```
  River            Reach                Upstream Boundary    Downstream Boundary

  Natural Drainage East                                        River
  Natural Drainage West                                        River
  Natural Drainage North
  Natural Drainage South                River

JUNCTION INFORMATION

Name: River
Description:
Energy computation Method

    Length across Junction             Tributary
     River           Reach                River           Reach        Length   Angle
Natural DrainageWest             to Natural DrainageSouth              147.1
Natural DrainageEast             to Natural DrainageSouth               58.5

CROSS SECTION


RIVER: Natural Drainage
REACH: East               RS: 14

INPUT
Description: xs-14
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 124.603   3.284 120.092  14.232  116.34   30.84  115.49  40.636  114.75
  52.564  114.06  64.041  114.61  77.738  115.94  82.015  116.29  99.006 136.146
 113.679 134.545  125.48 135.537 138.016 138.809 144.155 139.089

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03  99.006     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0  99.006             106.6    88.9    64.5             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: East               RS: 13

INPUT
Description: xs-13
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 127.806  11.073 127.616  15.986   125.5  19.674 122.491  26.348  115.93
  32.779   115.6  36.735  114.99   46.39   114.5  55.568  114.09  62.087  114.09
  76.449  114.21  92.567  114.75 102.593  116.32 105.951  116.44 118.442  131.72
 128.964 131.955 134.676 133.692

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  11.073     .03 118.442     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        11.073 118.442              52.1      59    74.1             .2       .4

CROSS SECTION


RIVER: Natural Drainage
REACH: East               RS: 12

INPUT
Description: xs-12
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  142.79  17.058  141.89  51.145  116.72  55.471  116.49  68.639   115.7
  86.442  114.78 105.279  114.27 120.297  116.36 133.271  116.39 136.323  117.16
 141.191  118.26 147.886  124.46 159.152 124.453 165.052 126.589 175.122 127.566

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  17.058     .03 147.886     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        17.058 147.886              65.9   135.4   171.5             .2       .4

CROSS SECTION


RIVER: Natural Drainage
REACH: East               RS: 11

INPUT
Description: xs-11
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 139.585  11.117  133.04  22.277  126.54  32.813  120.42  36.279  120.32
  46.697 126.311  53.548 129.115  66.615 132.952  73.291 135.427  87.403 137.786
```

```
Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  22.277     .03  46.697     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        22.277  46.697               31    69.7    94.9             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: East                 RS: 10

INPUT
Description: xs-10
Station Elevation Data      num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 135.334   8.552 135.444  16.286 135.197  28.588 134.873  35.429  130.88
  38.853 128.012  47.261 123.213  51.232  121.39  54.238  121.49  61.824  125.37
  70.657  130.03  76.507  133.12  81.743 135.738

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  47.261     .03  61.824     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        47.261  61.824              39.1    64.3    77.1             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: East                 RS: 9

INPUT
Description: xs-9
Station Elevation Data      num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 125.204    8.83  124.02  24.132 122.958  35.856 120.836  43.317 119.528
  45.319  116.74   49.08  117.02  57.501  120.81  69.459  125.64  79.782  128.99
  90.292  132.59

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  43.317     .03  57.501     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        43.317  57.501              23.2    58.5    88.9             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: West                 RS: 8

INPUT
Description: xs-8
Station Elevation Data      num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  127.83   5.026  127.04   9.216 126.405  13.138   125.2  15.873 124.089
  27.974 123.218  36.228 123.691  46.049 125.582  49.374 126.623  53.195 126.381
  56.757 126.931

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  13.138     .03  46.049     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        13.138  46.049              78.3    74.6      61             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: West                 RS: 7

INPUT
Description: xs-7
Station Elevation Data      num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  131.64  11.337  128.26  16.067  127.96  37.535  117.43   39.42 117.517
   41.48  117.39  43.883 118.833  50.129 121.818  54.259 123.688  58.495 125.513
  63.187 128.114  66.002 130.087

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  16.067     .03  50.129     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        16.067  50.129             174.7   129.4    87.3             .2       .4

CROSS SECTION
```

```
RIVER: Natural Drainage
REACH: West                RS: 6

INPUT
Description: xs-6
Station Elevation Data     num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  132.12   6.343 130.144  12.465 128.232  17.515 125.596  23.803  122.91
  28.554 121.053  31.846 117.863  34.247 116.123   39.89 116.312  65.003 128.242
  87.037  136.86  93.574  136.83 106.941  140.75 119.025  144.17

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  28.554     .03  65.003     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        28.554  65.003             47.7    40.4    28.6             .2       .4

CROSS SECTION


RIVER: Natural Drainage
REACH: West                RS: 5

INPUT
Description: xs-5
Station Elevation Data     num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 130.985  12.221  129.57  17.438 128.755  29.536 122.198  34.116 120.413
  36.811  117.43   41.01   117.7  58.324  126.26  77.795 136.666  80.357  138.04
  86.796   138.1   98.46  143.01

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  29.536     .03  58.324     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        29.536  58.324              121   100.5    97.7             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: West                RS: 4

INPUT
Description: xs-4
Station Elevation Data     num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  130.12   8.995  126.05  21.274  120.45  31.938  115.65  37.191  113.29
  39.969  113.17  44.261 115.156  52.004 115.801  57.112  118.08  61.654 119.807
  68.203 121.569  76.826 123.754   83.16 126.268

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  31.938     .03  44.261     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        31.938  44.261             80.3   129.2   152.3             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: West                RS: 3

INPUT
Description: xs-3
Station Elevation Data     num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  125.55  24.309  118.95  34.758  114.17  41.515  110.98   47.33  108.28
  51.018  108.44  58.602 110.428  64.733 116.151  68.941 118.375  75.445 121.493
  84.626 125.668  89.466 128.263  93.726 130.831

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  24.309     .03  68.941     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        24.309  68.941            182.2   147.1     140             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: North               RS: 19

INPUT
Description: xs-19
Station Elevation Data     num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  89.824   3.801  89.277   8.285  88.762   13.65  88.278  16.294  88.105
  20.492  84.177  27.394  87.917  32.684  88.508  37.511  88.615  43.239  88.408
  45.479  87.981  50.005  92.349  53.923   92.35
```

```
Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  16.294     .03  27.394     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        16.294  27.394             48.1    52.7    56.4             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: North               RS: 18

INPUT
Description: xs-18
Station Elevation Data     num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  79.655   3.915  79.801   7.426   79.65   9.375  77.433  10.897  77.379
  13.781  80.302  21.023  80.793  29.076  81.292  35.507  82.392  43.372    82.5
  44.902  82.142  47.913  82.352  50.369  83.267    54.3  83.784   56.81  85.637

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   7.426     .03  13.781     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         7.426  13.781             60.1    55.4      56             .1       .3

CROSS SECTION


RIVER: Natural Drainage
REACH: North               RS: 17

INPUT
Description: xs-17
Station Elevation Data     num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  77.473   3.738  77.352  13.846  75.237  27.261  75.161  30.441  74.564
  35.241  75.392  47.656  75.404  61.435  76.545  71.795  76.772   74.53  76.354
  77.194  78.945  84.126  80.247  89.497   80.54

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   3.738     .03  61.435     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         3.738  61.435             77.1    84.6    93.4             .2       .4

CROSS SECTION


RIVER: Natural Drainage
REACH: North               RS: 16

INPUT
Description: xs-16
Station Elevation Data     num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  69.889  12.575  70.143  26.709    68.6  29.179   68.72  53.801  69.967
  71.159  70.863  94.768  70.983  98.227  70.379 104.006  72.449 109.755  73.265
 119.599   73.19

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  12.575     .03  53.801     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        12.575  53.801            142.8    99.3    55.8             .2       .4

CROSS SECTION


RIVER: Natural Drainage
REACH: North               RS: 15

INPUT
Description: xs-15
Station Elevation Data     num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   82.02   3.895   82.26  28.937   70.84  37.727   70.23  45.668   69.96
  57.015   69.75  71.323   69.49  86.808   65.96   91.71  66.094  95.498  65.971
 101.412   65.27 105.769  63.874 108.096  62.903 111.185  62.569 112.891  64.013
 119.709   66.74

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04 101.412     .03 119.709     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       101.412 119.709                0       0       0             .1       .3

CROSS SECTION
```

