for determining scour, these velocity data are not entirely satisfactory; by an intelligent utilization of them, however, valuable information can be obtained for use in scour analysis by the tractive-force method. An attempt has therefore been made to analyze the data on permissible velocities

TABLE 6.—Comparison of B. A. Etcheverry's Maximum Allowable Velocities with Values of the Tractive Force

Material	Value of n	Velocity, in feet per second	Tractive force, in pounds per square foot
Very light pure sand of quicksand character	0.020	0.75 to 1.00	0.006 to 0.011
Very light loose sand	0.020	1.00 to 1.50	0.011 to 0.025
Coarse sand or light sandy soil	0.020	1.50 to 2.00	0.025 to 0.045
Average sandy soil	0.020	2.00 to 2.50	0.045 to 0.070
Sandy loam	0.020	2.50 to 2.75	0.070 to 0.084
Average loam, alluvial soil, volcanic ash	0.020	2.75 to 3.00	0.084 to 0.100
Firm loam, clay loam	0.020	3.00 to 3.75	0.100 to 0.157
Stiff clay soil, ordinary gravel soil	0.025	4.00 to 5.00	0.278 to 0.434
Coarse gravel, cobbles, and shingles	0.030	5.00 to 6.00	0.627 to 0.903
Conglomerate, cemented gravel, soft slate, tough hardpan, soft sedimentary rock	0.025	6.00 to 8.00	0.627 to 1.114

in canals, as presented in the available publications, and to determine from the values of limiting velocities the values of the tractive force which they represent.

The three sources of systematic data available (as of 1952) on permissible velocities in canals which will be safe against scour are those of B. A. Etcheverry,[18] Messrs. Fortier and Scobey,[9] and the data obtained in Russia[11] which is shown in Tables 1 through 4. The data given by Mr. Etcheverry are shown in Table 6. These data are not related to the size of canals. The data obtained by Messrs. Fortier and Scobey are given in Table 7. These data are for "a depth of 3 feet or less;" Messrs. Fortier and Scobey suggest[9] that, for depths exceeding 3 ft, a mean velocity greater by 0.5 ft per sec may be allowed. They also state that the values are applicable to canals "with long tangents predominating throughout their length," and that for canals in sinuous alinement a reduction of about 25% is recommended. These values are for canals which have been "aged," or brought up to capacity gradually over a considerable period of time. Table 7 also gives values which Messrs. Fortier and Scobey recommended for use when the water transports colloidal silts.

[18] "Irrigation Practice and Engineering," by B. A. Etcheverry, McGraw-Hill Book Co., Inc., New York, N. Y., Vol. II, 1915, p. 57.

by a limited number of laboratory investigations and observations on a large number of stock piles of various sizes of material at gravel-washing plants.

The results of the studies made in the laboratory are given in Fig. 4. These experiments showed that a considerable range of values could be obtained in repetitive tests. Time was not available, however, to make a sufficient number of observations to obtain accurate average values; the determinations made are therefore subject to considerable scatter. The results showed that, for the larger sizes, the angles were not materially different for the various conditions of stacking in air or water, but for the sand sizes these conditions had more effect. The average results of all observations of the angle of repose of stock piles at gravel-washing plants are shown in Fig. 4(*d*). Although these data indicate

