Revised Duplicate Effective Model Input

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
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Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: StonyBrookDarien1
Project File : StonyBrookDarien1.prj
Run Date and Time: 4/13/2011 3:16:31 PM

Project in English units

Project Description:
Stony Brook, Darien, CT

PLAN DATA

Plan Title: SB Revised Duplicate
Plan File : p:\1581-05\Design\Comps\Hydraulics\Models\StonyBrookDarien1.p02

Geometry Title: SB Revised Duplicate - DATUM NAVD88
Geometry File :
p:\1581-05\Design\Comps\Hydraulics\Models\StonyBrookDarien1.g03

Flow Title : SB FEMA Duplicate Flows - NAVD1988
Flow File :
p:\1581-05\Design\Comps\Hydraulics\Models\StonyBrookDarien1.f03

Plan Description:
Started with Duplicate model, and now corrected errors as noted:

converted
to NAVD88 by subtracting 1.0.

Added upstream boundary condition of critical
depth.

Corrected all ineffective flow areas upstream and downstream of
bridges to refelect 1:1 expansion and contraction ratios (1:1.5 ds of
culverts). Also corrected elevations to be minimum road elevation on upstream
side and an average of minimum road elevation and maximum low chord on the
downstream side.

Corrected location of bank stations (in HEC-2 bank stations
were used to set the ineffective flow areas so it brought them off the bank
into the channel). At cross-sections: 6.1, 6.4, 18, 26.1, 26.2, 26.3, 26.4,

28.4, 36.4, 37, 38, 39.1, 39.4, 43.1, and 43.4.

Corrected obvious typos in
elevation data at sections 13, 15.4, and 16, used 2008 town topo and field
observations to verify.

Plan Summary Information:
Number of: Cross Sections = 62 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 10 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

Encroachment Data
Equal Conveyance = True
Left Offset = 0
Right Offset = 0

River = StonyBrook Reach = StonyBrook

RS	Profile	Method	Value1	Value2
48	100-yr(encr)	1	990	1019
47	100-yr(encr)	1	990	1010
46	100-yr(encr)	1	939.77	1039.42
45	100-yr(encr)	1	889.35	1005
44	100-yr(encr)	1	992	1016
43.4	100-yr(encr)	1	992	1016
43.1	100-yr(encr)	1	986	1010
42	100-yr(encr)	1	986	1010
41	100-yr(encr)	1	990	1013.59
40	100-yr(encr)	1	985	1015
39.4	100-yr(encr)	1	985	1015
39.1	100-yr(encr)	1	977	1002
38	100-yr(encr)	1	977	1005.97
37	100-yr(encr)	1	991	1008
36.4	100-yr(encr)	1	991	1008
36.1	100-yr(encr)	1	992	1007
35	100-yr(encr)	1	992	1007
34	100-yr(encr)	1	989	1022.68
33	100-yr(encr)	1	977.6	1013
32	100-yr(encr)	1	974.9	1008.23
31	100-yr(encr)	1	992	1010
30	100-yr(encr)	1	995	1023.43
29	100-yr(encr)	1	991	1011
28.4	100-yr(encr)	1	992	1010
28.1	100-yr(encr)	1	990	1010
27	100-yr(encr)	1	983.71	1023.29
26.4	100-yr(encr)	1	996	1005
26.3	100-yr(encr)	1	985.5	1015.5
26.2	100-yr(encr)	1	990	1020
26.1	100-yr(encr)	1	990.39	1010
25	100-yr(encr)	1	992	1011

24	100-yr(encr)	1	992	1011
23	100-yr(encr)	1	992	1011
22.4	100-yr(encr)	1	970.07	1021
22.3	100-yr(encr)	1	992	1009
22.2	100-yr(encr)	1	985	1008
22.1	100-yr(encr)	1	985	1008
21	100-yr(encr)	1	990	1010
20	100-yr(encr)	1	992	1010
19.4	100-yr(encr)	1	992	1010
19.1	100-yr(encr)	1	993	1010
18	100-yr(encr)	1	987.71	1010
17	100-yr(encr)	1	986	1041.74
16	100-yr(encr)	1	952.95	1040.35
15.4	100-yr(encr)	1	952.89	1040.43
15.1	100-yr(encr)	1	942.07	1006
14	100-yr(encr)	1	947.93	1006
13	100-yr(encr)	1	990	1050
12	100-yr(encr)	1	978	1028
11	100-yr(encr)	1	993	1016
10.4	100-yr(encr)	1	993	1016
10.1	100-yr(encr)	1	990	1010
9	100-yr(encr)	1	990	1010
8	100-yr(encr)	1	989	1008
7	100-yr(encr)	1	1000	1023
6.4	100-yr(encr)	1	900.95	1072.42
6.1	100-yr(encr)	1	992	1013
5	100-yr(encr)	1	992	1013
4	100-yr(encr)	1	991	1020
3	100-yr(encr)	1	967	1027
2	100-yr(encr)	1	986	1050
1	100-yr(encr)	1	972	1034

FLOW DATA

Flow Title: SB FEMA Duplicate Flows - NAVD1988
Flow File : p:\1581-05\Design\Comps\Hydraulics\Models\StonyBrookDarien1.f03

Flow Data (cfs)

River	Reach	RS	100-yr	100-yr(encr)
10-yr	50-yr	500-yr		
StonyBrook	StonyBrook	48	538	538
312	450	807		
StonyBrook	StonyBrook	22.4	800	800
465	670	1200		

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
StonyBrook	StonyBrook	100-yr	Critical
Known WS = 5.36			
StonyBrook	StonyBrook	100-yr(encr)	Critical
Known WS = 5.36			

StonyBrook	StonyBrook	10-yr	Critical
Known WS = 3.8			
StonyBrook	StonyBrook	50-yr	Critical
Known WS = 5.15			
StonyBrook	StonyBrook	500-yr	Critical
Known WS = 6			

GEOMETRY DATA

Geometry Title: SB Revised Duplicate - DATUM NAVD88
Geometry File : p:\1581-05\Design\Comps\Hydraulics\Models\StonyBrookDarien1.g03

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 48

INPUT
Description: FEMA AM, HEC2 - 53.000, Upstream Limit of Model - just ds of Hanson Road Bridge

Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
753	119	930	116.5	977	114	990	109	992	104.3
1000	103.8	1012	104.3	1019	108.5	1040	113.5	1180	112
1410	112.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
753	.16	990	.05	1019	.09

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
990	1019	1000	1030	1050	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 47

INPUT
Description: FEMA AL, HEC2 - 52.000
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
795	111.5	890	110.5	925	104.5	990	104	996	98.7
1000	98.8	1006	99.3	1010	104	1215	104.2	1350	108.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
795	.16	990	.05	1010	.09

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
990	1010	1040	1120	1080	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 46

```
INPUT
Description: FEMA AK, HEC2 - 51.000
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     570     110     705   104.5     760     104     780   102.3     972    97.1
     995    97.7     997    97.1     997      94    1000      95    1006      95
    1006    96.6    1010    97.8    1024    97.4    1300     106    1375     106
    1420     109    1493     110

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     570     .16     997     .05    1006     .06    1300    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           997    1006              150     135     120             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 45

INPUT
Description: FEMA AJ, HEC2 - 50.000
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     570     119     615     109     780    99.5     980      99     985    98.5
     998    98.3    1000    95.8    1005      97    1015      99    1130   101.5
    1300     106    1355   105.9    1400   108.5    1470   104.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     570     .16     998     .03    1005     .18

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           998    1005              650     650     610             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 44

INPUT
Description: FEMA AI, HEC2 - 49.000, US section for High School Road Bridge,
             copy of ds section
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     605     109     750   105.5     770     104     895   100.5     950    99.5
     984    98.2     992    94.8    1000    94.4    1008      95    1016    94.6
    1020      95    1024    97.4    1045    97.5    1160    99.5    1450   101.5
    1480     104    1550   106.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     605     .11     984    .035    1024     .11

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           984    1024               35      40      45             .3       .5

CROSS SECTION
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RIVER: StonyBrook
REACH: StonyBrook         RS: 43.4

INPUT
Description: HEC2 - 49.100, US face of High School Road Bridge, IFAS may be
             off
REVDUP- moved ineffective flow areas to have 1:1 contraction
             and moved bank stations out of channel
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     605     109     750   105.5     770     104     895   100.5     950    99.5
     984    98.2     992    94.8    1000    94.4    1008      95    1016    94.6
    1020      95    1024    97.4    1045    97.5    1160    99.5    1450   101.5
    1480     104    1550   106.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     605     .11     984    .035    1024     .11

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           984    1024                44      44      44             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     605     979   102.5       F
    1013    1550   102.5       F

BRIDGE


RIVER: StonyBrook
REACH: StonyBrook         RS: 43.25

INPUT
Description: High School Lane Bridge, HEC2 sections 48.100 and 48.200 now
             internal bridge sections
Distance from Upstream XS =       5
Deck/Roadway Width        =      34
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     984   102.5   101.9     984   102.5   101.9    1000   102.5   101.9
    1008   102.5   101.9    1008   102.5   101.9

Upstream Bridge Cross Section Data
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     668     108     730   106.5     785     106     820     104     850     103
     915   102.5     984   102.5     984    95.3    1000    94.3    1008    94.1
    1008   102.5    1212   102.5    1240   103.5    1370     104    1500   106.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     668     .03     984     .01    1008     .03

Bank Sta: Left   Right    Coeff Contr.   Expan.
           984    1008             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     668     979   102.5       F
    1013    1500   102.5       F
```

Downstream Deck/Roadway Coordinates
num= 5

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
984	102.5	101.9	984	102.5	101.9	1000	102.5	101.9
1008	102.5	101.9	1008	102.5	101.9			

Downstream Bridge Cross Section Data
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
668	108	730	106.5	785	106	820	104	850	103
915	102.5	984	102.5	984	95.3	1000	94.3	1008	94.1
1008	102.5	1212	102.5	1240	103.5	1370	104	1500	106.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
668	.03	984	.01	1008	.03

Bank Sta: Left Right Coeff Contr. Expan.
984 1008 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
668	979	102.2	F
1013	1500	102.2	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 43.1

INPUT
Description: HEC2 - 47.100, DS face of High School Bridge, copy of ds section,
with ineffective flow area- which may be wrong
REVDUP- moved
ineffective flow areas to have 1:1 expansion
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
665	107.5	722	104.5	953	99	986	95	988	93
1008	93	1010	95	1092	97.5	1230	97.5	1290	99

1345	99	1420	100	1462	102.5	1555	104	1600	107

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
665	.11	986	.035	1010	.11

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
986	1010	65	65	70	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
665	979	102.2	F
1013	1600	102.2	F

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 42

INPUT
Description: FEMA AH, HEC2 - 47.000, DS section for High School Bridge
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
665	107.5	722	104.5	953	99	986	95	988	93
1008	93	1010	95	1092	97.5	1230	97.5	1290	99
1345	99	1420	100	1462	102.5	1555	104	1600	107

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
665	.11	986	.035	1010	.11

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
986	1010	350	400	440	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 41

INPUT
Description: FEMA AG, HEC2 - 46.000
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
545	104	585	102	665	99.5	865	99	880	97.5
948	97.5	973	94	990	93.5	994	92.9	1000	92.1
1010	93.5	1015	94	1078	95.5	1200	97.5	1285	96.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
545	.085	990	.035	1010	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
990	1010	400	440	430	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 40