RIVER: Natural Drainage
REACH: South RS: 2

INPUT
Description: xs-2
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	99.456	12.181	96.635	17.897	94.226	23.962	92.571	27.247	92.06
30.627	92.03	36.808	92.963	41.613	94.645	44.827	96.011	49.644	97.802
55.151	100.012	59.968	102.05	62.674	103.227				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	12.181	.03	44.827	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
12.181	44.827	54.4	51.7	46.1	.2	.4

CROSS SECTION

RIVER: Natural Drainage
REACH: South RS: 1

INPUT
Description: xs-1
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	102.161	3.784	100.488	9.662	98.653	15.977	96.037	20.721	94.146
24.571	92.825	28.372	91.449	31.723	91.05	35.187	90.91	39.699	90.993
43.688	92.45	47.285	93.865	50.895	95.649	53.744	96.959	58.332	100.37
63.003	101.418								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	15.977	.03	50.895	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
15.977	50.895	0	0	0	.1	.3

SUMMARY OF MANNING'S N VALUES

River:Natural Drainage

Reach	River Sta.	n1	n2	n3
East	14	.04	.03	.04
East	13	.04	.03	.04
East	12	.04	.03	.04
East	11	.04	.03	.04
East	10	.04	.03	.04
East	9	.04	.03	.04
West	8	.04	.03	.04
West	7	.04	.03	.04
West	6	.04	.03	.04
West	5	.04	.03	.04
West	4	.04	.03	.04
West	3	.04	.03	.04
North	19	.04	.03	.04
North	18	.04	.03	.04
North	17	.04	.03	.04
North	16	.04	.03	.04
North	15	.04	.03	.04
South	2	.04	.03	.04
South	1	.04	.03	.04