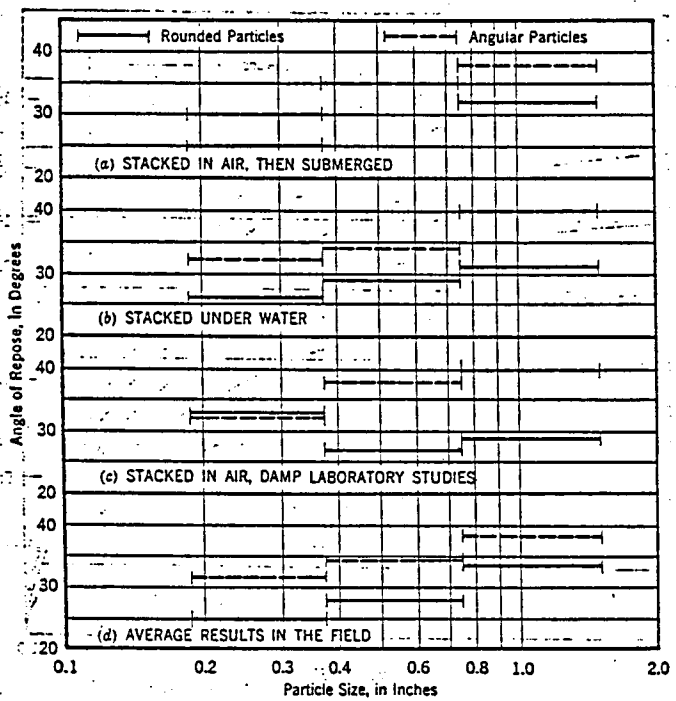


FIG. 4.—OBSERVATIONS OF THE ANGLE OF REPOSE OF COARSE, NONCOHESIVE MATERIAL

that the angle of repose increases with both size and angularity, the data scatter widely and are insufficient in number to determine closely any quantitative relations.

For use in design (until more exact relationships can be determined) Fig. 5 is presented, giving values of the angle of repose for material greater than 0.2 in. in diameter for various degrees of roundness. In Fig. 5 the angles of repose have been somewhat arbitrarily limited to a maximum value of 41° for very angular material, and 39° for very rounded material. This limitation was believed necessary to secure conservative designs because of the lack of data on angles of repose of the larger-sized material.

HYDRAULIC ROUGHNESS OF CANALS IN NONCOHESIVE MATERIAL

Measurements of flow of water in channels have demonstrated that the hydraulic roughness of canals in coarse, noncohesive material changes appreciably with the size of material involved. When designing canals in such