INPUT
Description: FEMA AF, HEC2- 45.000, US xsect for Middlesex Road Bridge, copy of

```
            ds section
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     430     104     502     102     540      99     585    97.5     640    98.5
     670    98.5     700    98.8     849    97.5     870    96.8     985      94
     990    89.8    1010    89.8    1015      94    1048    96.5    1270      97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     430     .12     985     .04    1015     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           985    1015               30      35      35             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 39.4

INPUT
Description: HEC2- 45.100, US face of Middlesex Road Bridge, IFAs may be in
            wrong place
REVDUP- moved ineffective flow areas to have 1:1
            contraction and moved bank stations out of channel
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     430     104     502     102     540      99     585    97.5     640    98.5
     670    98.5     700    98.8     849    97.5     870    96.8     985      94
     990    89.8    1010    89.8    1015      94    1048    96.5    1270      97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     430     .12     985     .04    1015     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           985    1015               50      50      50             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     430     986    96.5          F
    1021    1270    96.5          F

BRIDGE


RIVER: StonyBrook
REACH: StonyBrook         RS: 39.25

INPUT
Description: Middlesex Road Bridge, Defined in HEC2 by sections 44.100 and
            44.200, now defined as internal bridge cros sections
Distance from Upstream XS =       5
Deck/Roadway Width        =      40
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     991    96.5    93.9     991    96.5    93.9    1000    96.5    93.9
    1008    96.5    93.9    1016    96.5    93.9    1016    96.5    93.9

Upstream Bridge Cross Section Data
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

415	104	615	98.5	815	97.5	925	96.8	991	96.5		
991	88.1	1000	87.9	1008	88.1	1016	89.4	1016	96.5		
1080	97	1140	97.8	1205	98	1290	99.3	1415	102		
1435	104										

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
415	.03	991	.02	1016	.03

Bank Sta: Left Right Coeff Contr. Expan.
991 1016 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
415	986	96.5	F
1021	1435	96.5	F

Downstream Deck/Roadway Coordinates
num= 6

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
991	96.5	93.9	991	96.5	93.9	1000	96.5	93.9
1008	96.5	93.9	1016	96.5	93.9	1016	96.5	93.9

Downstream Bridge Cross Section Data
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
415	104	615	98.5	815	97.5	925	96.8	991	96.5
991	88.1	1000	87.9	1008	88.1	1016	89.4	1016	96.5
1080	97	1140	97.8	1205	98	1290	99.3	1415	102
1435	104								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
415	.03	991	.02	1016	.03

Bank Sta: Left Right Coeff Contr. Expan.
991 1016 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
415	986	95.2	F
1021	1435	95.2	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 39.1

INPUT
Description: HEC2- 43.100, DS face of Middlesex Road Bridge, copy of ds section with ineffective flow areas, IFAS may be in wrong place
REVDUP- moved ineffective flow areas to have 1:1 expansion and moved bank stations out of channel

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
815	96	854	95	905	95	945	93	966	93
977	90	984	88.4	1002	90	1021	90.5	1021	92
1032	94	1140	94.5	1170	95	1232	97.5	1300	98
1380	100	1490	109						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
815	.1	966	.04	1021	.15

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
966	1021	50	50	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
815	986	95.2	F
1021	1490	95.2	F

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 38

INPUT
Description: FEMA AE, HEC2- 43.000, DS section for Middlesex Road Bridge
REVDUP- moved bank stations out of channel

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
815	96	854	95	905	95	945	93	966	93
977	90	984	88.4	1002	90	1021	90.5	1021	92
1032	94	1140	94.5	1170	95	1232	97.5	1300	98
1380	100	1490	109						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
815	.1	966	.04	1021	.15

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
966	1021	790	730	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 37

INPUT

Description: FEMA AD, HEC2 - 39.000, US xsect for Driveway Bridge,copy of ds section
REVDUP- moved bank stations out of channel
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
800	103.5	820	99	860	95	905	94	935	92.5
970	89	988	88.5	991	85	1000	84.4	1008	85
1015	88.5	1033	89	1045	93	1075	94	1140	97.5
1250	99.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
800	.07	988	.05	1015	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
988	1015	55	50	.3	.5

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 36.4

INPUT
Description: HEC2 - 39.200, US face of Driveway Bridge, increased downstream reach lenghts to account for 4 feet between sections and bridge
REVDUP- moved ineffective flow areas to have 1:1 contraction and moved bank stations out of channel
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
800	103.5	820	99	860	95	905	94	935	92.5
970	89	988	88.5	991	85	1000	84.4	1008	85
1015	88.5	1033	89	1045	93	1075	94	1140	97.5
1250	99.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
800	.07	988	.05	1015	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
988	1015	22	22	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
800	989	91.5	F
1012	1250	91.5	F

BRIDGE

RIVER: StonyBrook
REACH: StonyBrook RS: 36.25

INPUT
Description: Driveway Bridge, Sections 38.1000 and 38.200 in HEC2 were input as internal bridge sections
Distance from Upstream XS = 4
Deck/Roadway Width = 14
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
993	91.8	89.7	993	91.8	89.7	1000	92	90

1007	92.3	90.2	1008	92.3	90.2	1008	92.3	90.2

Upstream Bridge Cross Section Data
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
780	103.5	850	95	890	94	930	92.5	975	91.5
993	91.8	993	89.7	995	84.2	1000	83.6	1007	85.2
1008	90.2	1008	92.3	1025	92.3	1052	94	1110	96.5
1195	99	1280	100.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
780	.08	993	.04	1008	.055

Bank Sta: Left	Right	Coeff Contr.	Expan.
993	1007	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
780	989	91.5	F
1012	1280	91.5	F

Downstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
993	91.8	89.7	993	91.8	89.7	1000	92	90
1007	92.3	90.2	1008	92.3	90.2	1008	92.3	90.2

Downstream Bridge Cross Section Data
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
780	103.5	850	95	890	94	930	92.5	975	91.5
993	91.8	993	89.7	995	84.2	1000	83.6	1007	85.2
1008	90.2	1008	92.3	1025	92.3	1052	94	1110	96.5
1195	99	1280	100.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
780	.08	993	.04	1008	.055

Bank Sta: Left	Right	Coeff Contr.	Expan.
993	1007	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
780	989	90.85	F
1012	1280	90.85	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

```
Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 36.1

INPUT
Description: HEC2 - 37.100 DS face of Driveway Bridge, copy of ds section with
             ineffective flow areas
REVDUP- moved ineffective flow areas to
             have 1:1 expansion
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     745   100.5     810      94     835      94     875    92.5     937      92
     975      89     992    88.5     994      86    1000      85    1005      86
    1007    88.5    1015      89    1035    91.5    1095      96    1180      99
    1285     104

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     745     .08     992     .04    1007    .055

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           992    1007                40      35      25             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     745     989   90.85       F
    1012    1285   90.85       F

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 35

INPUT
Description: FEMA AC, HEC2 - 37.000 DS cross section for Driveway Bridge
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     745   100.5     810      94     835      94     875    92.5     937      92
     975      89     992    88.5     994      86    1000      85    1005      86
    1007    88.5    1015      89    1035    91.5    1095      96    1180      99
    1285     104

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     745     .08     992     .04    1007    .055

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           992    1007                90      70      50             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 34
```

INPUT
Description: FEMA AB, HEC2 - 36.000, ROB n value obscured- kept previous value,
first station value also obscure - made guess
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
790	102.5	805	99	840	94	875	91.5	950	89
955	88.1	989	87.7	993	86.9	1008	86.9	1009	88.2
1019	87.5	1039	85.7	1040	104				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
790	.08	989	.04	1009	.055

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
989	1009	240	265	270	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 33

INPUT
Description: FEMA AA, HEC2- 35.000
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
845	98	890	94	910	89.7	940	89	960	84.5
963	84	987	83.9	996	83.5	1005	83.7	1013	84.1
1016	84.4	1030	83.6	1040	87.4	1050	94	1075	102.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
845	.05	987	.04	1013	.055

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
987	1013	240	235	230	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 32

INPUT
Description: FEMA Z, HEC2 - 34.000
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
700	95.5	763	82.5	895	85	960	81.9	972	81.8
986	81.5	994	81.4	998	80.2	1002	80.3	1007	81.6
1025	82.1	1055	83.09	1110	94				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
700	.045	994	.04	1007	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
994	1007	340	360	370	.1	.3

CROSS SECTION

RIVER: StonyBrook

REACH: StonyBrook RS: 31

INPUT
Description: FEMA Y, HEC2- 33.000
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
890	80.5	945	79.3	956	77.5	992	76.2	993	73
995	72	1000	71	1007	73.1	1010	75.8	1019	77
1036	76.7	1090	78	1225	81	1275	82		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
890	.1	992	.04	1010	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
992	1010	500	720	750	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 30

INPUT
Description: FEMA X, HEC2 - 32.000
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
711	74.3	930	74.5	988	74	995	72.3	996	70
1000	69	1005	72.3	1065	73.5	1160	75.1	1205	75.5
1275	78.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
711	.09	995	.035	1005	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
995	1005	550	600	300	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 29

INPUT
Description: FEMA W, HEC2- 31.000, US xsect for West Road Bridge
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
790	89	920	79.5	940	79	970	72.9	987	74.3
992	68.7	996	67.6	1005	67.6	1010	68.5	1017	71.5
1028	72.3	1049	72.2	1090	73.1	1195	74	1325	74
1380	74.1	1570	78.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
790	.1	992	.035	1010	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
992	1010	15	45	50	.3	.5

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 28.4

INPUT
Description: HEC2- 31.100, US face of West Road Bridge
REVDUP- changed
ineffective flow areas
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
790	89	920	79.5	940	79	970	72.9	987	74.3
992	68.7	996	67.6	1005	67.6	1010	68.5	1017	71.5
1028	72.3	1049	72.2	1090	73.1	1195	74	1325	74
1380	74.1	1570	78.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
790	.1	992	.035	1010	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
992	1010	50	50	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
790	986	74.3	F
1014	1570	74.3	F

BRIDGE

RIVER: StonyBrook
REACH: StonyBrook RS: 28.25

INPUT
Description: West Avenue Bridge, Included in HEC2 in sections 30.100 and 30.200
Distance from Upstream XS = 5
Deck/Roadway Width = 40
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 10

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
984	-1	984	80.8	-1	991	80.8	-1
991	80.8	68	994	80.8	73.7	1000	80.8	75
1006	80.7	73.2	1009	80.7	68.9	1016	80.7	-1
1016	-1	-1						

Upstream Bridge Cross Section Data
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
755	89.7	790	89	930	79.5	952	79	984	77.7
991	77.7	991	68.6	994	68.5	1000	68.1	1006	68.7
1009	68.9	1009	76.8	1016	76.8	1029	76.3	1090	75
1172	74.3	1270	74.4	1580	79.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
755	.1	991	.04	1009	.08

Bank Sta: Left	Right	Coeff Contr.	Expan.
991	1009	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
755	986	74.3	F
1014	1580	74.3	F

```
Downstream  Deck/Roadway Coordinates
    num=      10
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     984      -1      -1     984    80.8      -1     991    80.8      -1
     991    80.8      68     994    80.8    73.7    1000    80.8      75
    1006    80.7    73.2    1009    80.7    68.9    1016    80.7      -1
    1016      -1      -1

Downstream Bridge Cross Section Data
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     755    89.7     790      89     930    79.5     952      79     984    77.7
     991    77.7     991    68.6     994    68.5    1000    68.1    1006    68.7
    1009    68.9    1009    76.8    1016    76.8    1029    76.3    1090      75
    1172    74.3    1270    74.4    1580    79.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     755      .1     991     .04    1009     .08

Bank Sta: Left   Right    Coeff Contr.   Expan.
           991    1009            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     755     986   74.65       F
    1014    1580   74.65       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 28.1

INPUT
Description: HEC2 - 29.100, DS face of West Road Bridge, copy from ds cross
             section, with ineffective flow areas
REVDUP- changed ineffective
             flow areas
Station Elevation Data    num=      15
```

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
780	85.7	840	83.6	925	78.2	965	74	990	69.4
992	67.5	1000	67	1008	68	1010	69.4	1060	73.7
1123	73.8	1280	73	1325	74	1415	75.3	1490	79.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
780	.1	990	.04	1010	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
990	1010	45	40	35	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
780	986	74.65	F
1014	1490	74.65	F

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 27

INPUT
Description: FEMA V, HEC2 - 29.000
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
780	85.7	840	83.6	925	78.2	965	74	990	69.4
992	67.5	1000	67	1008	68	1010	69.4	1060	73.7
1123	73.8	1280	73	1325	74	1415	75.3	1490	79.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
780	.1	990	.04	1010	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
990	1010	400	400	400	.3	.5

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 26.4

INPUT
Description: FEMA U, HEC2 - 28.000, US section for Conrail Bridge, copy of ds section, but increased by 0.8 elevation, decreased ds distance by 5 feet to accomodate bridge and each face setback from it 5 feet, right bank station looks fishy
REVDUP- corrected bank stations to be on the banks
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
818	79	845	74	865	72	920	70.1	935	69
967	66.8	986	66	996	63.7	1005	63.3	1011	64.3
1015	67.4	1047	67	1065	69.5	1090	69	1120	73.6
1155	84								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
818	.1	986	.04	1015	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
986	1015	85	80	75	.3	.5

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 26.3

INPUT
Description: HEC2 - 28.100, US face of Conrail Bridge, decreased given GR records by .8 feet, increased ds distance by 5 feet to accomodate bridge and each face setback from it 5 feet, added ineffective flow areas, right bank station looks fishy
REVDUP- corrected ineffective flow areas, and corrected bank stations to be on the banks

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
818	78.2	845	73.2	865	71.2	920	69.3	935	68.2
967	66	986	65.2	996	62.9	1005	62.5	1011	63.5
1015	66.6	1047	66.2	1065	68.7	1090	68.2	1120	72.8
1155	83.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
818	.1	986	.04	1015	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
986	1015	71	71	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
818	991.5	77.5	F
1009.5	1155	77.5	F

BRIDGE

RIVER: StonyBrook
REACH: StonyBrook RS: 26.25

INPUT
Description: Conrail Bridge, Modeled as special bridge in HEC2 on sections 26.100 and 28.100, no BT given in HEC2 - needed to use bridge bottom width of 8 feet, top of road width of 300 feet, elevation of road and low chord given in X2 record, and centered opening inside bank stations provided, copied upstream section to downstream internal section, bridge opening inverts were given in the SB record, but were entered backwards (62.5 up invert and 63.5 dn invert)
Distance from Upstream XS = 5
Deck/Roadway Width = 61
Weir Coefficient = 2.5
Upstream Deck/Roadway Coordinates num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
818	78.2	-1	847	77.5	-1	996.5	77.5	-1
996.5	77.5	69.7	1004.5	77.5	69.7	1004.5	77.5	-1
1147	77.5	-1						

Upstream Bridge Cross Section Data
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
818	78.2	845	73.2	865	71.2	920	69.3	935	68.2
967	66	986	65.3	996	62.5	1005	62.5	1011	63.5