SUMMARY OF REACH LENGTHS

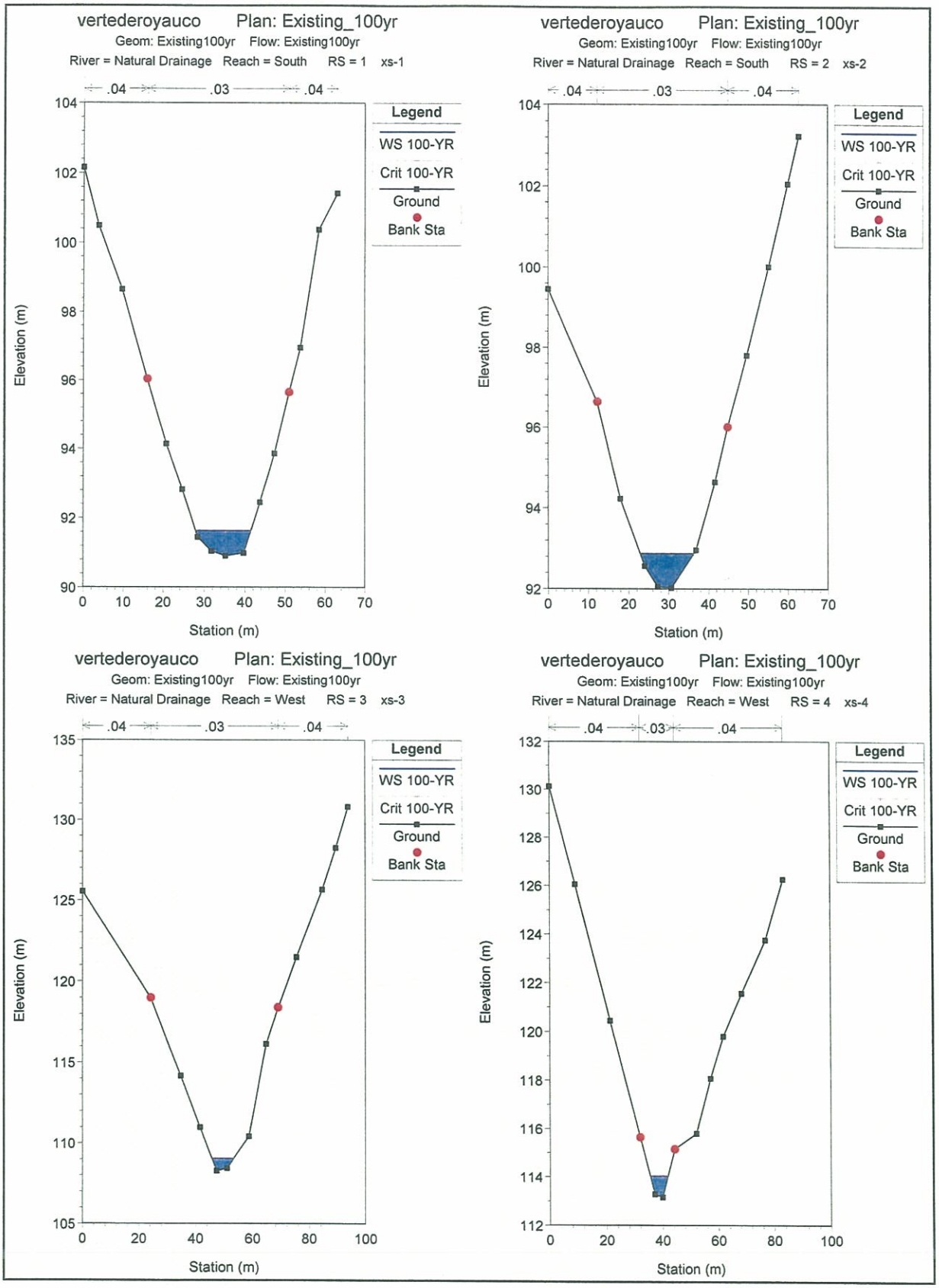
River: Natural Drainage

Reach	River Sta.	Left	Channel	Right
East	14	106.6	88.9	64.5
East	13	52.1	59	74.1
East	12	65.9	135.4	171.5
East	11	31	69.7	94.9
East	10	39.1	64.3	77.1
East	9	23.2	58.5	88.9
West	8	78.3	74.6	61
West	7	174.7	129.4	87.3
West	6	47.7	40.4	28.6
West	5	121	100.5	97.7
West	4	80.3	129.2	152.3
West	3	182.2	147.1	140
North	19	48.1	52.7	56.4
North	18	60.1	55.4	56
North	17	77.1	84.6	93.4
North	16	142.8	99.3	55.8
North	15	0	0	0
South	2	54.4	51.7	46.1