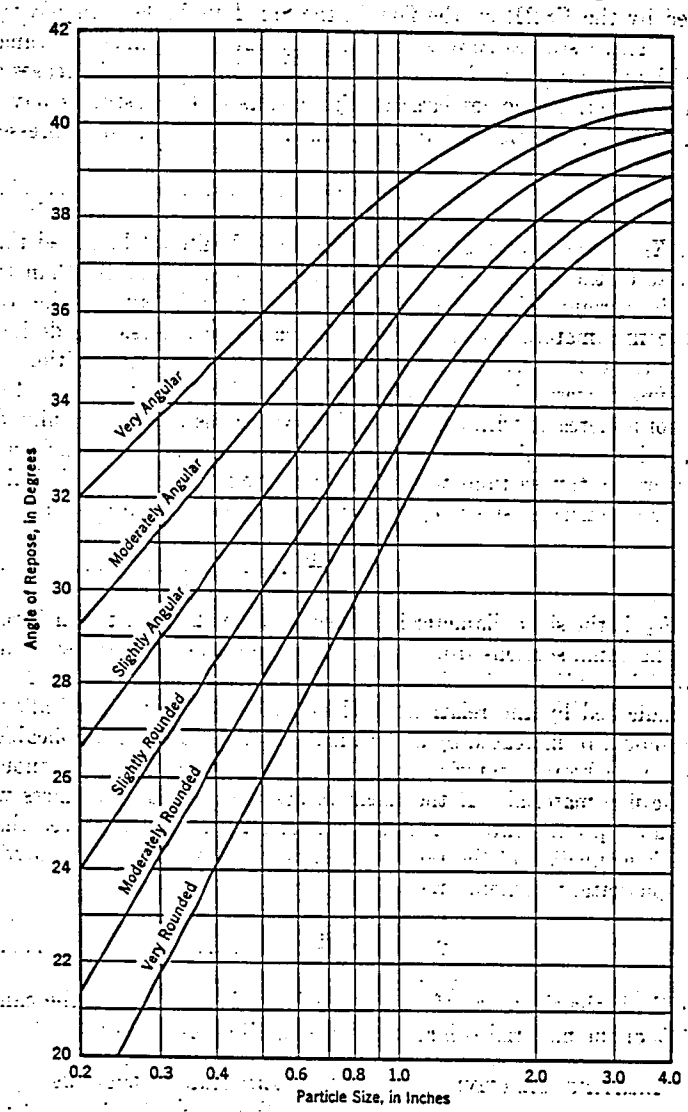


FIG. 5.—ANGLE OF REPOSE OF NONCOHESIVE MATERIAL

material, it is therefore important that this fact be considered if correct predictions of the canal-discharge capacity are to be obtained. It is equally important that the slopes be accurately estimated if reliable values of the tractive force which will act on the sides and bottom of the channel are to be

stable, straight, regular in section, and are steep enough to give high velocities and tractive forces. In general, they furnish an unusually complete opportunity for experimentation.

It was expected that the water with high tractive forces, in flowing down these canals, would remove all the material below a certain size; it was also expected that this size would be indicated in the mechanical analysis of the material on the canal beds. This size would be that moved by the tractive force which had acted in these canals. This expectation was not realized, however, as the smaller particles were shielded by the larger ones, and a critical size could not be determined. The tractive forces acting in these canals were therefore compared with the composition of the material through which the canals were constructed. The size used for comparison was that size of which 25% (by weight) of the material was larger. The tractive force used was that

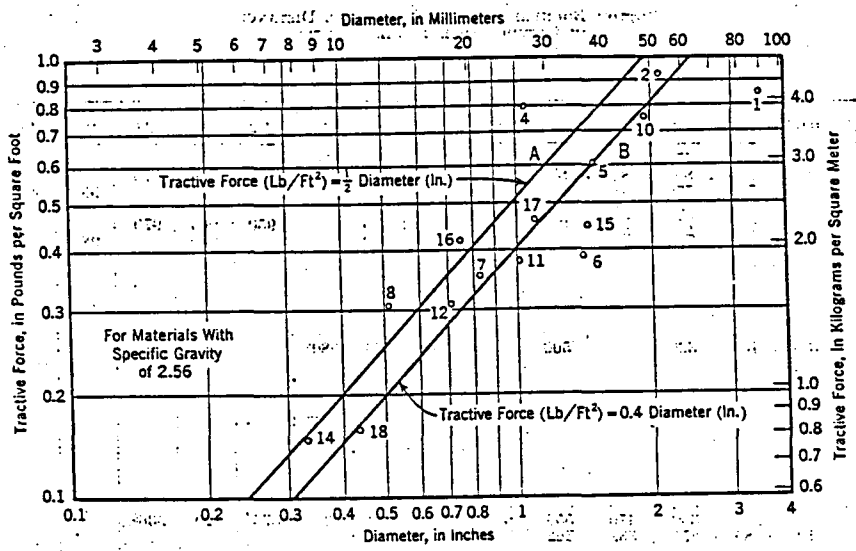


FIG. 2.—STUDIES ON THE SAN LUIS VALLEY CANALS, COLORADO

resulting from the maximum sustained flow in the canal, as closely as could be determined from the flow records.

Fifteen reaches of canal were used, having discharges ranging from 17 cu ft per sec to 1,500 cu ft per sec and slopes from 4.2 ft per mile to 51 ft per mile. The results of the measurements are summarized in Fig. 2.

EFFECT OF SIDE SLOPES ON LIMITING TRACTIVE FORCE

The effect of side slopes on limiting tractive force has been analyzed by a consideration of the forces acting on a particle on the sides of the canal. These forces are: (1) The force of the water tending to move the particle down the canal in the direction of the flow; and (2) the force of gravity tending to move the particle down the sloping side of the canal. By combining the two actions, the effect of the slope of the sides on the critical tractive force necessary to cause motion can be evaluated.

For convenience in design, the effect of side slopes was treated[16] as a factor, K, which is the ratio of the tractive force required to start motion on the sloping sides to that force required, in the same material, to start motion on a level surface. This ratio involves only the angle of the side slopes of the canal and the angle of repose of the material and is expressed by

$$K = \cos\phi \sqrt{1 - \frac{\tan^2\phi}{\tan^2\theta}} \qquad (1)$$

in which ϕ is the angle (with the horizontal) of the side slope of the canal, and θ represents the angle (with the horizontal) of repose of the material.