```
    1015    66.6    1047    66.2    1065    68.7    1090    68.2    1120    72.8
    1155    83.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     818      .1     986     .04    1015     .08

Bank Sta: Left   Right    Coeff Contr.   Expan.
           986    1015             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     818   991.5    77.5       F
  1009.5    1155    77.5       F

Downstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     818    78.2      -1     847    77.5      -1   996.5    77.5      -1
   996.5    77.5    69.7  1004.5    77.5    69.7  1004.5    77.5      -1
    1147    77.5      -1

Downstream Bridge Cross Section Data
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     818    78.2     845    73.2     865    71.2     920    69.3     935    68.2
     967      66     986    65.2     996    61.5    1005    61.5    1011    63.5
    1015    66.6    1047    66.2    1065    68.7    1090    68.2    1120    72.8
    1155    83.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     818      .1     996     .04    1005     .08

Bank Sta: Left   Right    Coeff Contr.   Expan.
           996    1005             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     818   993.2    73.6       F
  1007.8    1155    73.6       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line
```

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 26.2

INPUT
Description: HEC2 - 26.100, DS face of Conrail Bridge, left bank station looks wrong from HEC2, copy from ds section with increase in elevation of 1.5 ft and ineffective flow areas, decreased ds distance by 5 feet to move section away from structure (was modeled as a special bridge in HEC2)
REVDUP- corrected ineffective flow areas, and corrected bank stations to be on the banks

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
750	75.4	825	74.5	890	71.2	940	70.7	970	70.5
980	65.5	985	62	1000	61.5	1010	62	1012	63.3
1020	65.5	1067	65.7	1120	65.3	1235	68	1360	72.8
1410	75.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
750	.1	980	.04	1020	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
980	1020	55	55	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
750	993.2	73.6	F
1007.8	1410	73.6	F

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 26.1

INPUT
Description: FEMA T, HEC2 - 26.000, DS section for Conrail Bridge, left bank station looks wrong from HEC2
REVDUP- changed banks stations

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
750	73.9	825	73	890	69.7	940	69.2	970	69
980	64	985	60.5	1000	60	1010	60.5	1012	61.8
1020	64	1067	64.2	1120	63.8	1235	66.5	1360	71.3
1410	74.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
750	.1	980	.04	1020	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
980	1020	290	280	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 25

INPUT
Description: FEMA S, HEC-2 - 25.200, copy of ds section - increased elevation by 1.5
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
790	70	940	66	975	62	992	59.1	995	57.8
1000	57.4	1009	59.1	1011	60.9	1022	61.1	1027	62.9
1055	63.3	1070	70	1100	76.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
790	.08	992	.039	1011	.085

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
992	1011	150	150	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 24

INPUT
Description: FEMA R, HEC-2 - 25.100, copy of ds section - increased elevation by 1.5
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
790	68.5	940	64.5	975	60.5	992	57.6	995	56.3
1000	55.9	1009	57.6	1011	59.4	1022	59.6	1027	61.4
1055	61.8	1070	68.5	1100	75.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
790	.08	992	.039	1011	.085

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
992	1011	150	150	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 23

INPUT
Description: FEMA Q, HEC-2 - 25.000, DS limit of upstream model section in HEC2, downstream distance taken as difference between sections P and Q as reported in FEMA FIS tables
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
790	67	940	63	975	59	992	56.1	995	54.8
1000	54.4	1009	56.1	1011	57.9	1022	58.1	1027	59.9
1055	60.3	1070	67	1100	73.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
790	.08	992	.039	1011	.085

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
992	1011	264	264	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 22.4

INPUT
Description: FEMA P, HEC-2 - 24.000, US face of CT Turnpike, Last section in DS segment of HEC-2 model, decreased downstream distance by 5 feet to accomodate correctly modeling face sections at ds bridge

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
702	49	852	32.4	920	31.4	950	29	984	22.4
996	22.2	1000	20.6	1006	20.6	1014	19.2	1021	20.9
1036	28.1	1039	28	1041	30.5	1051	34.1	1073	35.9
1165	49								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
702	.03	996	.025	1021	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
996	1021	25	25	.3	.5

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 22.3

INPUT
Description: HEC-2 - 23.000, US face of CT Turnpike, was modeled as a special bridge in HEC-2 increased ds reach lenght to include bridge width and 5 ft on either side

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
505	43	680	40.4	973	38.2	988	38.7	992	39
992	19.5	1009	19.5	1009	39.4	1028	39.7	1120	44

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
505	.03	992	.025	1009	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
992	1009	325	325	.3	.5

BRIDGE

RIVER: StonyBrook
REACH: StonyBrook RS: 22.25

INPUT
Description: CT Turnpike and Ledge Road, Modeled as a Special Bridge in HEC-2 in cross-sections 22.000 and 23.000, has strange geometry for downstream cross section- as modeled in HEC-2, so copied upstream cross-section as the new downstream internal section. Inverts were specified in the SB and input into the internal bridge cross-sections. The DS low chord was adjusted in the internal section to maintain culvert heigth, as well as slope.
Distance from Upstream XS = 5
Deck/Roadway Width = 315
Weir Coefficient = 2.5
Upstream Deck/Roadway Coordinates
num= 10

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
505	43	680	40.4	973	38.2
988	38.7	992	39	26.1	992	39	26.1
1009	39.4	26.1	1009	39.4	26.1	1026	39.7
1120	44						

Upstream Bridge Cross Section Data
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
505	43	680	40.4	973	38.2	988	38.7	992	39
992	19.45	1009	19.45	1009	39.4	1028	39.7	1120	44

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
505	.03	992	.025	1009	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
992	1009	.3	.5

Downstream Deck/Roadway Coordinates
num= 10

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
505	43	680	40.4	973	38.2
988	38.7	992	39	22.75	992	39	22.75
1009	39.4	22.75	1009	39.4	22.75	1026	39.7
1120	44						

Downstream Bridge Cross Section Data
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
505	43	680	40.4	973	38.2	988	38.7	992	39
992	16.1	1009	16.1	1009	39.4	1028	39.7	1120	44

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
505	.03	992	.025	1009	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
992	1009	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
505	988.7	61.95	F
1012.3	1120	61.95	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 1

Pier Data
Pier Station Upstream= 1000.5 Downstream= 1000.5
Upstream num= 2

Width	Elev	Width	Elev
2	16	2	27

Downstream num= 2

Width	Elev	Width	Elev
2	16	2	27

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 22.2

INPUT
Description: HEC-2 - 22.000, DS face of CT Turnpike, decreased downstream
distance by 5 feet to accomodate moving face cross sections 5 feet
from structure
REVDUP- corrected ineffective flow area
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
900	33.4	930	31.8	960	26.8	964	25.4	968	24.9
985	17.8	990	16.4	1000	16.1	1008	16.9	1013	17.8
1023	21.3	1044	20.9	1135	19.9	1200	22.3	1310	31.7
1370	31.2	1460	40						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
900	.03	985	.025	1008	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
985 1008 105 105 105 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
900	988.7	61.95	F
1012.3	1460	61.95	F

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 22.1

INPUT
Description: FEMA O, HEC-2 - 21.000, DS x-sect of CT Turnpike
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
900	30.6	930	29	960	24	964	22.6	968	22.1
985	15	990	13.6	1000	13.3	1008	14.1	1013	15
1023	18.5	1044	18.1	1135	17.1	1200	19.5	1310	28.9
1370	28.4	1460	37.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
900	.1	985	.03	1008	.1

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           985    1008              320     290     270             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 21

INPUT
Description: FEMA N, HEC-2 - 20.000, DS x-sect for CT Turnpike
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     790    37.9     875    33.5     925    25.8     980      14     990    13.5
     993    11.5    1000    11.5    1007      12    1010    13.5    1050    18.2
    1110    15.4    1175    17.6    1250      26    1310    23.6    1350    30.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     790      .1     990     .03    1010      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           990    1010              270     310     340             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 20

INPUT
Description: FEMA M, HEC-2 - 20.000, US x-sect for Hecker Road Bridge, copy of
             ds section
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     835      29     875    28.7     925    24.3     960      19     986    16.8
     992    14.2     995    11.3     997     7.5    1000     9.6    1008    11.4
    1010    15.3    1022      17    1029    16.5    1095    20.1    1285      18
    1370      19    1560      29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     835     .08     992     .03    1010     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           992    1010               35      35      35             .3       .5

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 19.4

INPUT
Description: HEC-2 - 19.100, US face of Hecker Road Bridge
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     835      29     875    28.7     925    24.3     960      19     986    16.8
     992    14.2     995    11.3     997     7.5    1000     9.6    1008    11.4
    1010    15.3    1022      17    1029    16.5    1095    20.1    1285      18
    1370      19    1560      29
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     835     .08     992     .03    1010     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           992    1010                43      43      43             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     835     992    16.5       F
    1010    1560    16.5       F

BRIDGE


RIVER: StonyBrook
REACH: StonyBrook         RS: 19.25

INPUT
Description: Hecker Road Bridge, internal cross-sections defined from HEC-2
             sections 18.100 and 18.200, Upstream end bridge deck elevations
             may be wronly input into HEC-2, so copied ds BT to us section
             (also specified)
Distance from Upstream XS =       5
Deck/Roadway Width        =      33
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      993    23.7    19.3     993    23.7    19.3    1000    23.7      19
     1010    23.7    18.4    1010    23.7    18.4

Upstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     833      29     944      24     986    21.8     993      22     993    10.7
    1000    10.7    1010      11    1010    20.9    1023    20.3    1055      19
    1188    16.3    1318      17    1380      19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     833     .03     993     .02    1010     .03

Bank Sta: Left   Right    Coeff Contr.   Expan.
           993    1010             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     833     992    16.5       F
    1010    1380    16.5       F

Downstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      993    23.7    19.3     993    23.7    19.3    1000    23.7      19
     1010    23.7    18.4    1010    23.7    18.4

Downstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     833      29     944      24     986    21.8     993      22     993    10.7
    1000    10.7    1010      11    1010    20.9    1023    20.3    1055      19
    1188    16.3    1318      17    1380      19

Manning's n Values        num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
     833     .03     993     .02    1010     .03

Bank Sta: Left   Right    Coeff Contr.   Expan.
          993    1010            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     833     993      16       F
    1010    1380      16       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 19.1

INPUT
Description: HEC-2 - 17.100, DS face of Hecker Road, copy of ds
             section
REVDUP- corrected bank stations to be on the banks
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     920      24     966      19     982      14     988    10.7     993    10.5
    1000    10.1    1010    10.7    1013      13    1062      18    1085    18.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     920     .06     982     .03    1013      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          982    1013                55      50      45             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     920     993      16       F
    1010    1085      16       F

CROSS SECTION
```

RIVER: StonyBrook
REACH: StonyBrook RS: 18

INPUT
Description: FEMA L, HEC-2 - 17.000, DS x-sect for Hecker Road
REVDUP-
corrected bank stations to be on the banks

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
920	24	966	19	982	14	988	10.7	993	10.5
1000	10.1	1010	10.7	1013	13	1062	18	1085	18.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
920	.06	982	.03	1013	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
982	1013	445	440	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 17

INPUT
Description: FEMA K, HEC-2 - 16.000
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
941	25.2	960	17	986	9.9	988	8.6	1000	8.2
1008	8	1012	9	1012	13.1	1014	13.2	1015	12.2
1060	12.9	1128	14	1310	15	1364	16	1407	18
1424	20								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
941	.1	986	.03	1012	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
986	1012	970	975	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 16

INPUT
Description: FEMA J, HEC-2 15.000, Upstream xsect of Renshaw Road, copy of ds sections, left bank point with elevation 140 seems wrong
REVDUP-
corrected assumed typo from elevation 140 to elevation 14 in Left overbank

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
530	19	549	17	614	15	628	13	955	9.5
990	9.2	990	6	1011	6.5	1011	10.5	1024	12
1050	13	1055	14	1085	15				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
530	.04	990	.03	1011	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
990	1011	45	40	35	.3	.5

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 15.4

INPUT
Description: HEC-2 15.100, Upstream face of Renshaw Road, left bank point with elevation 140 seems wrong
REVDUP- corrected ineffective flow areas, and corrected assumed typo from elevation 140 to elevation 14 in Left overbank

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
530	19	549	17	614	15	628	13	955	9.5
990	9.2	990	6	1011	6.5	1011	10.5	1024	12
1050	13	1055	14	1085	15				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
530	.04	990	.03	1011	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
990	1011	55	55	55	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
530	987	12.4	F
1013	1085	12.4	F

BRIDGE

RIVER: StonyBrook
REACH: StonyBrook RS: 15.25

INPUT
Description: Renshaw Road Bridge, Used internal cross-sections to input sections 14.100 and 14.200 from HEC-2, bridge deck elevations for us section may be wrong - so copied ds BT to the us section
Distance from Upstream XS = 5
Deck/Roadway Width = 45
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 5