South	1	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Natural Drainage

Reach	River Sta.	Contr.	Expan.
East	14	.1	.3
East	13	.2	.4
East	12	.2	.4
East	11	.1	.3
East	10	.1	.3
East	9	.1	.3
West	8	.1	.3
West	7	.2	.4
West	6	.2	.4
West	5	.1	.3
West	4	.1	.3
West	3	.1	.3
North	19	.1	.3
North	18	.1	.3
North	17	.2	.4
North	16	.2	.4
North	15	.1	.3
South	2	.2	.4
South	1	.1	.3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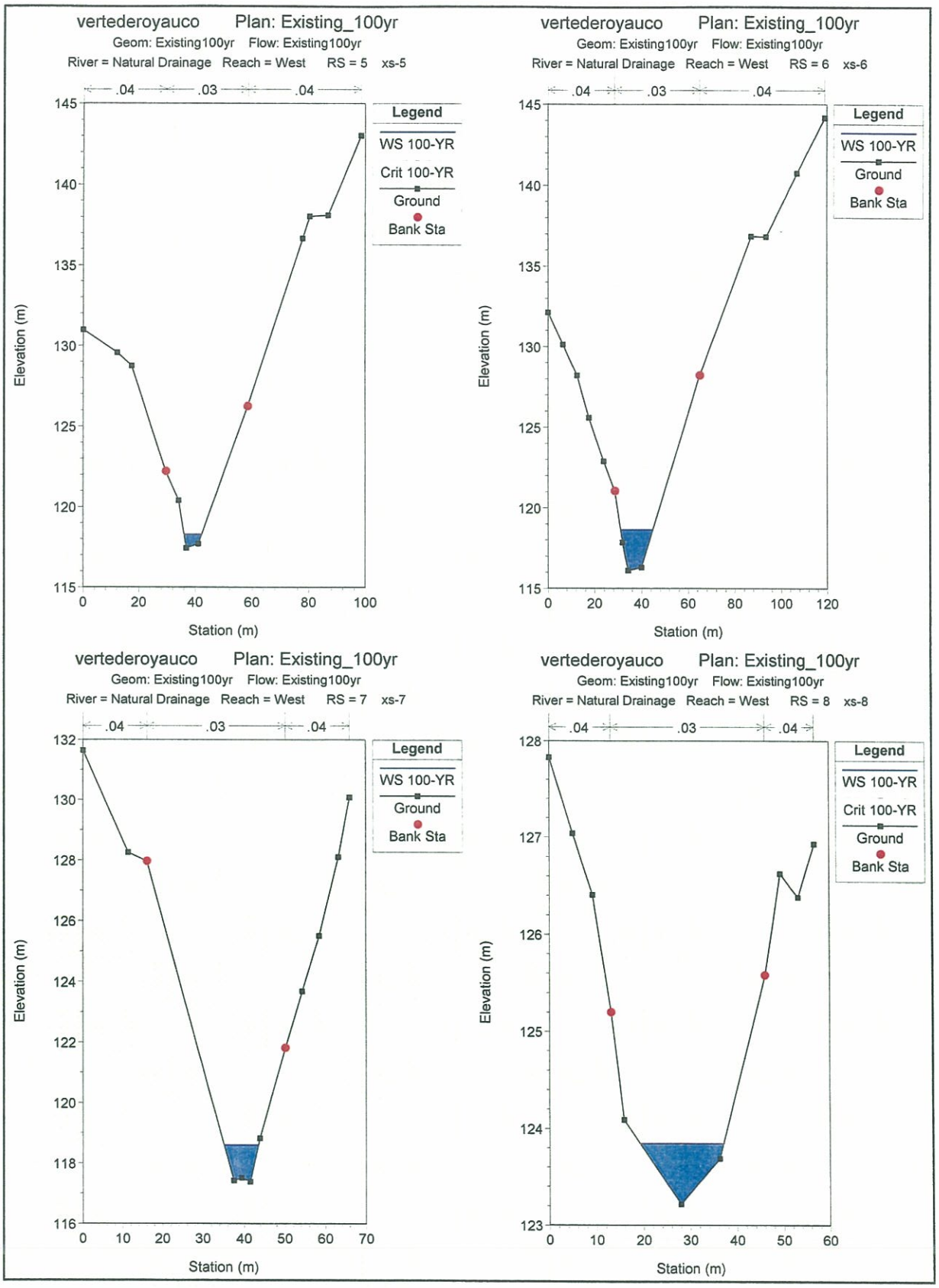
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = South RS = 1 xs-1
.04 .03 .04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = South RS = 2 xs-2
.04 .03 .04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = West RS = 3 xs-3
