RICHLAND CREEK

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WATER SURFACE ELEVATION AND ENERGY GRADIENT AT THE STARTING CROSS-SECTION OF A
STREAM DETERMINED BY AN INTERATIVE PROCEDURE USING THE STANDARD STEP METHOD.
COMPUTATIONAL PROCEDURE FORMULATED AND COMPUTER PROGRAM WRITTEN BY
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RANDOLPH RICHLAN      5       .002954500      1

THE DATA ARE REPRODUCED AS FOLLOWS.

 QT      4   4320.00   7219.00   8747.00  12800.00
 NC      .1180       .1180       .0490       .1000       .3000
 X1   94.0000      10  1153.00  1252.00                    0.          0.          0.
 GR    506.29   1000.00    490.01   1100.00    484.01   1153.00    477.09   1161.00    475.99   1200.00
   477.39   1240.00    484.19   1252.00    484.19   1260.00    488.99   1300.00    499.05   1353.00
 ELMIN( 1)      475.99
 NC      .1180       .1180       .0490       .1000       .3000
 X1    1.0000       9  1148.00  1200.00                  528.00      0.          0.
 GR    486.05   1000.00    483.95   1100.00    481.85   1148.00    478.65   1156.00    473.65   1176.00
   480.23   1196.00    483.23   1200.00    490.93   1300.00    494.13   1350.00
 ELMIN( 2)      473.65
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RESULTS ARE PRINTED AS FOLLOWS.
ADDITIONAL INFORMATION OTHER THAN THOSE PRINTED, IF DESIRED, MAY BE
OBTAINED BY INCOPRORATING ADDITIONAL PRINT STATEMENTS IN THE MAIN PROGRAM.

481.99	39271.80	486.99	127017.72	484.28	127017.72	79477.05
484.28	71902.55	486.99	127017.72	484.65	71902.55	79477.05
484.65	78580.02	486.99	127017.72	484.70	78580.02	79477.05

NO. OF TRIALS FOR CONVEYANCE BALANCING AT DOWNSTREAM SECTION = 6 DIS= 4320.0

DISCHARGE = 4320.0 TRIAL NO.= 1 DIFF. BET. TWO SUCC. WATER EL.= -.193 WSEL(1) = 484.697 WSEL(2) = 486.261

SECTION NUMBER = 94.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
484.70	.002962	.561127	1.	4317.	2.	.335	6.009	.383	1.018	1	1	1

SECTION NUMBER = 1.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
486.26	.004727	1.007170	387.	3865.	68.	1.347	8.497	1.140	2.232	1	1	1

DISCHARGE = 4320.0 TRIAL NO.= 2 DIFF. BET. TWO SUCC. WATER EL.= -.101 WSEL(1) = 484.504 WSEL(2) = 486.052

SECTION NUMBER = 94.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
484.50	.003242	.592733	0.	4319.	1.	.281	6.175	.303	1.011	1	1	1

SECTION NUMBER = 1.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
486.05	.005277	1.104137	338.	3922.	59.	1.319	8.835	1.149	2.153	1	1	1

RESULTS CORRESPONDING TO DISCHARGE = 4320.00

NO. OF TRIALS TO ACHIEVE CONVERGENCE = 3

SECTION NUMBER = 94.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
484.40	.003403	.610364	0.	4319.	0.	.247	6.266	.245	1.007	1	1	1

SECTION NUMBER = 1.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
486.09	.005159	1.083541	348.	3911.	61.	1.326	8.764	1.147	2.170	1	1.	1

HOWEVER, IF THE INITIAL ESTIMATE OF ENERGY SLOPE OF THIS PROGRAM IS USED IN HEC2 AT THE STARTING X-SEC.(NO.= 1.00),
THE WATER SURFACE ELEVATION AT THIS SECTION WILL BE IN ERROR BY -1.090 FEET.
NEGATIVE ERROR INDICATES THAT THE INCORRECT WATER SURFACE ELEVATION WOULD HAVE BEEN HIGHER, AND THE POSITIVE, LOWER.

486.99 127017.72 491.99 272618.77 487.19 272618.77 132811.30

NO. OF TRIALS FOR CONVEYANCE BALANCING AT DOWNSTREAM SECTION = 5 DIS= 7219.0

DISCHARGE = 7219.0 TRIAL NO.= 1 DIFF. BET. TWO SUCC. WATER EL.= -.125 WSEL(1) = 487.189 WSEL(2) = 488.776

SECTION NUMBER = 94.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
487.19	.003005	.832310	42.	7113.	64.	.936	7.370	1.042	1.179	1	1	1

SECTION NUMBER = 1.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
488.78	.004074	1.042646	1435.	5467.	316.	2.176	9.336	1.583	2.687	1	1	1

RESULTS CORRESPONDING TO DISCHARGE = 7219.00

NO. OF TRIALS TO ACHIEVE CONVERGENCE = 2

SECTION NUMBER = 94.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
487.06	.003144	.856827	38.	7121.	60.	.932	7.474	1.040	1.169	1	1	1

V=7.483 A=971.52

SECTION NUMBER = 1.00

WSEL	EG	HV	QLOB	QCH	QROBVLOB	VCH	VROB	ALPHA	NCL	NC	NCR
488.71	.004184	1.066421	1420.	5488.	311.	2.184	9.426	1.592	2.682	1	1	1

V= 8.2812 A=871.10

HOWEVER, IF THE INITIAL ESTIMATE OF ENERGY SLOPE OF THIS PROGRAM IS USED IN HEC2 AT THE STARTING X-SEC.(NO.= 1.00),
THE WATER SURFACE ELEVATION AT THIS SECTION WILL BE IN ERROR BY -.838 FEET.
NEGATIVE ERROR INDICATES THAT THE INCORRECT WATER SURFACE ELEVATION WOULD HAVE BEEN HIGHER, AND THE POSITIVE, LOWER.