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
992	15.6	10.2	992	15.6	10.2	996	15.6	10.2
1008	15.6	10.2	1008	15.6	10.2			

Upstream Bridge Cross Section Data
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
493	22.3	900	13	992	12.5	992	5.4	996	5.1
1006	5.8	1008	12.4	1020	12.7	1040	13	1095	15
1236	23								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
493	.03	992	.02	1008	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.

```
          992    1008            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     493     987    12.4       F
    1013    1236    12.4       F

Downstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     992    15.6    10.2     992    15.6    10.2     996    15.6    10.2
    1008    15.6    10.2    1008    15.6    10.2

Downstream Bridge Cross Section Data
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     493    22.3     900      13     992    12.5     992     5.4     996     5.1
    1006     5.8    1008    12.4    1020    12.7    1040      13    1095      15
    1236      23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     493     .03     992     .02    1008     .03

Bank Sta: Left   Right    Coeff Contr.   Expan.
          992    1008            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     493     987    11.3       F
    1013    1236    11.3       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 15.1

INPUT
Description: HEC-2 - 13.100, DS face of Renshaw Road Bridge, copy of downstream
             section
```

```
REVDUP- corrected ineffective flow areas
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     845    14.2     905      13     922      11     977      10     993     9.8
     993       6    1000     5.5    1006       6    1006      11    1026      12
    1074      13    1152      16    1170      23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     845     .04     993     .03    1006    .055

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           993    1006               35      35      35             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     845     987    11.3       F
    1013    1170    11.3       F

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 14

INPUT
Description: FEMA I, HEC-2 - 13.000, DS section for Renshaw Road Bridge
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     845    14.2     905      13     922      11     977      10     993     9.8
     993       6    1000     5.5    1006       6    1006      11    1026      12
    1074      13    1152      16    1170      23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     845     .04     993     .03    1006    .055

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           993    1006               440     455     470             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 13

INPUT
Description: FEMA H, HEC-2 12.000, in channel point of 60' clearly
             wrong
REVDUP-in channel elevation of 60 feet corrected to equal
             other channel point of 5.6 ft, channel is flat bottomed and walled
             on the Left bank- field inspected.
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     714      21     915      13     990    12.2     990     4.6    1000     4.6
    1007     8.5    1010      10    1026     9.7    1050      10    1065     8.5
    1165      10    1210      14    1282      24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     714     .06     990     .03    1010     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           990    1010               30      35      40             .1       .3
```

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 12

INPUT
Description: FEMA G, HEC2 - 11.000
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
900	14.9	995	13.4	995	5.1	1000	4.5	1011	5
1011	11.3	1030	11.2	1061	11	1094	9	1190	10
1237	13	1272	19						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
900	.06	995	.03	1011	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
995	1011	90	100	110	.1	.3

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 11

INPUT
Description: FEMA F, HEC2 - 10.000, US x-sect for Boston Post Road, copy of ds cross section
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
584	22	863	16	885	14	976	14.6	993	11.5
993	5.4	1000	3.8	1006	5	1016	11.4	1085	12
1100	13	1220	14.3	1240	14	1360	18.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
584	.05	993	.03	1016	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
993	1016	25	25	25	.3	.5

CROSS SECTION

RIVER: StonyBrook
REACH: StonyBrook RS: 10.4

INPUT
Description: HEC2 - 10.100, US face of Boston Post Road
REVDUP- corrected ineffective flow areas
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
584	22	863	16	885	14	976	14.6	993	11.5
993	5.4	1000	3.8	1006	5	1016	11.4	1085	12
1100	13	1220	14.3	1240	14	1360	18.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
584	.05	993	.03	1016	.06

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           993    1016               62      62      62             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     584     987      15       F
    1015    1360      15       F

BRIDGE


RIVER: StonyBrook
REACH: StonyBrook         RS: 10.25

INPUT
Description: Boston Post Road, internal bridge sections defined from HEC-2
             sections 9.100 and 9.200
Distance from Upstream XS =       5
Deck/Roadway Width        =      52
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     993      15    11.4     993      15    11.4    1000      15    11.4
    1010      15    11.4    1010      15    11.4

Upstream Bridge Cross Section Data
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     578      22     840      17     920      15     993      15     993     5.3
    1000     4.9    1010     6.4    1010      15    1098      15    1217      16
    1328      18    1430      24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     578     .04     993    .025    1010     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
           993    1010             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     578     987      15       F
    1015    1430      15       F

Downstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     993      15    11.4     993      15    11.4    1000      15    11.4
    1010      15    11.4    1010      15    11.4

Downstream Bridge Cross Section Data
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     578      22     840      17     920      15     993      15     993     5.3
    1000     4.9    1010     6.4    1010      15    1098      15    1217      16
    1328      18    1430      24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     578     .04     993    .025    1010     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
           993    1010             .3       .5
```

```
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     578     987    13.2       F
    1015    1430    13.2       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 10.1

INPUT
Description: HEC2 - 8.100, DS face of Boston Post Road
REVDUP- corrected
             ineffective flow areas
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     925      14     956      10     990       8     990     5.5    1000       5
    1010     5.5    1010     9.5    1018      13    1037      14    1063      20
    1088      21    1140      29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     925     .08     990     .03    1010     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           990    1010               35      35      35             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     925     987    13.2       F
    1015    1140    13.2       F

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 9

INPUT
```

```
Description: FEMA E, HEC2 - 8.000, DS cross section for Boston Post Road
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     925      14     956      10     990       8     990     5.5    1000       5
    1010     5.5    1010     9.5    1018      13    1037      14    1063      20
    1088      21    1140      29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     925     .08     990     .03    1010     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           990    1010              380     370     370             .3       .5

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 8

INPUT
Description: FEMA D, HEC2 - 7.000
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     895    21.4     944      14     978     7.6     989       8    1000     1.7
    1007     4.6    1008     7.7    1039       9    1103      14    1141    18.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     895    .095     989     .03    1008     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           989    1008              100      70      50             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 7

INPUT
Description: FEMA C, HEC2 - 7.100, US section for Old Kings Highway, copy of ds
             cross-section
REVDUP- corrected Lbank station
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     715      19     772      13     810      14     884       8     980     7.5
     980       3    1000     1.5    1023       3    1023     7.5    1072       8
    1100      10    1125      14    1275      19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     715     .12     980     .03    1023     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           980    1023               50      40      25             .3       .5

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 6.4
```

```
INPUT
Description: HEC2 - 7.200, US face of Old Kings Highway South, Left bank
             station seems wrong
REVDUP- corrected bank station and
             ineffective flow areas
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     715      19     772      13     810      14     884       8     980     7.5
     980       3    1000     1.5    1023       3    1023     7.5    1072       8
    1100      10    1125      14    1275      19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     715     .12     980     .03    1023     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           980    1023               40      40      40             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     715     982     8.6       F
    1016    1275     8.6       F

BRIDGE


RIVER: StonyBrook
REACH: StonyBrook         RS: 6.25

INPUT
Description: Old Kings Highway South, internal bridge cross sections defined by
             HEC-2 sections 6.100 and 6.200
Distance from Upstream XS =       5
Deck/Roadway Width        =      30
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     987     9.5     7.1     987     9.5     7.1    1011     9.5     7.1
    1011     9.5     7.1

Upstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     795      19     820      14     855      11     966     8.6     987     9.5
     987     2.4     994     1.4    1007       2    1011     1.9    1011     9.1
    1021     8.9    1113      11    1288      19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     795     .04     987    .025    1011     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
           987    1011             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     795     982     8.6       F
    1016    1288     8.6       F

Downstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     987     9.5     7.1     987     9.5     7.1    1011     9.5     7.1
    1011     9.5     7.1
```

```
Downstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     795      19     820      14     855      11     966     8.6     987     9.5
     987     2.4     994     1.4    1007       2    1011     1.9    1011     9.1
    1021     8.9    1113      11    1288      19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     795     .04     987    .025    1011     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
           987    1011             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     795     982     8.3       F
    1016    1288     8.3       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 6.1

INPUT
Description: HEC2 - 5.100, DS face of Old Kings Highway South,
repeated
             previous cross section, added 1 ft to each elevation
REVDUP-
             corrected ineffective flow areas
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     858      15     940       9     992     8.5     992       3     998       1
    1013       9    1050      10    1120      11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     858     .06     992    .035    1013     .12
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           992    1013              30      30      40             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     858     982     8.3       F
    1016    1120     8.3       F

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 5

INPUT
Description: FEMA B, HEC2 - 5.000
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     858      14     940       8     992     7.5     992       2     998       0
    1013       8    1050       9    1120      10

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     858     .06     992    .035    1013     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           992    1013             145     140     130             .3       .5

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 4

INPUT
Description: HEC2 - 4.000
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     905      19     946       9     968       8     973     6.5     991     6.3
     991     4.8     992       3    1008     2.6    1020     6.4    1034       7
    1037       8    1097       8    1138       9    1182      14    1206      19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     905     .06     991    .035    1020     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           991    1020              50      50      45             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 3

INPUT
Description: HEC2 - 3.000
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     902      19     946       9     984     6.1     989     6.2     989     3.8
    1005     3.4    1005     6.2    1021     5.4    1025     7.4    1035     8.5
    1070     8.4
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     902     .06     989    .035    1005     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           989    1005               45      50      55             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 2

INPUT
Description: HEC2 - 2.000
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     902      19     954       8     986       7     990       4    1000     1.7
    1010       4    1011       6    1022       6    1025       4    1046       4
    1050       6    1097       7    1255      19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     902     .06     986    .035    1050     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           986    1050               260     300     350             .1       .3

CROSS SECTION


RIVER: StonyBrook
REACH: StonyBrook         RS: 1

INPUT
Description: FEMA A, Confluence with Goodwives River, HEC2 - 1.000
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     909      19     928      14     937       9     972       4     994       1
    1000       0    1022       1    1034       4    1044       9    1077      19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     909     .09     972     .03    1034     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           972    1034                 0       0       0             .1       .3