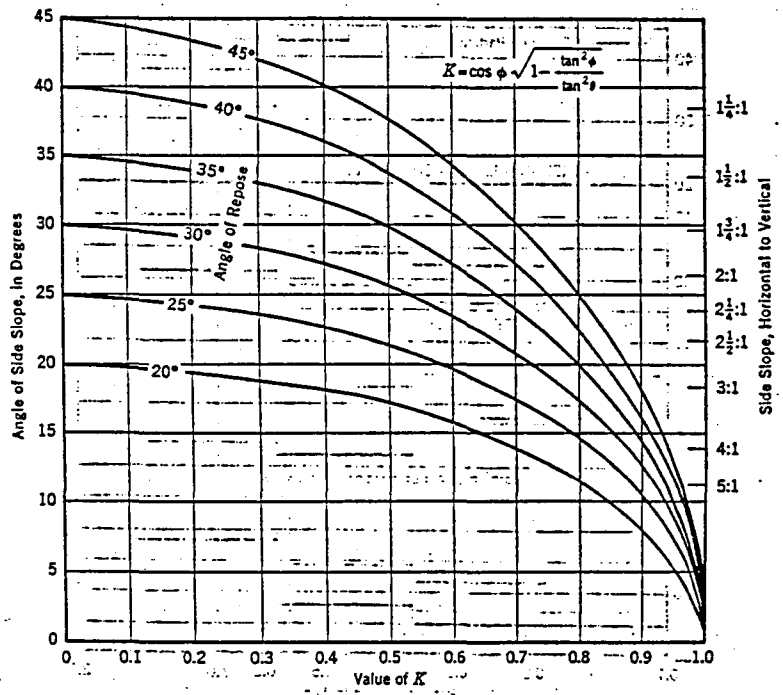


FIG. 3.—RELATIONSHIP BETWEEN SIDE SLOPE AND K

For convenience in solving Eq. 1, Fig. 3 has been prepared. For example, in a material whose angle of repose is 30°, the critical tractive force necessary to move material on the side of a canal with side slopes of 2 to 1 would be 0.44 times that which would cause motion on a level surface.

Angle of Repose of Noncohesive Material.—As previously noted, the stability of the side slopes of a canal in noncohesive material involves the angle of repose of the material. A study was therefore made of this subject, beginning with a thorough review of all available pertinent literature. This review was followed

[16] "Critical Tractive Forces on Channel Side Slopes in Coarse, Noncohesive Material," by A. C. Carter, E. J. Carlson, and E. W. Lane, *Hydraulic Laboratory Report No. Hyd.-366*, Bureau of Reclamation, U. S. Dept. of the Interior, Washington, D. C., 1953.

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TRANSACTIONS

Paper No. 2776

DESIGN OF STABLE CHANNELS

By Emory W. Lane,[1] M. ASCE

With Discussion by Messrs. Serge Leliavsky; A. Nizery and G. Braudeau; N. K. Bose; José S. Gandolfo; and Emory W. Lane

Synopsis

In 1950 the Bureau of Reclamation, United States Department of the Interior, began an investigation to improve the design of irrigation canals constructed in earth. The results of the preliminary studies are presented herein, and the future investigations are outlined.

The method of designing stable channels which is presented is based on securing a distribution of the tractive force along the sides and bottom of the channels such that the magnitude of this force at all points will be sufficiently large to prevent sediment deposits in objectionable quantities, and at the same time will be small enough to prevent objectionable scour. Limiting values for the tractive force are offered for the various conditions under which a canal may be constructed. The effect of bends, side slope, and transported material on the design is reviewed. Also presented is a method of designing canals having a minimum of excavation and a minimum width in coarse, noncohesive material.