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     486.99   127017.72      491.99   272618.77      488.15   272618.77   160922.63

     488.15   155578.28      491.99   272618.77      488.33   155578.28   160922.63

NO. OF TRIALS FOR CONVEYANCE BALANCING AT DOWNSTREAM SECTION =  6   DIS=  8747.0


DISCHARGE =   8747.0  TRIAL NO.=  1  DIFF. BET. TWO SUCC. WATER EL.=  -.101  WSEL(1) =  488.329  WSEL(2) =  489.905

SECTION NUMBER =      94.00

  WSEL     EG       HV      QLOB      QCH     QROBVLOB      VCH     VROB    ALPHA      NCL       NC       NCR
488.33 .002983 .947153       94.     8522.      130.    1.144    7.905    1.248    1.274         1        1         1

SECTION NUMBER =       1.00

  WSEL     EG       HV      QLOB      QCH     QROBVLOB      VCH     VROB    ALPHA      NCL       NC       NCR
489.90 .003831 1.052966     2028.     6217.      503.    2.453    9.648    1.737    2.743         1        1         1

RESULTS CORRESPONDING TO DISCHARGE =    8747.00

NO. OF TRIALS TO ACHIEVE CONVERGENCE =       2

SECTION NUMBER =      94.00

  WSEL     EG       HV      QLOB      QCH     QROBVLOB      VCH     VROB    ALPHA      NCL       NC       NCR
488.23 .003085 .968176       90.     8532.      125.    1.145    7.988    1.251    1.265         1        1         1

SECTION NUMBER =       1.00

  WSEL     EG       HV      QLOB      QCH     QROBVLOB      VCH     VROB    ALPHA      NCL       NC       NCR
489.91 .003822 1.050937     2029.     6215.      503.    2.452    9.640    1.736    2.743         1        1         1

HOWEVER, IF THE INITIAL ESTIMATE OF ENERGY SLOPE OF THIS PROGRAM IS USED IN HEC2 AT THE STARTING X-SEC.(NO.=    1.00),
THE WATER SURFACE ELEVATION AT THIS SECTION WILL BE IN ERROR BY   -.684  FEET.
NEGATIVE ERROR INDICATES THAT THE INCORRECT WATER SURFACE ELEVATION WOULD HAVE BEEN HIGHER, AND THE POSITIVE, LOWER.
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      486.99  127017.72      491.99  272618.77      490.71  272618.77   235487.56

      490.71  229754.68      491.99  272618.77      490.89  229754.68   235487.56

 NO. OF TRIALS FOR CONVEYANCE BALANCING AT DOWNSTREAM SECTION =  6   DIS=  12800.0

 RESULTS CORRESPONDING TO DISCHARGE =   12800.00

 NO. OF TRIALS TO ACHIEVE CONVERGENCE =      1

 SECTION NUMBER =      94.00

  WSEL     EG      HV      QLOB      QCH     QROBVLOB      VCH     VROB    ALPHA      NCL       NC      NCR
490.89 .002960 1.205830    330.   12063.     407.    1.590   9.062   1.732   1.489        1        1        1

 SECTION NUMBER =      1.00

  WSEL     EG      HV      QLOB      QCH     QROBVLOB      VCH     VROB    ALPHA      NCL       NC      NCR
492.45 .003469 1.105636    3607.    8076.     1117.    2.998  10.399   2.013   2.788        1        1        1

 HOWEVER, IF THE INITIAL ESTIMATE OF ENERGY SLOPE OF THIS PROGRAM IS USED IN HEC2 AT THE STARTING X-SEC.(NO.=    1.00),
 THE WATER SURFACE ELEVATION AT THIS SECTION WILL BE IN ERROR BY   -.516  FEET.
 NEGATIVE ERROR INDICATES THAT THE INCORRECT WATER SURFACE ELEVATION WOULD HAVE BEEN HIGHER, AND THE POSITIVE, LOWER.
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1.       RANDOLPH RICHLAN      5          .0029545      1
2.      QT       4    4320    7219     8747   12800
3.      NC    .118    .118    .049       .1      .3
4.      X1      94      10    1153     1252
5.      GR506.29      1000  490.01     1100  484.01    1153  477.09    1161  475.99    1200
6.      GR477.39      1240  484.19     1252  484.19    1260  488.99    1300  499.05    1353
7.      NC    .118    .118    .049       .1      .3
8.      X1       1       9    1148     1200  528.34  528.74    528.
9.      GR486.05      1000  483.95     1100  481.85    1148  478.65    1156  473.65    1176
10.     GR480.23      1196  483.23     1200  490.93    1300  494.13    1350
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1.	RANDOLPH RICHLAN	4		.0030	1					
2.	QT 4	4320	7219	8747	12800					
3.	NC .118	.118	.049	.1	.3					
4.	X1 91	10	1179	1269						
5.	GR 487.4	1000	481.9	1100	480.4	1161	479.3	1179	471.8	1200
6.	GR 468.7	1242	469.3	1255	476.4	1269	480.3	1300	493.4	1400
7.	NC .118	.118	.049	.1	.3					
8.	X1 92	14	1165	1211	302.93	300.01	300.			
9.	GR 506.6	1000	498.6	1078	494.3	1100	479.9	1165	472.7	1175
10.	GR 472.9	1186	473.2	1200	476.6	1211	479.9	1300	482.2	1323
11.	GR 482.8	1400	484.6	1500	488.4	1600	494.5	1643		