SUMMARY OF MANNING'S N VALUES

River:StonyBrook

      Reach          River Sta.       n1        n2        n3        n4

 StonyBrook           48                  .16       .05       .09
 StonyBrook           47                  .16       .05       .09
 StonyBrook           46                  .16       .05       .06      .035
 StonyBrook           45                  .16       .03       .18
 StonyBrook           44                  .11      .035       .11
 StonyBrook           43.4                .11      .035       .11
 StonyBrook           43.25        Bridge
```

StonyBrook	43.1	.11	.035	.11
StonyBrook	42	.11	.035	.11
StonyBrook	41	.085	.035	.04
StonyBrook	40	.12	.04	.12
StonyBrook	39.4	.12	.04	.12
StonyBrook	39.25	Bridge		
StonyBrook	39.1	.1	.04	.15
StonyBrook	38	.1	.04	.15
StonyBrook	37	.07	.05	.07
StonyBrook	36.4	.07	.05	.07
StonyBrook	36.25	Bridge		
StonyBrook	36.1	.08	.04	.055
StonyBrook	35	.08	.04	.055
StonyBrook	34	.08	.04	.055
StonyBrook	33	.05	.04	.055
StonyBrook	32	.045	.04	.04
StonyBrook	31	.1	.04	.07
StonyBrook	30	.09	.035	.05
StonyBrook	29	.1	.035	.1
StonyBrook	28.4	.1	.035	.1
StonyBrook	28.25	Bridge		
StonyBrook	28.1	.1	.04	.08
StonyBrook	27	.1	.04	.08
StonyBrook	26.4	.1	.04	.08
StonyBrook	26.3	.1	.04	.08
StonyBrook	26.25	Bridge		
StonyBrook	26.2	.1	.04	.1
StonyBrook	26.1	.1	.04	.1
StonyBrook	25	.08	.039	.085
StonyBrook	24	.08	.039	.085
StonyBrook	23	.08	.039	.085
StonyBrook	22.4	.03	.025	.03
StonyBrook	22.3	.03	.025	.03
StonyBrook	22.25	Bridge		
StonyBrook	22.2	.03	.025	.03
StonyBrook	22.1	.1	.03	.1
StonyBrook	21	.1	.03	.1
StonyBrook	20	.08	.03	.08
StonyBrook	19.4	.08	.03	.08
StonyBrook	19.25	Bridge		
StonyBrook	19.1	.06	.03	.1
StonyBrook	18	.06	.03	.1
StonyBrook	17	.1	.03	.1
StonyBrook	16	.04	.03	.04
StonyBrook	15.4	.04	.03	.04
StonyBrook	15.25	Bridge		
StonyBrook	15.1	.04	.03	.055
StonyBrook	14	.04	.03	.055
StonyBrook	13	.06	.03	.06
StonyBrook	12	.06	.03	.06
StonyBrook	11	.05	.03	.06
StonyBrook	10.4	.05	.03	.06
StonyBrook	10.25	Bridge		
StonyBrook	10.1	.08	.03	.05
StonyBrook	9	.08	.03	.05
StonyBrook	8	.095	.03	.05
StonyBrook	7	.12	.03	.05
StonyBrook	6.4	.12	.03	.05
StonyBrook	6.25	Bridge		
StonyBrook	6.1	.06	.035	.12
StonyBrook	5	.06	.035	.12
StonyBrook	4	.06	.035	.12
StonyBrook	3	.06	.035	.12

StonyBrook	2	.06	.035	.12
StonyBrook	1	.09	.03	.06

SUMMARY OF REACH LENGTHS

River: StonyBrook

Reach	River Sta.	Left	Channel	Right
StonyBrook	48	1000	1030	1050
StonyBrook	47	1040	1120	1080
StonyBrook	46	150	135	120
StonyBrook	45	650	650	610
StonyBrook	44	35	40	45
StonyBrook	43.4	44	44	44
StonyBrook	43.25	Bridge		
StonyBrook	43.1	65	65	70
StonyBrook	42	350	400	440
StonyBrook	41	400	440	430
StonyBrook	40	30	35	35
StonyBrook	39.4	50	50	50
StonyBrook	39.25	Bridge		
StonyBrook	39.1	50	50	50
StonyBrook	38	790	730	630
StonyBrook	37	55	50	45
StonyBrook	36.4	22	22	22
StonyBrook	36.25	Bridge		
StonyBrook	36.1	40	35	25
StonyBrook	35	90	70	50
StonyBrook	34	240	265	270
StonyBrook	33	240	235	230
StonyBrook	32	340	360	370
StonyBrook	31	500	720	750
StonyBrook	30	550	600	300
StonyBrook	29	15	45	50
StonyBrook	28.4	50	50	50
StonyBrook	28.25	Bridge		
StonyBrook	28.1	45	40	35
StonyBrook	27	400	400	400
StonyBrook	26.4	85	80	75
StonyBrook	26.3	71	71	71
StonyBrook	26.25	Bridge		
StonyBrook	26.2	55	55	55
StonyBrook	26.1	290	280	230
StonyBrook	25	150	150	150
StonyBrook	24	150	150	150
StonyBrook	23	264	264	264
StonyBrook	22.4	25	25	25
StonyBrook	22.3	325	325	325
StonyBrook	22.25	Bridge		
StonyBrook	22.2	105	105	105
StonyBrook	22.1	320	290	270
StonyBrook	21	270	310	340
StonyBrook	20	35	35	35
StonyBrook	19.4	43	43	43
StonyBrook	19.25	Bridge		
StonyBrook	19.1	55	50	45
StonyBrook	18	445	445	440
StonyBrook	17	970	975	980
StonyBrook	16	45	40	35

StonyBrook	15.4	55	55	55
StonyBrook	15.25	Bridge		
StonyBrook	15.1	35	35	35
StonyBrook	14	440	455	470
StonyBrook	13	30	35	40
StonyBrook	12	90	100	110
StonyBrook	11	25	25	25
StonyBrook	10.4	62	62	62
StonyBrook	10.25	Bridge		
StonyBrook	10.1	35	35	35
StonyBrook	9	380	370	370
StonyBrook	8	100	70	50
StonyBrook	7	50	40	25
StonyBrook	6.4	40	40	40
StonyBrook	6.25	Bridge		
StonyBrook	6.1	30	30	40
StonyBrook	5	145	140	130
StonyBrook	4	50	50	45
StonyBrook	3	45	50	55
StonyBrook	2	260	300	350
StonyBrook	1	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: StonyBrook

Reach	River Sta.	Contr.	Expan.
StonyBrook	48	.1	.3
StonyBrook	47	.1	.3
StonyBrook	46	.1	.3
StonyBrook	45	.1	.3
StonyBrook	44	.3	.5
StonyBrook	43.4	.3	.5
StonyBrook	43.25	Bridge	
StonyBrook	43.1	.3	.5
StonyBrook	42	.1	.3
StonyBrook	41	.1	.3
StonyBrook	40	.1	.3
StonyBrook	39.4	.3	.5
StonyBrook	39.25	Bridge	
StonyBrook	39.1	.3	.5
StonyBrook	38	.1	.3
StonyBrook	37	.3	.5
StonyBrook	36.4	.3	.5
StonyBrook	36.25	Bridge	
StonyBrook	36.1	.3	.5
StonyBrook	35	.1	.3
StonyBrook	34	.1	.3
StonyBrook	33	.1	.3
StonyBrook	32	.1	.3
StonyBrook	31	.1	.3
StonyBrook	30	.1	.3
StonyBrook	29	.3	.5
StonyBrook	28.4	.3	.5
StonyBrook	28.25	Bridge	
StonyBrook	28.1	.3	.5
StonyBrook	27	.3	.5
StonyBrook	26.4	.3	.5
StonyBrook	26.3	.3	.5

StonyBrook	26.25	Bridge		
StonyBrook	26.2		.3	.5
StonyBrook	26.1		.1	.3
StonyBrook	25		.1	.3
StonyBrook	24		.1	.3
StonyBrook	23		.1	.3
StonyBrook	22.4		.3	.5
StonyBrook	22.3		.3	.5
StonyBrook	22.25	Bridge		
StonyBrook	22.2		.3	.5
StonyBrook	22.1		.1	.3
StonyBrook	21		.1	.3
StonyBrook	20		.3	.5
StonyBrook	19.4		.3	.5
StonyBrook	19.25	Bridge		
StonyBrook	19.1		.3	.5
StonyBrook	18		.1	.3
StonyBrook	17		.1	.3
StonyBrook	16		.3	.5
StonyBrook	15.4		.3	.5
StonyBrook	15.25	Bridge		
StonyBrook	15.1		.3	.5
StonyBrook	14		.1	.3
StonyBrook	13		.1	.3
StonyBrook	12		.1	.3
StonyBrook	11		.3	.5
StonyBrook	10.4		.3	.5
StonyBrook	10.25	Bridge		
StonyBrook	10.1		.3	.5
StonyBrook	9		.3	.5
StonyBrook	8		.1	.3
StonyBrook	7		.3	.5
StonyBrook	6.4		.3	.5
StonyBrook	6.25	Bridge		
StonyBrook	6.1		.3	.5
StonyBrook	5		.3	.5
StonyBrook	4		.1	.3
StonyBrook	3		.1	.3
StonyBrook	2		.1	.3
StonyBrook	1		.1	.3

Revised Duplicate Effective Model Output

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: StonyBrookDarien1
Project File : StonyBrookDarien1.prj
Run Date and Time: 4/13/2011 3:16:31 PM

Project in English units

Project Description:
Stony Brook, Darien, CT

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
StonyBrook	48	100-yr	538.00	103.80	109.83		110.04	0.002125	3.67	150.59	36.75	0.29
StonyBrook	48	100-yr(encr)	538.00	103.80	109.79		110.01	0.002384	3.71	144.87	29.00	0.29
StonyBrook	48	10-yr	312.00	103.80	108.41		108.55	0.002094	2.97	104.97	28.61	0.27
StonyBrook	48	50-yr	450.00	103.80	109.33		109.51	0.002124	3.42	132.97	33.33	0.28
StonyBrook	48	500-yr	807.00	103.80	110.34		110.72					

0.003432	4.97	170.23	40.22	0.37					
StonyBrook	47	100-yr		538.00	98.70	102.83	102.83	104.37	
0.031755	9.97	53.97	17.68	1.01					
StonyBrook	47	100-yr(encr)		538.00	98.70	103.36		104.47	
0.020165	8.46	63.57	18.73	0.81					
StonyBrook	47	10-yr		312.00	98.70	101.74	101.74	102.92	
0.033657	8.69	35.89	15.52	1.01					
StonyBrook	47	50-yr		450.00	98.70	102.45	102.45	103.85	
0.031944	9.50	47.39	16.93	1.00					
StonyBrook	47	500-yr		807.00	98.70	104.78	104.78	105.33	
0.008800	6.77	270.70	309.81	0.56					
StonyBrook	46	100-yr		538.00	94.00	101.23		101.25	
0.000524	1.76	769.91	327.27	0.12					
StonyBrook	46	100-yr(encr)		538.00	94.00	102.03		102.07	
0.000659	2.13	474.60	99.65	0.14					
StonyBrook	46	10-yr		312.00	94.00	100.66		100.67	
0.000339	1.33	595.35	288.12	0.10					
StonyBrook	46	50-yr		450.00	94.00	101.03		101.04	
0.000459	1.61	704.89	313.26	0.11					
StonyBrook	46	500-yr		807.00	94.00	101.73		101.75	
0.000703	2.14	941.28	361.61	0.14					
StonyBrook	45	100-yr		538.00	95.80	100.48	100.48	101.02	
0.006464	8.77	393.32	320.27	0.78					
StonyBrook	45	100-yr(encr)		538.00	95.80	101.59		101.86	
0.004305	6.32	315.37	115.65	0.50					
StonyBrook	45	10-yr		312.00	95.80	100.06	100.06	100.51	
0.005021	7.17	264.56	293.69	0.68					
StonyBrook	45	50-yr		450.00	95.80	100.36	100.36	100.84	
0.005679	8.05	354.88	312.57	0.73					
StonyBrook	45	500-yr		807.00	95.80	100.99		101.49	
0.006224	9.34	565.30	352.66	0.78					
StonyBrook	44	100-yr		538.00	94.40	98.67		98.87	
0.001513	3.69	206.45	140.92	0.35					
StonyBrook	44	100-yr(encr)		538.00	94.40	99.45		99.80	
0.002418	4.72	114.00	24.00	0.38					
StonyBrook	44	10-yr		312.00	94.40	97.56		97.73	
0.001932	3.31	96.51	62.96	0.37					
StonyBrook	44	50-yr		450.00	94.40	98.26		98.46	
0.001707	3.60	155.47	106.43	0.36					
StonyBrook	44	500-yr		807.00	94.40	99.82		100.01	

0.001078	3.77	428.89	274.07		0.31				
StonyBrook	43.4		100-yr		538.00		94.40	97.78	97.32	98.58
0.007923	7.18	74.97	75.94		0.77				
StonyBrook	43.4		100-yr(encr)		538.00		94.40	99.10	97.44	99.63
0.003358	5.83	92.34	24.00		0.49				
StonyBrook	43.4		10-yr		312.00		94.40	96.86	96.56	97.46
0.009028	6.21	50.24	35.94		0.78				
StonyBrook	43.4		50-yr		450.00		94.40	97.43	97.04	98.17
0.008351	6.87	65.47	45.13		0.78				
StonyBrook	43.4		500-yr		807.00		94.40	98.74	98.08	99.69
0.006567	7.85	104.77	146.08		0.74				
StonyBrook	43.25				Bridge					
StonyBrook	43.1		100-yr		538.00		93.00	97.13	95.70	97.57
0.002871	5.45	113.31	111.44		0.48				
StonyBrook	43.1		100-yr(encr)		538.00		93.00	98.24	95.66	98.54
0.001835	4.42	121.74	24.00		0.35				
StonyBrook	43.1		10-yr		312.00		93.00	96.45	94.90	96.67
0.001865	3.87	90.07	83.37		0.38				
StonyBrook	43.1		50-yr		450.00		93.00	96.89	95.41	97.25
0.002491	4.87	105.22	101.67		0.44				
StonyBrook	43.1		500-yr		807.00		93.00	97.66	96.48	98.42
0.004165	7.14	131.47	272.54		0.59				
StonyBrook	42		100-yr		538.00		93.00	96.97		97.36
0.002829	5.27	171.31	105.02		0.48				
StonyBrook	42		100-yr(encr)		538.00		93.00	98.09		98.41
0.002001	4.55	118.17	24.00		0.36				
StonyBrook	42		10-yr		312.00		93.00	96.32		96.55
0.001996	3.90	111.63	78.28		0.39				
StonyBrook	42		50-yr		450.00		93.00	96.74		97.07
0.002545	4.79	148.21	95.56		0.45				
StonyBrook	42		500-yr		807.00		93.00	97.50	96.59	98.07
0.003725	6.59	232.07	126.56		0.56				
StonyBrook	41		100-yr		538.00		92.10	95.80	95.27	96.07
0.003427	5.15	186.41	136.48		0.52				
StonyBrook	41		100-yr(encr)		538.00		92.10	96.08		96.94
0.007853	7.63	74.33	23.59		0.74				
StonyBrook	41		10-yr		312.00		92.10	95.00	94.73	95.32

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0.005196       5.17       96.67       91.36           0.61
  StonyBrook    41            50-yr          450.00       92.10       95.51       95.07       95.79
0.003955       5.17      149.39      116.54           0.55
  StonyBrook    41            500-yr         807.00       92.10       96.56                   96.77
0.002354       4.96      309.70      188.23           0.45


  StonyBrook    40            100-yr         538.00       89.80       93.52       92.46       94.06
0.006228       5.93       90.74       28.85           0.59
  StonyBrook    40            100-yr(encr)   538.00       89.80       95.01                   95.25
0.001900       3.98      135.15       30.00           0.33
  StonyBrook    40            10-yr          312.00       89.80       92.58       91.68       92.94