Introduction

In January, 1950, the Bureau of Reclamation, United States Department of the Interior (USBR), began an investigation of the methods for designing unlined canals. Particular emphasis was given to methods of obtaining a rational solution to the problem of sediment movement as it is related to the design of unlined canals.

The results obtained from the investigation (from January, 1950, to June, 1952) are summarized subsequently. In general, the principal progress made in these studies was in three directions: (1) The clarification of the general principles for the design of stable channels; (2) the development of a tentative method for designing unlined earth canals to assure freedom from scour;

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and (3) the formulation of a method of analysis for the determination of a channel shape in coarse, noncohesive material which would involve a minimum of excavation. As of June, 1952, it had been impossible to study intensively many important aspects of the general problem, especially those involving the design of canals transporting considerable quantities of coarse sediment. The general principles of a design procedure, however, were developed, and a better understanding of the general problem was achieved.

In studying the principles for the design of stable canals, an intensive study of the literature was made. The subject is a complex one, and a great variety of conditions exists which make the best solution in any one case inapplicable to a situation where other conditions prevail. A complete solution of the problem must, therefore, include an analysis of all these conditions and a determination of the solution applicable to each.

The Design of Stable Channels

Definitions and Principles.—Because the term "stable channels" as used herein has a special meaning, it is desirable to define the term and explain its limitations. A stable channel is an unlined earth channel (*a*) which carries water, (*b*) the banks and bed of which are not scoured objectionably by the moving water, and (*c*) in which objectionable deposits of sediment do not occur. Sediment has been defined[2] as

> "* * * fragmental material transported by, suspended in, or deposited by water or air, or accumulated in beds by other natural agents; any detrital accumulation, such as loess."

This particular investigation is concerned solely with the stability of the channel from the standpoint of the movement or deposition of earth materials by the flowing water. It does not deal with the stability of the banks which slough (or slide) into the canal as this is a problem in soil mechanics for which reasonably satisfactory solutions are available.

Unstable Channels.—There are three classes of unstable channels: (1) Channels in which the banks or bed are scoured without objectionable deposits being formed; (2) channels where objectionable sediment deposits occur without scour being produced; and (3) channels in which scour and objectionable deposits are both present.