.04 .03 .04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = West RS = 4 xs-4
.04 .03 .04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)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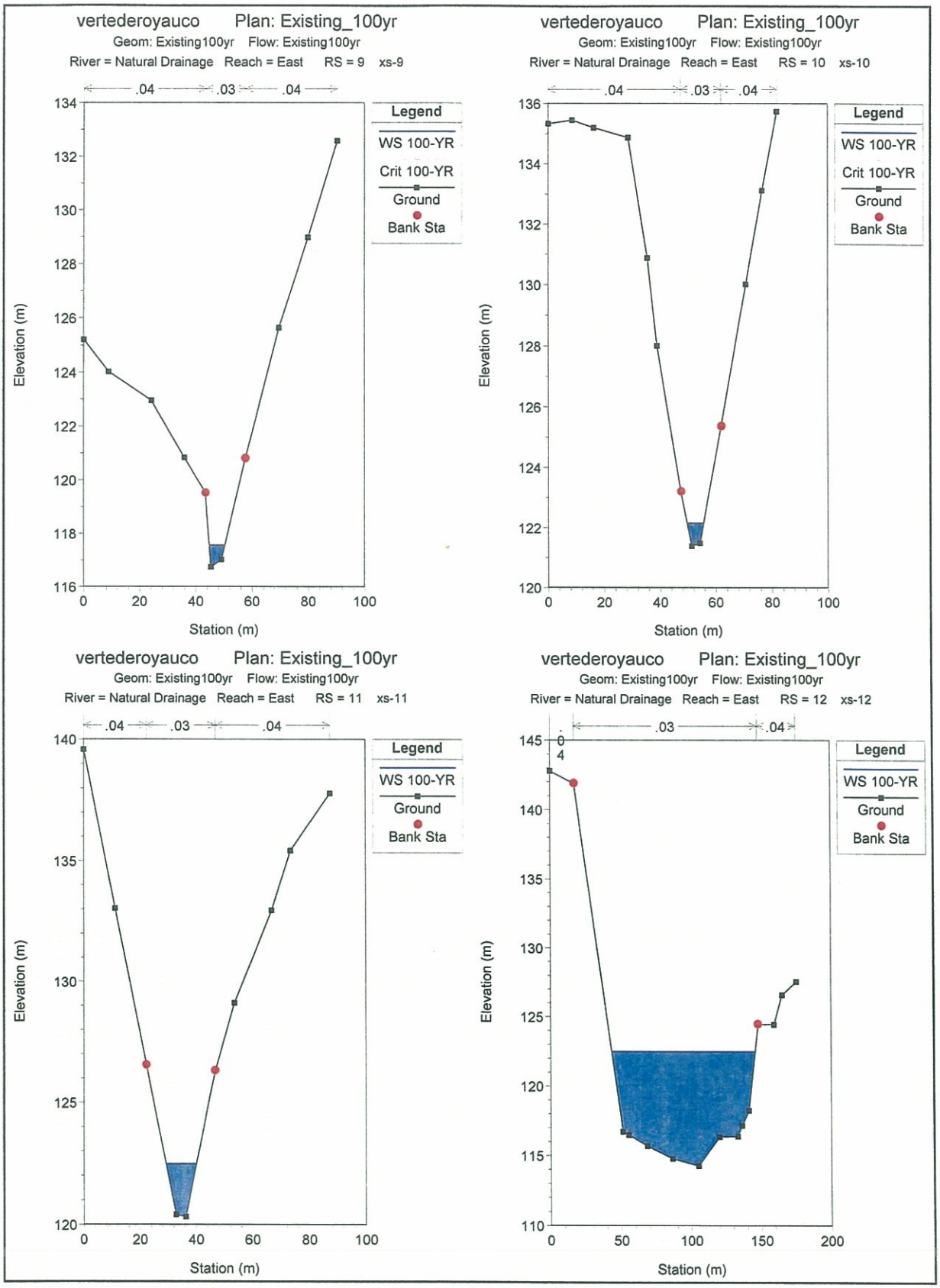
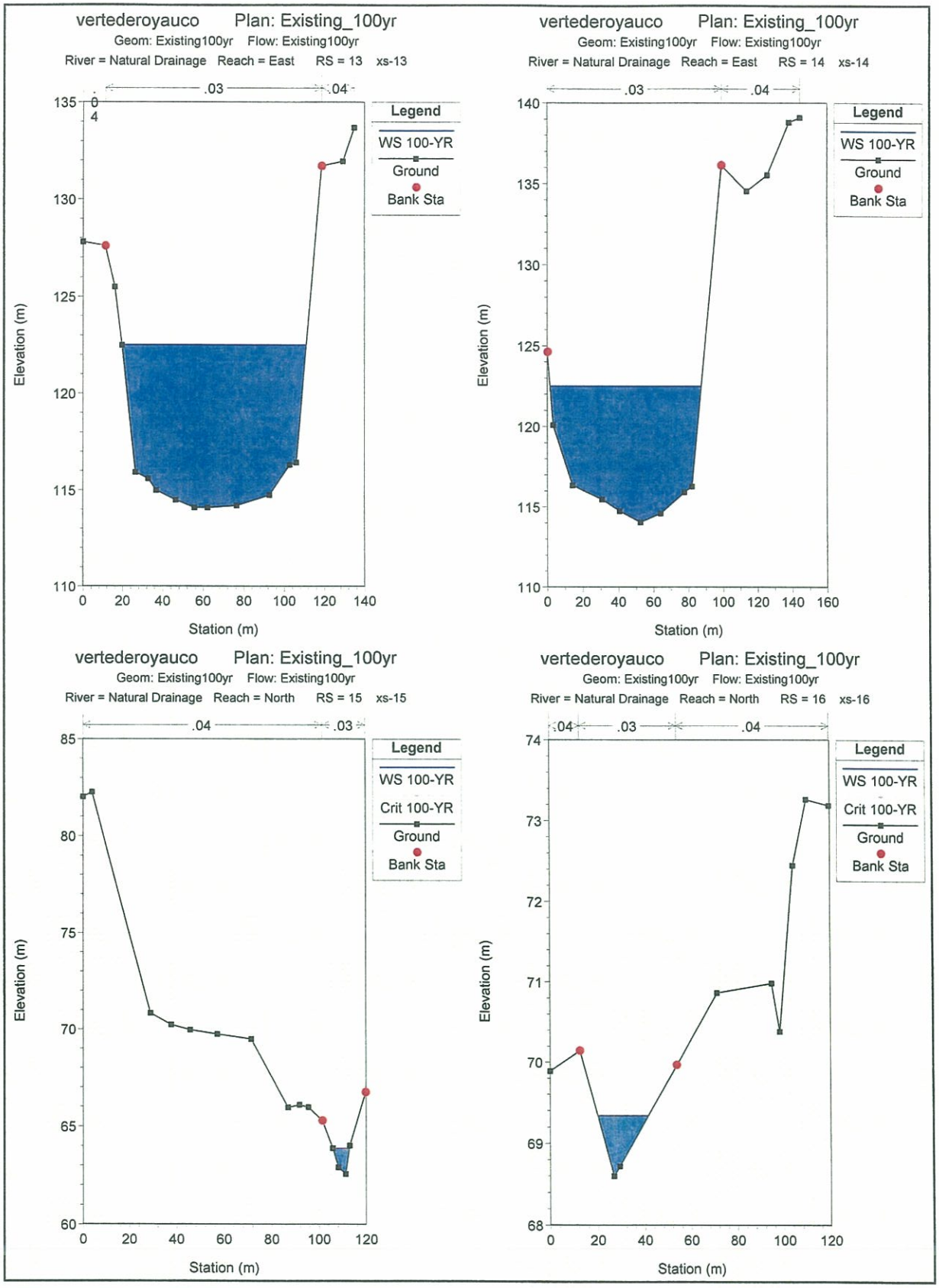
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = West RS = 5 xs-5
.04 .03 .04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = West RS = 6 xs-6
.04 .03 .04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = West RS = 7 xs-7
.04 .03 .04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = West RS = 8 xs-8
.04 .03 .04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)


vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = East RS = 9 xs-9
.04 .03 .04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = East RS = 10 xs-10
.04 .03 .04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = East RS = 11 xs-11
.04 .03 .04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = East RS = 12 xs-12
.03 .04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)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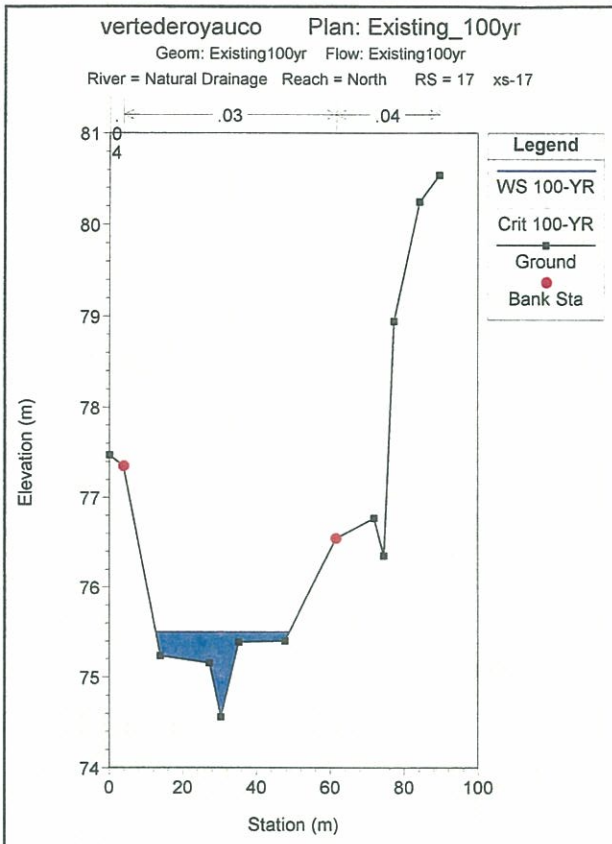
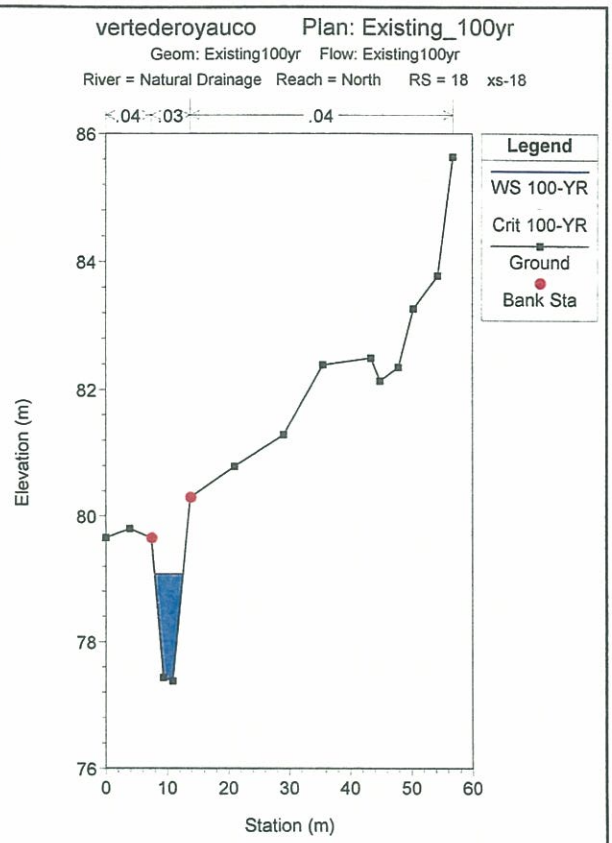
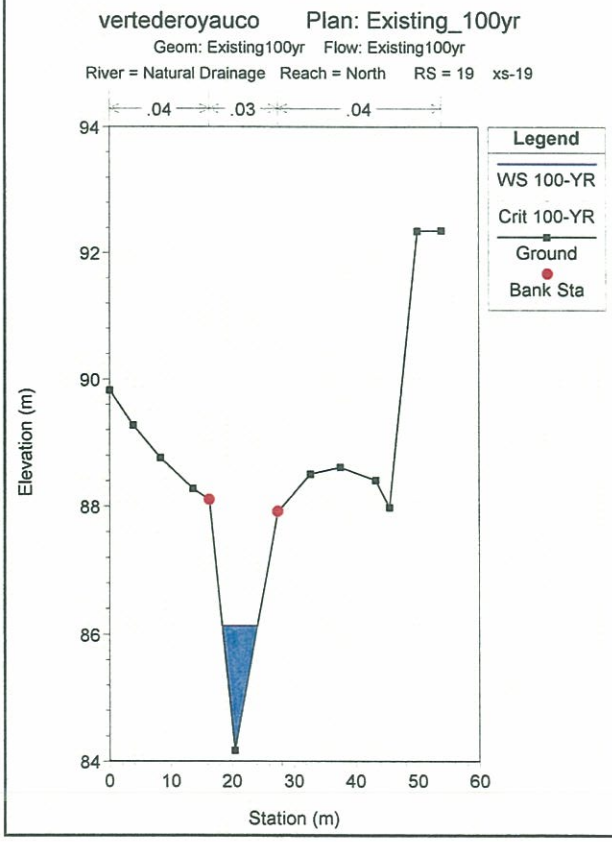
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = East RS = 13 xs-13
.03
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = East RS = 14 xs-14
.03
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = North RS = 15 xs-15
.04
.03
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)
vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = North RS = 16 xs-16
.04
.03
.04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)


vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = North RS = 17 xs-17
.03
.04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)


vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = North RS = 18 xs-18
.04
.03
.04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)


vertederoyauco Plan: Existing_100yr
Geom: Existing100yr Flow: Existing100yr
River = Natural Drainage Reach = North RS = 19 xs-19
.04
.03
.04
Legend
WS 100-YR
Crit 100-YR
Ground
Bank Sta
Elevation (m)
Station (m)

HEC-RAS Plan: Existing100yr Profile: 100-YR

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
North	15	100-YR	15.47	62.57	63.85	63.85	64.26	0.010829	2.80805	5.51	6.88	1.00
North	16	100-YR	15.47	68.60	69.34	69.34	69.53	0.012699	1.93764	7.98	21.49	1.01
North	17	100-YR	17.16	74.56	75.50	75.50	75.65	0.014158	1.69149	10.14	36.27	1.02
North	18	100-YR	17.16	77.38	79.08	79.08	79.64	0.012442	3.32532	5.16	4.65	1.01
North	19	100-YR	17.16	84.18	86.12	86.12	86.62	0.011760	3.10584	5.53	5.67	1.00
South	1	100-YR	16.55	90.91	91.63	91.63	91.90	0.011258	2.29827	7.20	13.58	1.01
South	2	100-YR	16.55	92.03	92.87	92.87	93.15	0.011247	2.31438	7.15	13.36	1.01
West	3	100-YR	8.87	108.28	109.05	109.05	109.31	0.011737	2.25672	3.93	7.70	1.01
West	4	100-YR	8.87	113.17	114.04	114.04	114.33	0.011471	2.40367	3.69	6.33	1.00
West	5	100-YR	8.87	117.43	118.28	118.28	118.58	0.011848	2.43149	3.65	6.13	1.01
West	6	100-YR	8.87	116.12	118.64		118.65	0.000070	0.37538	23.63	13.74	0.09
West	7	100-YR	11.09	117.39	118.60		118.73	0.002978	1.55910	7.11	8.35	0.54
West	8	100-YR	11.09	123.22	123.84	123.84	124.02	0.013097	1.84786	6.00	17.75	1.01
East	9	100-YR	7.49	116.74	117.57	117.57	117.85	0.012283	2.37521	3.15	5.57	1.01
East	10	100-YR	7.49	121.39	122.16	122.16	122.43	0.011843	2.32058	3.23	5.98	1.01
East	11	100-YR	7.49	120.32	122.48		122.49	0.000164	0.49830	15.03	10.77	0.13
East	12	100-YR	7.49	114.27	122.50		122.50	0.000000	0.01153	649.39	102.44	0.00
East	13	100-YR	20.95	114.09	122.50		122.50	0.000000	0.03208	652.99	91.23	0.00
East	14	100-YR	20.95	114.06	122.50		122.50	0.000000	0.03719	563.36	85.79	0.00