0.005656       4.81       64.80       26.62           0.54
  StonyBrook    40            50-yr          450.00       89.80       93.18       92.18       93.65
0.006055       5.55       81.11       28.04           0.57
  StonyBrook    40            500-yr         807.00       89.80       94.42                   95.15
0.006267       6.85      122.30       52.71           0.61


  StonyBrook    39.4          100-yr         538.00       89.80       92.47       92.47       93.64
0.019342       8.70       61.84       26.35           1.00
  StonyBrook    39.4          100-yr(encr)   538.00       89.80       94.92       92.46       95.18
0.001903       4.10      131.34       30.00           0.34
  StonyBrook    39.4          10-yr          312.00       89.80       91.68       91.68       92.54
0.021309       7.47       41.77       24.47           1.01
  StonyBrook    39.4          50-yr          450.00       89.80       92.18       92.18       93.24
0.019827       8.26       54.45       25.68           1.00
  StonyBrook    39.4          500-yr         807.00       89.80       93.80       93.24       94.84
0.010501       8.17       98.81       29.52           0.78


  StonyBrook    39.25                        Bridge


  StonyBrook    39.1          100-yr         538.00       88.40       92.54       91.76       93.03
0.006390       5.63       95.52       56.28           0.60
  StonyBrook    39.1          100-yr(encr)   538.00       88.40       93.84       92.56       94.69
0.007004       7.38       72.86       25.00           0.61
  StonyBrook    39.1          10-yr          312.00       88.40       91.62       91.16       92.00
0.008364       4.93       63.27       49.93           0.65
  StonyBrook    39.1          50-yr          450.00       88.40       92.19       91.54       92.64
0.007066       5.40       83.26       53.07           0.62
  StonyBrook    39.1          500-yr         807.00       88.40       93.97       92.36       94.45
0.003519       5.54      145.71      106.33           0.48


  StonyBrook    38            100-yr         538.00       88.40       92.42                   92.68
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0.003700       4.06      132.92       55.18           0.45
  StonyBrook    38           100-yr(encr)    538.00       88.40       93.97                   94.22
0.002065       3.99      134.77       28.97           0.33
  StonyBrook    38           10-yr           312.00       88.40       91.27                   91.55
0.007509       4.20       74.30       48.67           0.60
  StonyBrook    38           50-yr           450.00       88.40       92.01                   92.27
0.004462       4.05      111.21       51.45           0.48
  StonyBrook    38           500-yr          807.00       88.40       94.00                   94.20
0.001568       3.60      260.86      107.24           0.32


  StonyBrook    37           100-yr          538.00       84.40       91.56                   91.63
0.000698       2.47      308.27       96.25           0.18
  StonyBrook    37           100-yr(encr)    538.00       84.40       92.04                   92.33
0.003299       4.31      124.85       17.00           0.28
  StonyBrook    37           10-yr           312.00       84.40       90.15                   90.22
0.000755       2.16      186.00       78.01           0.18
  StonyBrook    37           50-yr           450.00       84.40       91.10                   91.17
0.000694       2.34      265.69       90.32           0.17
  StonyBrook    37           500-yr          807.00       84.40       93.52                   93.58
0.000473       2.45      530.64      145.87           0.15


  StonyBrook    36.4         100-yr          538.00       84.40       91.33       87.63       91.54
0.001489       3.73      144.25       93.23           0.26
  StonyBrook    36.4         100-yr(encr)    538.00       84.40       91.85       87.85       92.16
0.003544       4.42      121.60       17.00           0.29
  StonyBrook    36.4         10-yr           312.00       84.40       90.04       86.82       90.16
0.001072       2.72      114.79       76.58           0.21
  StonyBrook    36.4         50-yr           450.00       84.40       90.92       87.33       91.09
0.001300       3.33      134.95       87.97           0.24
  StonyBrook    36.4         500-yr          807.00       84.40       93.49       88.43       93.56
0.000479       2.46      527.03      144.63           0.15


  StonyBrook    36.25                        Bridge


  StonyBrook    36.1         100-yr          538.00       85.00       90.23       89.52       91.13
0.007929       7.82       76.91       65.45           0.67
  StonyBrook    36.1         100-yr(encr)    538.00       85.00       91.00       89.39       91.79
0.007366       7.13       75.48       15.00           0.56
  StonyBrook    36.1         10-yr           312.00       85.00       89.52       88.33       90.00
0.005260       5.64       60.50       50.71           0.53
  StonyBrook    36.1         50-yr           450.00       85.00       90.13       89.15       90.79
0.006067       6.73       74.57       63.35           0.58
  StonyBrook    36.1         500-yr          807.00       85.00       91.57       90.44       92.02
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0.003725	6.44	223.08	93.56		0.48				
StonyBrook	35	100-yr		538.00		85.00	89.70	89.70	90.75
0.011558	8.65	84.89	54.50		0.79				
StonyBrook	35	100-yr(encr)		538.00		85.00	90.39		91.41
0.010489	8.10	66.41	15.00		0.68				
StonyBrook	35	10-yr		312.00		85.00	88.90	88.31	89.66
0.010524	7.02	48.00	34.99		0.72				
StonyBrook	35	50-yr		450.00		85.00	89.34	89.34	90.39
0.012499	8.41	66.73	47.11		0.81				
StonyBrook	35	500-yr		807.00		85.00	90.49	90.49	91.62
0.010744	9.47	134.14	70.75		0.78				
StonyBrook	34	100-yr		538.00		86.90	88.70	88.56	89.20
0.018331	6.95	112.33	87.47		0.94				
StonyBrook	34	100-yr(encr)		538.00		86.90	89.40	89.40	90.44
0.020727	8.85	70.87	33.68		1.01				
StonyBrook	34	10-yr		312.00		86.90	88.24	88.13	88.62
0.019726	5.86	73.44	84.94		0.93				
StonyBrook	34	50-yr		450.00		86.90	88.53	88.43	88.99
0.018936	6.59	97.78	86.54		0.94				
StonyBrook	34	500-yr		807.00		86.90	89.20	88.95	89.79
0.015963	7.72	157.57	95.17		0.92				
StonyBrook	33	100-yr		538.00		83.50	85.63		85.94
0.008772	5.34	129.15	80.36		0.68				
StonyBrook	33	100-yr(encr)		538.00		83.50	86.51		87.02
0.007600	6.04	96.70	35.40		0.64				
StonyBrook	33	10-yr		312.00		83.50	85.17		85.37
0.008266	4.30	92.70	77.09		0.63				
StonyBrook	33	50-yr		450.00		83.50	85.47		85.74
0.008506	4.96	116.24	79.22		0.66				
StonyBrook	33	500-yr		807.00		83.50	86.01		86.46
0.010219	6.50	159.88	83.02		0.76				
StonyBrook	32	100-yr		538.00		80.20	82.96	82.96	83.40
0.013409	7.29	121.66	139.28		0.85				
StonyBrook	32	100-yr(encr)		538.00		80.20	83.34	83.34	84.37
0.017485	9.26	70.98	33.33		1.00				
StonyBrook	32	10-yr		312.00		80.20	82.59	82.59	82.97
0.012699	6.31	77.96	99.39		0.81				
StonyBrook	32	50-yr		450.00		80.20	82.83	82.83	83.25
0.013265	6.98	104.70	125.32		0.84				
StonyBrook	32	500-yr		807.00		80.20	83.28	83.28	83.76

0.012964	7.85	172.99	170.25	0.86					
StonyBrook	31	100-yr		538.00	71.00	76.73	75.47	77.48	
0.006722	6.98	83.57	42.77	0.60					
StonyBrook	31	100-yr(encr)		538.00	71.00	78.31		78.72	
0.003081	5.14	104.75	18.00	0.38					
StonyBrook	31	10-yr		312.00	71.00	76.71		76.97	
0.002298	4.07	82.77	40.20	0.35					
StonyBrook	31	50-yr		450.00	71.00	77.05		77.48	
0.003576	5.34	103.91	82.09	0.44					
StonyBrook	31	500-yr		807.00	71.00	76.62	76.62	78.41	
0.016596	10.77	79.41	35.87	0.93					
StonyBrook	30	100-yr		538.00	69.00	74.89		75.01	
0.001869	4.38	377.78	436.25	0.36					
StonyBrook	30	100-yr(encr)		538.00	69.00	75.16		75.72	
0.005744	6.95	98.40	28.43	0.55					
StonyBrook	30	10-yr		312.00	69.00	73.55	73.55	74.15	
0.007675	7.08	75.54	78.24	0.69					
StonyBrook	30	50-yr		450.00	69.00	74.31	73.97	74.65	
0.004239	6.04	159.08	176.05	0.53					
StonyBrook	30	500-yr		807.00	69.00	76.23		76.25	
0.000391	2.37	1026.56	510.95	0.17					
StonyBrook	29	100-yr		538.00	67.60	74.39		74.54	
0.000578	3.54	485.30	430.18	0.24					
StonyBrook	29	100-yr(encr)		538.00	67.60	74.20		74.54	
0.001043	4.66	124.79	20.00	0.33					
StonyBrook	29	10-yr		312.00	67.60	72.45		72.64	
0.000964	3.62	117.93	71.73	0.30					
StonyBrook	29	50-yr		450.00	67.60	73.63		73.82	
0.000775	3.77	248.59	176.02	0.28					
StonyBrook	29	500-yr		807.00	67.60	76.07		76.12	
0.000220	2.55	1277.74	512.72	0.16					
StonyBrook	28.4	100-yr		538.00	67.60	74.35	70.86	74.51	
0.000604	3.60	469.58	428.38	0.25					
StonyBrook	28.4	100-yr(encr)		538.00	67.60	74.11	70.87	74.47	
0.002089	4.77	112.78	18.00	0.34					
StonyBrook	28.4	10-yr		312.00	67.60	72.41	69.96	72.60	
0.000981	3.62	100.39	69.70	0.30					
StonyBrook	28.4	50-yr		450.00	67.60	73.51	70.53	73.76	
0.000973	4.17	128.77	160.03	0.31					
StonyBrook	28.4	500-yr		807.00	67.60	76.06	71.75	76.11	

0.000223 2.56 1272.01 512.17 0.16

StonyBrook 28.25 Bridge

StonyBrook 28.1 100-yr 538.00 67.00 71.53 70.49 72.16
0.005408 6.51 93.22 56.37 0.58
StonyBrook 28.1 100-yr(encr) 538.00 67.00 73.03 70.44 73.42
0.003013 4.96 108.40 20.00 0.38
StonyBrook 28.1 10-yr 312.00 67.00 70.70 69.59 71.06
0.004236 4.91 69.84 42.12 0.49
StonyBrook 28.1 50-yr 450.00 67.00 71.34 70.18 71.83
0.004524 5.76 87.80 53.06 0.53
StonyBrook 28.1 500-yr 807.00 67.00 74.08 71.30 74.54
0.002113 5.68 164.45 365.93 0.39

StonyBrook 27 100-yr 538.00 67.00 70.85 70.54 71.78
0.010265 7.91 82.86 44.82 0.77
StonyBrook 27 100-yr(encr) 538.00 67.00 73.02 73.27
0.001533 4.30 167.65 39.58 0.33
StonyBrook 27 10-yr 312.00 67.00 69.58 69.58 70.56
0.020210 7.94 39.53 23.03 1.00
StonyBrook 27 50-yr 450.00 67.00 70.19 70.19 71.33
0.016536 8.61 56.84 33.49 0.95
StonyBrook 27 500-yr 807.00 67.00 74.14 74.35
0.001222 4.35 491.25 371.01 0.30

StonyBrook 26.4 100-yr 538.00 63.30 71.07 71.10
0.000188 1.75 655.13 211.52 0.12
StonyBrook 26.4 100-yr(encr) 538.00 63.30 70.48 71.62
0.013883 8.56 62.84 9.00 0.57
StonyBrook 26.4 10-yr 312.00 63.30 68.45 68.51
0.000581 2.22 224.62 114.33 0.19
StonyBrook 26.4 50-yr 450.00 63.30 70.10 70.14
0.000272 1.90 467.29 177.24 0.14
StonyBrook 26.4 500-yr 807.00 63.30 74.17 74.18
0.000065 1.33 1436.14 277.82 0.07

StonyBrook 26.3 100-yr 538.00 62.50 70.79 65.95 71.02
0.000677 3.80 141.64 230.10 0.24
StonyBrook 26.3 100-yr(encr) 538.00 62.50 70.79 65.95 71.02
0.000677 3.80 141.68 30.00 0.24
StonyBrook 26.3 10-yr 312.00 62.50 68.26 65.03 68.43

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0.000830       3.25       96.10      131.18           0.25
  StonyBrook    26.3           50-yr           450.00       62.50       69.86       65.61       70.06
0.000722       3.60      124.85      197.01           0.24
  StonyBrook    26.3           500-yr          807.00       62.50       73.83       66.89       74.10
0.000513       4.11      196.40      281.91           0.22