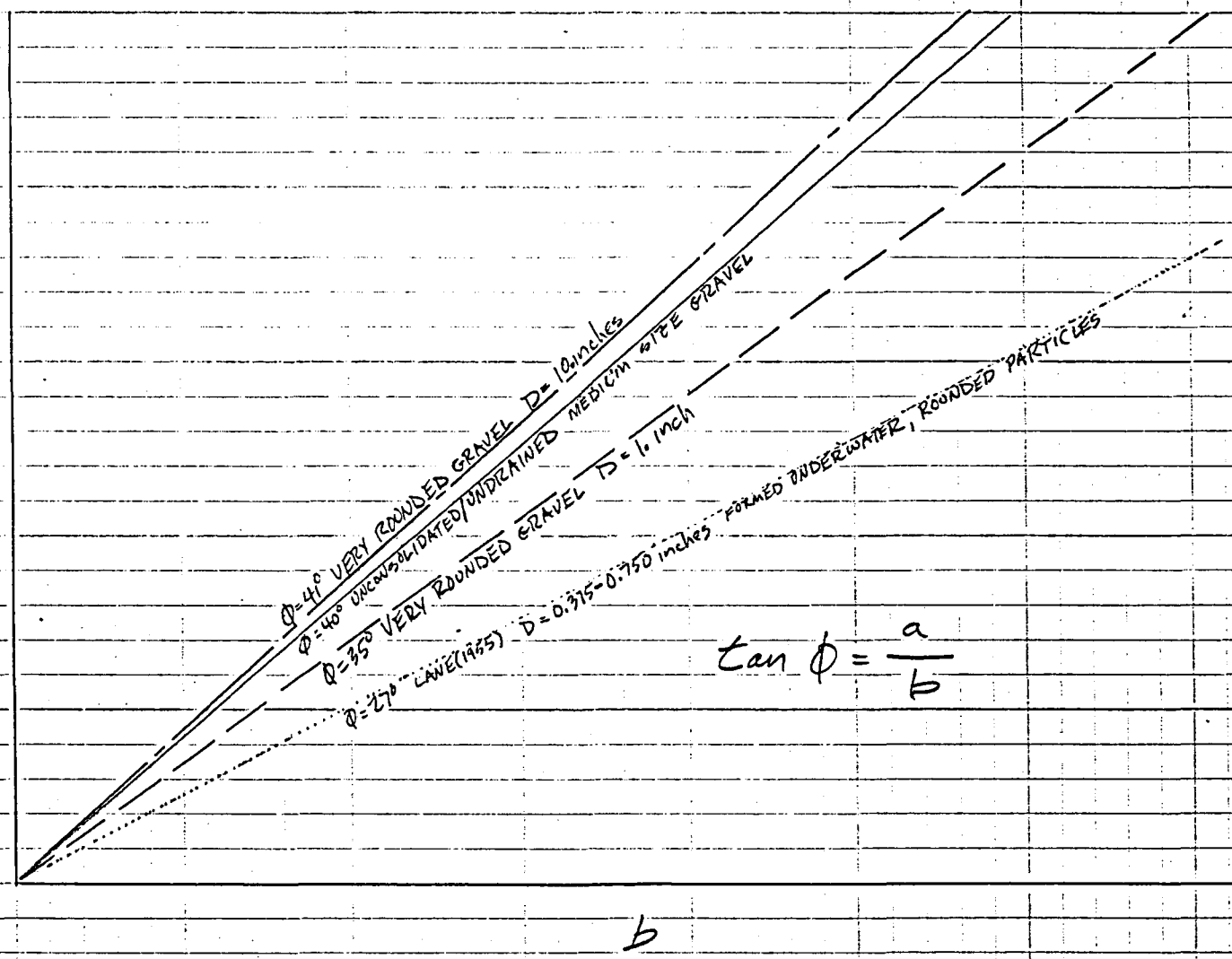
When sediment-free water is present in a channel, only the first class of instability can occur. The first class of instability (scour without deposit) can also be caused by water which carries sediment, especially when the amount of sediment carried by the water is small.

The second class of instability (deposit without scour) can only be caused by the sediment brought into the canal with the flowing water or that scoured from the banks and bed of an upstream channel. An example of this case is a lined canal—or a canal cut through a scour-resistant material—into which large quantities of coarse sediment enter with the inflowing water.

The third class of instability (scour and deposit) usually occurs when water containing large quantities of coarse sediment enters a canal, the bank and bed of which are composed of material which has little resistance to scour.

[2] "Report of Subcommittee on Sediment Terminology," by E. W. Lane, Chairman, *Transactions*, Am. Geophysical Union, Vol. 28, December, 1947, p. 936.

ANGLE OF REPOSE



$$\tan \phi = \frac{a}{b}$$

Calc CMG 11/11/88
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TOTAL SCOUR DEPTH DETERMINATION

Total Scour Depth (D_s)

$$D_s = (G_s + A_s)\ 1.3$$

where, G_s = short term general scour

A_s = Antidune scour

1.3 = safety factor

G_s = 4.22 ft from sediment transport model of existing conditions time 72.55 hrs

$$A_s = \tfrac{1}{2}(0.027\ V^2)$$

$$V = 11.60 \text{ fps}$$

$$A_s = \tfrac{1}{2}(0.027\ (11.6)^2)$$

$$A_s = 1.8 \text{ ft}$$

$$D_s = (4.2 + 1.8) \times 1.3$$

$$D_s = 7.8 \text{ ft}$$

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Pit Drown Out Time Computations

Pit Volume = 1,100,000. yd^3

Assumed Low-Flow Discharge = 10,000 cfs

$$\text{Time} = \left(1{,}100{,}000.\ yd^3 \times 27\ ft^3/yd^3\right) \div 10{,}000\ ft^3/sec$$

= 2,970 sec

= 49.5 min

= 0.825 hrs.