GEOMETRY: PROPOSED 2-YR

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
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
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PROJECT DATA
Project Title: vertederoyauco
Project File : vertederoyauco.prj
Run Date and Time: 10/23/2008 3:04:53 PM

Project in SI units

PLAN DATA

Plan Title: Proposed_2yr
Plan File : C:\PROJ\Yauco\RAS3\vertederoyauco.p04

Geometry Title: Proposed2yr
Geometry File : C:\PROJ\Yauco\RAS3\vertederoyauco.g04

Flow Title : Proposed2yr
Flow File : C:\PROJ\Yauco\RAS3\vertederoyauco.f04

Plan Summary Information:

Number of:	Cross Sections =	19	Multiple Openings =	0
	Culverts =	0	Inline Structures =	0
	Bridges =	0	Lateral Structures =	0

Computational Information
Water surface calculation tolerance = 0.003
Critical depth calculation tolerance = 0.003
Maximum number of iterations = 20
Maximum difference tolerance = 0.1
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

FLOW DATA

Flow Title: Proposed2yr
Flow File : C:\PROJ\Yauco\RAS3\vertederoyauco.f04

Flow Data (m3/s)

River	Reach	RS	2-YR
Natural	DrainageEast	14	10.01
Natural	DrainageEast	12	.02
Natural	DrainageWest	8	5.47
Natural	DrainageWest	6	2.44
Natural	DrainageNorth	19	7.77
Natural	DrainageNorth	16	.14
Natural	DrainageSouth	2	2.42
Natural	DrainageSouth	1	2.42

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Natural	DrainageSouth	2-YR		Critical
Natural	DrainageNorth	2-YR		Critical

GEOMETRY DATA

Geometry Title: Proposed2yr
Geometry File : C:\PROJ\Yauco\RAS3\vertederoyauco.g04

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
Natural Drainage	East		River
Natural Drainage	West		River
Natural Drainage	South	River	
Natural Drainage	North		

JUNCTION INFORMATION

Name: River
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
Natural Drainage	West	to Natural Drainage	South	147.1	
Natural Drainage	East	to Natural Drainage	South	58.5	

CROSS SECTION

RIVER: Natural Drainage
REACH: East RS: 14

INPUT
Description: xs-14
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	124.603	3.284	120.092	14.232	116.34	30.84	115.49	40.636	114.75
52.564	114.06	64.041	114.61	77.738	115.94	82.015	116.29	99.006	136.146
113.679	134.545	125.48	135.537	138.016	138.809	144.155	139.089		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	0	.03	99.006	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
0	99.006	106.6	88.9	64.5	.1	.3

CROSS SECTION

RIVER: Natural Drainage
REACH: East RS: 13

INPUT
Description: xs-13
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	127.806	11.073	127.616	15.986	125.5	19.674	122.491	26.348	115.93
32.779	115.6	36.735	114.99	46.39	114.5	55.568	114.09	62.087	114.09
76.449	114.21	92.567	114.75	102.593	116.32	105.951	116.44	118.442	131.72
128.964	131.955	134.676	133.692						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	11.073	.03	118.442	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
11.073	118.442	52.1	59	74.1	.2	.4

CROSS SECTION

RIVER: Natural Drainage
REACH: East RS: 12

INPUT
Description: xs-12
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	142.79	17.058	141.89	51.145	116.72	55.471	116.49	68.639	115.7
86.442	114.78	105.279	114.27	120.297	116.36	133.271	116.39	136.323	117.16
141.191	118.26	147.886	124.46	159.152	124.453	165.052	126.589	175.122	127.566

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	17.058	.03	147.886	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
17.058	147.886	65.9	135.4	171.5	.2	.4

CROSS SECTION

RIVER: Natural Drainage
REACH: East RS: 11

INPUT
Description: xs-11
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	139.585	11.117	133.04	22.277	126.54	32.813	120.42	36.279	120.32
46.697	126.311	53.548	129.115	66.615	132.952	73.291	135.427	87.403	137.786