  StonyBrook    26.25                          Bridge



  StonyBrook    26.2           100-yr          538.00       61.50       65.14       65.14       66.88
0.015400      10.58       50.83       38.17           1.00
  StonyBrook    26.2           100-yr(encr)    538.00       61.50       65.13       65.13       66.88
0.015480      10.60       50.76       28.67           1.00
  StonyBrook    26.2           10-yr           312.00       61.50       64.08       64.08       65.29
0.017461       8.84       35.30       32.78           1.00
  StonyBrook    26.2           50-yr           450.00       61.50       64.74       64.74       66.29
0.016142       9.99       45.03       36.16           1.00
  StonyBrook    26.2           500-yr          807.00       61.50       66.22       66.22       68.50
0.014069      12.11       66.62      180.62           1.00


  StonyBrook    26.1           100-yr          538.00       60.00       63.93                   64.28
0.004146       4.70      115.83       62.81           0.49
  StonyBrook    26.1           100-yr(encr)    538.00       60.00       64.53                   65.16
0.006602       6.34       84.86       19.61           0.54
  StonyBrook    26.1           10-yr           312.00       60.00       62.92                   63.18
0.004330       4.06       76.81       34.54           0.48
  StonyBrook    26.1           50-yr           450.00       60.00       63.58                   63.89
0.004161       4.47      100.65       37.87           0.48
  StonyBrook    26.1           500-yr          807.00       60.00       64.74                   65.11
0.003572       5.12      234.54      181.34           0.47


  StonyBrook    25             100-yr          538.00       57.40       61.48       61.26       62.45
0.010639       8.19       82.81       45.05           0.81
  StonyBrook    25             100-yr(encr)    538.00       57.40       61.99                   62.90
0.009768       7.67       70.12       19.00           0.70
  StonyBrook    25             10-yr           312.00       57.40       60.63                   61.32
0.010737       6.78       51.26       27.67           0.78
  StonyBrook    25             50-yr           450.00       57.40       61.18       60.86       62.06
0.010855       7.74       69.43       42.40           0.80
  StonyBrook    25             500-yr          807.00       57.40       62.26       62.05       63.46
0.010410       9.36      120.22       52.45           0.83


  StonyBrook    24             100-yr          538.00       55.90       60.23       59.76       61.02
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0.007988	7.46	94.27	47.19		0.71			
StonyBrook	24		100-yr(encr)	538.00		55.90	60.73	59.71	61.54
0.008070	7.19	74.86	19.00		0.64			
StonyBrook	24		10-yr	312.00		55.90	59.41	58.80	59.94
0.007465	6.00	59.15	29.87		0.65			
StonyBrook	24		50-yr	450.00		55.90	59.99	59.36	60.66
0.007415	6.84	82.95	45.07		0.67			
StonyBrook	24		500-yr	807.00		55.90	60.99	60.55	62.01
0.008315	8.70	132.86	55.16		0.75			
StonyBrook	23		100-yr	538.00		54.40	58.26	58.26	59.43
0.013962	8.94	73.00	43.12		0.91			
StonyBrook	23		100-yr(encr)	538.00		54.40	58.21	58.21	59.67
0.019576	9.71	55.43	19.00		1.00			
StonyBrook	23		10-yr	312.00		54.40	57.30	57.30	58.26
0.017459	7.96	42.48	25.36		0.97			
StonyBrook	23		50-yr	450.00		54.40	57.86	57.86	59.02
0.016421	8.82	57.87	29.28		0.97			
StonyBrook	23		500-yr	807.00		54.40	59.05	59.05	60.44
0.012848	10.03	109.43	50.02		0.91			
StonyBrook	22.4		100-yr	800.00		19.20	26.78		26.93
0.000297	3.48	300.10	71.83		0.24			
StonyBrook	22.4		100-yr(encr)	800.00		19.20	26.81		26.98
0.000410	3.58	258.32	50.93		0.25			
StonyBrook	22.4		10-yr	465.00		19.20	25.79		25.87
0.000198	2.54	232.65	64.68		0.19			
StonyBrook	22.4		50-yr	670.00		19.20	25.89		26.05
0.000382	3.58	239.04	65.39		0.27			
StonyBrook	22.4		500-yr	1200.00		19.20	31.49		31.55
0.000071	2.46	745.24	129.66		0.13			
StonyBrook	22.3		100-yr	800.00		19.50	25.84	23.60	26.70
0.002790	7.42	107.83	17.00		0.52			
StonyBrook	22.3		100-yr(encr)	800.00		19.50	25.92	23.58	26.76
0.002697	7.33	109.18	17.00		0.51			
StonyBrook	22.3		10-yr	465.00		19.50	25.46	22.35	25.79
0.001118	4.59	101.40	17.00		0.33			
StonyBrook	22.3		50-yr	670.00		19.50	25.07	23.13	25.84
0.002817	7.08	94.61	17.00		0.53			
StonyBrook	22.3		500-yr	1200.00		19.50	30.77	24.86	31.38
0.001354	6.26	191.60	17.00		0.33			
StonyBrook	22.25			Bridge				

StonyBrook	22.2	100-yr	800.00	16.10	19.89	19.89	21.54	
0.006001	10.61	79.02	38.98	1.00				
StonyBrook	22.2	100-yr(encr)	800.00	16.10	20.14	20.14	22.02	
0.007244	11.01	72.67	23.00	1.00				
StonyBrook	22.2	10-yr	465.00	16.10	18.88	18.88	20.04	
0.006549	8.85	55.23	33.68	0.98				
StonyBrook	22.2	50-yr	670.00	16.10	19.52	19.52	20.99	
0.006172	9.99	70.33	37.04	0.99				
StonyBrook	22.2	500-yr	1200.00	16.10	20.92	20.92	23.08	
0.005590	12.15	103.27	163.88	1.00				
StonyBrook	22.1	100-yr	800.00	13.30	17.98	16.99	18.75	
0.003280	7.40	183.96	147.42	0.63				
StonyBrook	22.1	100-yr(encr)	800.00	13.30	18.79		19.52	
0.003389	6.87	116.52	23.00	0.54				
StonyBrook	22.1	10-yr	465.00	13.30	16.51		17.23	
0.005072	6.94	80.01	35.94	0.73				
StonyBrook	22.1	50-yr	670.00	13.30	17.41	16.63	18.22	
0.003999	7.43	120.00	77.17	0.68				
StonyBrook	22.1	500-yr	1200.00	13.30	19.80		20.20	
0.001351	6.02	554.22	230.03	0.43				
StonyBrook	21	100-yr	800.00	11.50	17.84		18.12	
0.000996	4.95	425.31	204.36	0.36				
StonyBrook	21	100-yr(encr)	800.00	11.50	17.92		18.61	
0.002841	6.68	119.85	20.00	0.48				
StonyBrook	21	10-yr	465.00	11.50	15.86		16.26	
0.001991	5.34	137.09	82.31	0.47				
StonyBrook	21	50-yr	670.00	11.50	17.14		17.47	
0.001270	5.14	294.71	164.30	0.40				
StonyBrook	21	500-yr	1200.00	11.50	19.73		19.90	
0.000538	4.38	853.29	240.71	0.28				
StonyBrook	20	100-yr	800.00	7.50	16.78		17.58	
0.002946	7.22	125.47	43.60	0.52				
StonyBrook	20	100-yr(encr)	800.00	7.50	16.70		17.57	
0.003895	7.46	107.26	18.00	0.54				
StonyBrook	20	10-yr	465.00	7.50	14.76		15.40	
0.003876	6.42	72.78	19.02	0.56				
StonyBrook	20	50-yr	670.00	7.50	16.11		16.84	
0.003128	6.88	103.22	28.16	0.52				
StonyBrook	20	500-yr	1200.00	7.50	19.02	16.02	19.59	

0.001648	6.66	398.23	292.64		0.41				
StonyBrook	19.4	100-yr		800.00	7.50	16.50	14.66	17.42	
0.003606	7.73	103.51	31.73		0.57				
StonyBrook	19.4	100-yr(encr)		800.00	7.50	16.46	14.66	17.40	
0.004370	7.77	102.92	18.00		0.57				
StonyBrook	19.4	10-yr		465.00	7.50	14.49	13.31	15.22	
0.004816	6.89	67.51	18.24		0.62				
StonyBrook	19.4	50-yr		670.00	7.50	15.88	14.20	16.70	
0.003680	7.24	92.50	26.00		0.56				
StonyBrook	19.4	500-yr		1200.00	7.50	18.87	15.91	19.51	
0.001834	6.94	357.83	264.08		0.43				
StonyBrook	19.25			Bridge					
StonyBrook	19.1	100-yr		800.00	10.10	14.62	14.46	16.51	
0.007220	11.05	72.42	48.84		0.94				
StonyBrook	19.1	100-yr(encr)		800.00	10.10	15.81	14.46	16.97	
0.006004	8.64	92.64	17.00		0.65				
StonyBrook	19.1	10-yr		465.00	10.10	13.21	13.21	14.64	
0.009266	9.58	48.52	31.66		1.00				
StonyBrook	19.1	50-yr		670.00	10.10	14.00	14.00	15.82	
0.008541	10.82	61.91	40.81		1.00				
StonyBrook	19.1	500-yr		1200.00	10.10	15.73	15.73	18.41	
0.007520	13.15	91.24	63.24		1.00				
StonyBrook	18	100-yr		800.00	10.10	15.09		15.65	
0.002390	6.06	152.61	55.03		0.52				
StonyBrook	18	100-yr(encr)		800.00	10.10	15.84		16.52	
0.003105	6.62	120.76	22.29		0.50				
StonyBrook	18	10-yr		465.00	10.10	13.26		13.89	
0.005353	6.39	73.14	32.20		0.72				
StonyBrook	18	50-yr		670.00	10.10	14.25		14.89	
0.003689	6.46	110.57	44.00		0.63				
StonyBrook	18	500-yr		1200.00	10.10	15.48		16.50	
0.003941	8.25	174.66	60.02		0.68				
StonyBrook	17	100-yr		800.00	8.00	14.83		15.04	
0.000674	3.99	476.09	310.81		0.28				
StonyBrook	17	100-yr(encr)		800.00	8.00	15.60		15.81	
0.000689	3.88	280.49	55.74		0.25				
StonyBrook	17	10-yr		465.00	8.00	12.26		12.58	

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0.001665       4.55      110.98       38.57          0.41
  StonyBrook    17           50-yr          670.00        8.00       13.64                 13.94
0.001157       4.57      229.98      133.41          0.35
  StonyBrook    17           500-yr         1200.00        8.00       14.88                 15.33
0.001460       5.90      491.20      319.71          0.41


  StonyBrook    16           100-yr          800.00        6.00       14.90                 14.91
0.000024       0.84     1713.13      467.46          0.05
  StonyBrook    16           100-yr(encr)    800.00        6.00       15.46                 15.51
0.000136       2.08      525.72       87.40          0.12
  StonyBrook    16           10-yr           465.00        6.00       12.10                 12.12
0.000163       1.69      545.31      314.23          0.12
  StonyBrook    16           50-yr           670.00        6.00       13.71                 13.72
0.000050       1.09     1181.29      430.55          0.07
  StonyBrook    16           500-yr         1200.00        6.00       15.05                 15.06
0.000048       1.20     1781.74      472.63          0.07


  StonyBrook    15.4         100-yr          800.00        6.00       14.90        9.87     14.91
0.000024       0.84     1712.64      467.42          0.05
  StonyBrook    15.4         100-yr(encr)    800.00        6.00       15.46        9.87     15.50
0.000136       2.08      525.81       87.54          0.12
  StonyBrook    15.4         10-yr           465.00        6.00       11.83        8.73     12.05
0.000881       3.80      127.50      285.36          0.28
  StonyBrook    15.4         50-yr           670.00        6.00       13.71        9.46     13.72
0.000050       1.09     1180.35      430.53          0.07
  StonyBrook    15.4         500-yr         1200.00        6.00       15.05       10.98     15.06
0.000048       1.20     1780.73      472.57          0.07


  StonyBrook    15.25                       Bridge


  StonyBrook    15.1         100-yr          800.00        5.50       12.71       11.41     12.90
0.001187       4.40      306.23      152.81          0.29
  StonyBrook    15.1         100-yr(encr)    800.00        5.50       13.56       11.31     13.71
0.000889       3.82      273.28       63.93          0.24
  StonyBrook    15.1         10-yr           465.00        5.50       11.07        9.16     11.69
0.003644       6.45       76.61       86.00          0.49
  StonyBrook    15.1         50-yr           670.00        5.50       12.12       10.37     12.36
0.001586       4.80      225.45      119.25          0.33
  StonyBrook    15.1         500-yr         1200.00        5.50       14.86       11.99     14.92
0.000380       2.98      786.21      277.26          0.17


  StonyBrook    14           100-yr          800.00        5.50       12.66                 12.85
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0.001260	4.51	297.68	149.61		0.30			
StonyBrook	14		100-yr(encr)	800.00		5.50	13.49	13.67
0.001032	4.10	251.77	58.07		0.26			
StonyBrook	14		10-yr	465.00		5.50	11.06	11.48
0.002789	5.64	118.56	85.75		0.43			
StonyBrook	14		50-yr	670.00		5.50	12.03	12.29
0.001757	5.00	214.86	114.13		0.35			
StonyBrook	14		500-yr	1200.00		5.50	14.84	14.90
0.000385	3.00	782.35	276.90		0.18			
StonyBrook	13		100-yr	800.00		4.60	12.48	12.53
0.000351	2.52	645.72	229.52		0.17			
StonyBrook	13		100-yr(encr)	800.00		4.60	12.99	13.22
0.000954	4.30	265.98	60.00		0.29			
StonyBrook	13		10-yr	465.00		4.60	10.59	10.71
0.000927	3.39	277.33	181.60		0.28			
StonyBrook	13		50-yr	670.00		4.60	11.80	11.86
0.000464	2.72	505.81	195.25		0.20			
StonyBrook	13		500-yr	1200.00		4.60	14.77	14.79
0.000138	1.93	1336.66	345.05		0.11			
StonyBrook	12		100-yr	800.00		4.50	12.45	12.51
0.000506	2.87	598.72	233.39		0.18			
StonyBrook	12		100-yr(encr)	800.00		4.50	12.56	13.13
0.002301	6.17	147.02	33.00		0.39			
StonyBrook	12		10-yr	465.00		4.50	10.45	10.66
0.001357	4.12	200.68	142.88		0.30			
StonyBrook	12		50-yr	670.00		4.50	11.73	11.83
0.000755	3.34	435.28	222.14		0.22			
StonyBrook	12		500-yr	1200.00		4.50	14.76	14.79
0.000177	1.98	1224.20	338.66		0.11			
StonyBrook	11		100-yr	800.00		3.80	11.79	12.37
0.002251	6.10	139.78	69.84		0.45			
StonyBrook	11		100-yr(encr)	800.00		3.80	12.44	12.91
0.001725	5.50	145.41	23.00		0.39			
StonyBrook	11		10-yr	465.00		3.80	10.09	10.48
0.002019	5.01	92.73	20.95		0.42			
StonyBrook	11		50-yr	670.00		3.80	11.15	11.67
0.002294	5.78	115.89	22.61		0.45			
StonyBrook	11		500-yr	1200.00		3.80	14.49	14.73
0.000758	4.58	569.89	356.44		0.28			
StonyBrook	10.4		100-yr	800.00		3.80	11.69	9.10	12.30

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0.002330       6.27      127.76       57.41           0.46
  StonyBrook    10.4          100-yr(encr)    800.00         3.80       12.37        9.10       12.86
0.001675       5.61      142.56       23.00           0.39
  StonyBrook    10.4          10-yr           465.00         3.80       10.02        7.80       10.42
0.002103       5.09       91.36       20.84           0.43
  StonyBrook    10.4          50-yr           670.00         3.80       11.07        8.63       11.61
0.002334       5.87      114.06       22.49           0.45
  StonyBrook    10.4          500-yr         1200.00         3.80       13.88       10.36       14.57
0.001742       6.71      186.88      201.42           0.42


  StonyBrook    10.25                        Bridge


  StonyBrook    10.1          100-yr          800.00         5.00       10.80        8.96       11.55
0.003002       7.05      121.01       63.15           0.53
  StonyBrook    10.1          100-yr(encr)    800.00         5.00       11.58        8.92       12.20
0.002624       6.32      126.55       20.00           0.44
  StonyBrook    10.1          10-yr           465.00         5.00        9.56        7.81       10.00
0.002403       5.33       90.70       46.72           0.45
  StonyBrook    10.1          50-yr           670.00         5.00       10.36        8.55       10.99
0.002799       6.44      109.81       58.74           0.50
  StonyBrook    10.1          500-yr         1200.00         5.00       11.67       10.09       12.90
0.004072       9.04      144.42       71.86           0.63


  StonyBrook    9             100-yr          800.00         5.00       10.78                   11.37
0.002555       6.49      175.57       63.01           0.49
  StonyBrook    9             100-yr(encr)    800.00         5.00       11.45                   12.10
0.002777       6.45      124.03       20.00           0.46
  StonyBrook    9             10-yr           465.00         5.00        9.48                    9.91
0.002460       5.33      103.32       45.20           0.46
  StonyBrook    9             50-yr           670.00         5.00       10.31                   10.85
0.002575       6.14      146.80       58.24           0.48
  StonyBrook    9             500-yr         1200.00         5.00       11.77                   12.56
0.002925       7.74      242.36       72.87           0.53


  StonyBrook    8             100-yr          800.00         1.70        9.97                   10.48
0.002063       6.22      203.33       86.10           0.46
  StonyBrook    8             100-yr(encr)    800.00         1.70       10.07                   10.90
0.003490       7.29      109.81       19.00           0.53
  StonyBrook    8             10-yr           465.00         1.70        8.32                    8.86
0.003037       5.99       87.99       48.48           0.53
  StonyBrook    8             50-yr           670.00         1.70        9.40                    9.93
0.002360       6.19      156.73       75.66           0.48
  StonyBrook    8             500-yr         1200.00         1.70       10.90                   11.52
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0.002262	7.20	290.83	102.87	0.49				
StonyBrook	7	100-yr	800.00	1.50	10.28		10.32	
0.000118	1.90	779.06	245.78	0.12				
StonyBrook	7	100-yr(encr)	800.00	1.50	10.33		10.62	
0.000948	4.30	185.88	23.00	0.27				
StonyBrook	7	10-yr	465.00	1.50	8.65		8.69	
0.000114	1.60	411.04	205.09	0.11				
StonyBrook	7	50-yr	670.00	1.50	9.72		9.76	
0.000117	1.80	645.56	233.27	0.12				
StonyBrook	7	500-yr	1200.00	1.50	11.26		11.33	
0.000151	2.32	1031.20	264.15	0.14				
StonyBrook	6.4	100-yr	800.00	1.50	10.27	4.69	10.32	
0.000118	1.90	777.86	245.69	0.12				
StonyBrook	6.4	100-yr(encr)	800.00	1.50	10.44	4.69	10.49	
0.000114	1.89	701.54	171.47	0.12				
StonyBrook	6.4	10-yr	465.00	1.50	8.64	3.90	8.68	
0.000114	1.61	410.07	204.96	0.11				
StonyBrook	6.4	50-yr	670.00	1.50	9.71	4.39	9.76	
0.000117	1.80	644.44	233.14	0.12				
StonyBrook	6.4	500-yr	1200.00	1.50	11.26	5.48	11.32	
0.000151	2.32	1029.56	264.04	0.14				
StonyBrook	6.25		Bridge					
StonyBrook	6.1	100-yr	800.00	1.00	9.03	7.41	9.93	
0.006025	7.68	117.10	74.44	0.61				
StonyBrook	6.1	100-yr(encr)	800.00	1.00	9.16	7.42	10.05	
0.005900	7.59	105.34	21.00	0.60				
StonyBrook	6.1	10-yr	465.00	1.00	7.99	5.96	8.49	
0.003936	5.69	81.71	19.10	0.48				
StonyBrook	6.1	50-yr	670.00	1.00	8.67	6.89	9.44	
0.005386	7.03	96.86	38.58	0.57				
StonyBrook	6.1	500-yr	1200.00	1.00	10.01	9.65	10.99	
0.005748	8.48	214.37	124.37	0.62				
StonyBrook	5	100-yr	800.00	0.00	9.19		9.57	
0.002187	5.33	238.10	139.42	0.38				
StonyBrook	5	100-yr(encr)	800.00	0.00	9.16		9.78	
0.003508	6.33	126.39	21.00	0.45				
StonyBrook	5	10-yr	465.00	0.00	8.00		8.31	

0.002085	4.50	114.98	72.96	0.36					
StonyBrook	5	50-yr	670.00	0.00	8.78				9.14
0.002200	5.10	186.81	112.28	0.38					
StonyBrook	5	500-yr	1200.00	0.00	10.21				10.59
0.002048	5.73	423.12	210.23	0.38					
StonyBrook	4	100-yr	800.00	2.60	9.04				9.28
0.001161	4.21	350.32	192.55	0.32					
StonyBrook	4	100-yr(encr)	800.00	2.60	8.88				9.29
0.002213	5.17	154.83	29.00	0.39					
StonyBrook	4	10-yr	465.00	2.60	7.87				8.04
0.001057	3.42	172.53	68.17	0.29					
StonyBrook	4	50-yr	670.00	2.60	8.63				8.85
0.001162	4.00	275.30	168.68	0.31					
StonyBrook	4	500-yr	1200.00	2.60	10.07				10.31
0.001101	4.60	555.20	205.82	0.32					
StonyBrook	3	100-yr	800.00	3.40	7.82	7.82			9.04
0.011222	9.74	134.11	67.37	0.84					
StonyBrook	3	100-yr(encr)	800.00	3.40	7.86	7.86			9.01
0.010609	9.52	134.85	60.00	0.81					
StonyBrook	3	10-yr	465.00	3.40	6.77	6.77			7.82
0.012547	8.51	74.37	48.58	0.84					
StonyBrook	3	50-yr	670.00	3.40	7.42	7.42			8.62
0.012072	9.44	108.69	58.40	0.85					
StonyBrook	3	500-yr	1200.00	3.40	9.04	9.04			10.12
0.008016	9.75	252.26	124.18	0.74					
StonyBrook	2	100-yr	800.00	1.70	5.67	5.67			6.69
0.015870	8.11	98.69	49.88	1.02					
StonyBrook	2	100-yr(encr)	800.00	1.70	5.67	5.67			6.69
0.015868	8.11	98.69	49.88	1.02					
StonyBrook	2	10-yr	465.00	1.70	5.02	5.02			5.75
0.016735	6.86	67.76	46.46	1.00					
StonyBrook	2	50-yr	670.00	1.70	5.43	5.43			6.35
0.016100	7.68	87.28	48.65	1.01					
StonyBrook	2	500-yr	1200.00	1.70	6.43	6.43			7.52
0.014314	8.41	146.70	83.23	0.99					
StonyBrook	1	100-yr	800.00	0.00	5.36	3.16			5.54
0.000824	3.41	241.64	74.24	0.31					
StonyBrook	1	100-yr(encr)	800.00	0.00	5.36	3.16			5.54
0.000879	3.43	233.32	62.00	0.31					
StonyBrook	1	10-yr	465.00	0.00	3.80	2.45			3.98

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0.001581        3.40        136.83        59.73             0.40
  StonyBrook     1              50-yr           670.00          0.00          5.15          2.90          5.29
0.000701        3.03        226.25        72.35             0.28
  StonyBrook     1              500-yr          1200.00         0.00          6.00          3.83          6.29
0.001088        4.36        291.00        80.00             0.37
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River Station Differences between FIS and Existing Conditions

APPENDIX F-1 – River Station Differences between FIS and Existing Conditions

River station distance was reported in the FIS in miles, indicating the location of each cross-section as a distance from the Goodwives River confluence, it was converted to feet for comparison. Effective model river stations are different than existing conditions, as noted below in Table F-1. Differences are mainly due to a redelineation of river centerline, based on new high resolution aerial photographs. Channel sinuosity was captured in detail and overall lengthened the river length by 755 feet a Hanson Road.

In some locations, the new surveyed cross section was not exactly co-located with the original section. Actual location differences between FEMA cross section locations and new survey locations were estimated from FIRM mapping. These cases are denoted by the Actual Location Shift in Table F-1. Generally, these differences are small and would not significantly impact the modeling results. Table F-1 presents these differences for each cross section presented in the FIS.

TABLE F-1
Comparison of Water Surface Elevations
2010 FIS Effective and Existing Conditions Model

FEMA Cross Section	River Station (feet)			
	2010 FIS Effective	Existing Conditions	Stationing Difference	Actual Location Shift
A	0	0	0	-30
B	541	632	41	15
C	686	710	24	-20
D	739	849	110	42
E	1,109	1,156	47	-20
F	1,225	1,290	65	-1
G	1,336	1,408	72	10
H	1,378	1,432	54	0
I	1,848	1,887	39	-10
J	1,954	2,060	106	22
K	2,952	3,008	56	0
L	3,390	3,482	92	19
M	3,516	3,588	72	-14
N	3,854	3,952	98	0
O	4,124	4,229	105	0
P	4,578	4,688	110	-7
Q	4,842	5,048	206	28
R	4,990	5,199	209	28
S	5,137	5,299	162	-33

FEMA Cross Section	River Station (feet)			
	2010 FIS Effective	Existing Conditions	Stationing Difference	Actual Location Shift
T	5,370	5,586	216	15
U	5,570	5,733	163	-39
V	5,972	6,177	205	-6
W	6,104	6,349	245	35
X	6,706	7,015	309	27
Y	7,440	7,650	210	2
Z	7,809	8,122	313	20
AA	8,047	8,292	245	0
AB	8,300	8,613	313	27
AC	8,358	8,613	255	-29
AD	8,469	8,754	285	1
AE	9,224	9,605	381	14
AF	9,361	9,719	358	-11
AG	9,810	10,145	335	-32
AH	10,217	10,603	386	27
AI	10,417	10,727	310	-3
AJ	11,009	11,454	445	46
AK	11,141	11,548	407	8
AL	12,302	12,955	653	10
AM	13,380	14,135	755	17